ROYAL COMMISSION
ON
FORESTRY.

FINAL REPORT.

Presented to both Houses of Parliament by His Excellency's Command.

PERTH:
BY AUTHORITY: WM. ALFRED WATSON, GOVERNMENT PRINTER.
1904.

No. 11.
Approximate Cost of Paper
Printing (100 copies), £15 9s.
FIRST COMMISSION

By His Excellency Admiral Sir Frederick George Denham Bedford, Knight Grand Cross of the Most Honourable Order of the Bath, Governor in and over the State of Western Australia and its Dependencies, etc., etc., etc.


Whereas it is desirable that a Commission be appointed to inquire into and report upon—

1. The world's supplies of timber which come into competition with those of this State, and more particularly the hardwood timbers of the Eastern States of the Commonwealth;

2. The supplies available in this State of each variety;

3. The area of jarrah and karri forests respectively cut out;

4. The rate at which the forests are being depleted;

5. Whether the frequent reports of enormous waste are correct; if so, what steps are necessary to prevent same;

6. Whether any, if so what, steps should be taken, and in what locality, to plant softwoods in Western Australia.

Now therefore I, Admiral Sir Frederick George Denham Bedford, G.C.B., Governor as aforesaid, do hereby appoint you, the said Charles Harper, Esquire, M.L.A.; Robert Hastie, Esquire, M.L.A.; William Atkins, Esquire, M.L.A.; William Vincent Fitzgerald, Esquire; and Newton Moore, Esquire, to be Royal Commissioners for the purposes aforesaid: And I do hereby desire and request that you do, as soon as the same can conveniently be done, using all diligence, report to me, in writing, your proceedings in virtue of this Commission.

And I do appoint you, the said Charles Harper, to be Chairman of the said Commission.

Given at Perth this 22nd day of April, 1903.

By His Excellency's Command,

WALTER KINGSMILL,
Acting Premier.
SECOND COMMISSION

By His Excellency Admiral Sir Frederick George Denham Bedford, Knight Grand Cross of the Most Honourable Order of the Bath, Governor in and over the State of Western Australia and its Dependencies, etc., etc.


Whereas, by a Commission dated the 22nd day of April, 1903, I, Admiral Sir Frederick George Denham Bedford, G.C.B., Governor as aforesaid, did appoint you, Charles Harper, Esquire, M.L.A.; Robert Hastin, Esquire, M.L.A.; William Atkin, Esquire, M.L.A.; William Vincent Fitzgerald, Esquire; and Newton Moore, Esquire, Commissioners to inquire into and report upon the world's supplies of timber which comes into competition with those of this State, and more particularly the hardwood timbers of the Eastern State of the Commonwealth, and upon other matters therein set forth:

And whereas it is desirable to extend the purpose of the said Commission as hereinafter appearing:

Now, therefore, I hereby appoint you to inquire into and report upon, as well the matters set forth in the said Commission, as also upon the following matters, namely:

1. To make inquiry and take evidence as to the methods of cutting, carrying, and distributing timber by all persons engaged in the timber trade of this State, and to make recommendations thereon;
2. To make inquiry and to take evidence as to the efficacy of the existing regulations for the protection of the forests in all senses, and to make recommendations thereon;
3. To take evidence and make recommendations for the future development of State Forestry, inclusive of the training of officers, the raising and planting of desirable exotic timber trees, as well as the indigenous species, and the suitable localities for such operations;
4. To make recommendations as to the advisability or otherwise of establishing State Forests under Statute;
5. To inquire into any other subjects in connection with the forests and the timber trade which may, in the opinion of the Commission, be desirable in the public interest;

And I do hereby extend the purpose of the said Commission accordingly, and in all other respects.

Given at Perth this 24th day of June, 1903.

By His Excellency's Command,

H. GREGORY,

Acting Colonial Secretary.

ROYAL COMMISSION ON FORESTRY.

FINAL REPORT.

To His Excellency Admiral Sir Frederick George Denham Bedford, G.C.B., Governor in and over the State of Western Australia and its Dependencies, etc., etc., etc.

MAY IT PLEASE YOUR EXCELLENCY:

The First Progress Report made by your Commission on August 6th last was framed with a view to furnishing information which the Commission believed would be sufficient to justify Parliament in enacting such laws during the session of 1903 as would have sufficed to meet the more urgent necessities of the timber industry and the conservation of forests, thus removing the restrictions placed on the extension of timber-cutting by the resolution of Parliament (October 8, 1902).

In consequence of the extremely heavy work entailed upon members of Parliament by the unusual number of Bills submitted during the last session, those members of the Commission holding seats in Parliament found it impossible to give time to the work of this Commission while Parliament was in session. Since the prorogation of Parliament the time of these members has had further demands made upon it by the imminence of a general election. These conditions caused a practical suspension of the work of the Commission for many months, which, though much to be regretted, was unavoidable. This delay unfortunately necessitated the retirement from the Commission of Mr. W. V. Fitzgerald, whose long study of forestry in connection with his botanical researches was very valuable to the Commission; and this, added to his arduous work in collating details of information, made his resignation a matter of regret to the remaining members of the Commission.

The later work of the Commission has been mainly directed to the acquisition of information within the outlines given in the First Progress Report. In this connection it is important to state that the Fourteenth Report of the Victorian Royal Commission on Forestry (which Commission was issued in the State of Victoria in 1897, and presented its Fourteenth Report in March, 1901) contains an immense amount of valuable information, in an extremely interesting form, on forestry throughout the world. Much of the information asked for by our Parliament is necessarily contained in that report; your Commission, therefore, concluded that it would be wise to refer seekers after more detailed information to that report, rather than incur expense and occupy time going over the same ground to obtain a similar result.

Definite answers to the inquiries contained in the resolution of Parliament, and embodied in the Commission, are given hereunder, so far as they could be obtained within the limits of time and expense considered justifiable by the Commission.
WORLD'S SUPPLIES OF TIMBER.

1. What are the world's supplies of timber which come into competition with those of the State, and more particularly the hardwood timbers of the Eastern States of the Commonwealth?

Recent estimates give the world's forest area at about 2,500 million acres. Only a small proportion of this, however, yields timber suitable for export. There are, however, very few merchantable timbers in the world which do not, in a greater or lesser degree, come into competition with jarrah or karri. The cost of handling, transporting, and working these heavy woods enables the softwoods, especially Oregon pine, to compete against them for some purposes inside the State itself, even to the very borders of our forests. Softwoods, as long as supplies are available, must maintain their advantages for superstructure all the world over, while for street paving and railway purposes eucalyptus pine is a keen competitor with jarrah.

The evidence of Mosses, Davies and Temperley seemed to imply serious injury to the jarrah and karri trade through the competition of the as yet undeveloped forest resources of Borneo and the Philippine Islands, and it cannot be doubted that valuable timbers, in considerable quantities, exist in these lands. But the as, yet, unknown factor is the question of the cost of extracting timber from the tropical jungle (often extremely mountainous) and placing it on rail or water. Experience may prove that the easy traversing of our forests, thanks to the absence of undergrowth and the excellent nature of the country for tunnelling, added to the favourable nature of the climate to strenuous human labour, are sufficient advantages to counteract the low rates of wages for less efficient men in tropical forests, burdened as these forests are with tangled undergrowth.

The competing hardwoods of the Eastern States are considerable in quantity; but evidence is somewhat conflicting as to their competing against jarrah and karri for export. Apart from the question of quality, the fact that the trade in this State has reached its present magnitude unaffected by the knowledge of the existence of the forests of the Eastern States would seem to indicate that capitalists are disinclined to exert enterprise in developing a timber trade in competition with that of this State. Furthermore, the depression supervening on the long drought in the Eastern States has kept wages at a low rate in those States. Should a vigorous export timber trade from thence arise, it is certain that wages there and here would be assimilated. It seems probable also that the low assessed by some of the danger to our export trade from the competition of Borneo or New South Wales is born of a desire to influence the cost of manipulation and transport in this State, in the interests of the trade. Those conditions indicate strong doubts as to whether the jarrah trade is likely to be adversely affected by the hardwood supplies of the Eastern States.

AVAILABLE JARRAH SUPPLIES.

2. What are the supplies available in this State of each variety?

The First Progress Report gives the estimate of virgin jarrah forest to the North of the Blackwood River, and suitable for milling, at about 2,000,000 acres—equivalent to about 25 years' supply, based on the present rate of cutting (about 60,000 acres per annum, yielding an average of 31 loads per acre). To the South of the Blackwood there are considerable supplies of this timber: but being so constantly intergrown with karri, blackbutt, and red gum, no fair estimate of quantities can be given. In addition to these areas, there are several millions of acres of jarrah country, not of sufficient commercial value for milling purposes, but which will, as the railway system develops, afford immense scope for sleeper-hewing; an instance of which will be afforded by the construction of the Collie-Narrogan railway.

SUPPLIES OF KARRI.

Karri is limited to the tract of country lying between the Margaret River on the North and the Porongorup Range on the South, about 1,300,000 acres, of which is under karri. The highest type of this magnificent tree is found in the neighbourhood of the Warren River. Of the area mentioned some 150,000 acres have been cut over at Karridale, Torbay, and Denmark, leaving an area of over 1,000,000 acres of virgin forest which cannot be exploited until tapped by a railway. This exhaust of available supplies being coincident with a very active demand for new farm lands, offers an exceptional opportunity for initiating railway construction into that rich belt of country—"the Gippsland of the West"—lying between the Blackwood River and Denmark (carrying; it is estimated, 13,000,000 loads of karri in the round), blessed with a fertile soil and an abundant rainfall.

SUPPLIES OF TAURU.

The area covered by this timber is very limited in extent, being practically confined to a narrow strip near the coast, lying between Freemantle and Busselton. The larger portion of this area has been alienated from the Crown, although quite recently the Government have repurchased an estate embracing some of this forest. Evidence was not taken as to the area and extent of the tauru country, but the approximate estimate arrived at through the local knowledge of the members of the Commission is 100,000 acres, carrying about 150,000 loads of timber. This timber is recognised by the engineering profession as being one of the best timbers known for works where great strength and solidity are necessary. The cost of procuring this timber is, however, much higher than that of jarrah. In the early fifties, several cargoes of this timber were shipped to Chatham and Portsmouth from Bunbury and Faulfield, to the order of the Admiralty.

SUPPLIES OF BLACKBUTT.

It would be impossible to arrive at the area over which blackbutt grows, because it is so closely associated with jarrah and red gum that the greatest difficulty would be experienced in making anything like a reliable estimate. The home of the blackbutt is in the galleries and gorges or rich flats of the Darling Range; and no better example of its growth can be seen than in the valley of the Hamilton River, in the Collie District. It attains a great height, and would give a higher percentage of sound wood, and is less inflammable than any other of our timbers. It should prove of great value where those qualities, combined with strength, are important.

SUPPLIES OF WHITE GUM OR WANDOO.

White gum or wandoo, though existing over a considerable area of country, does not appear to offer any hope of becoming an exportable timber. Though an excellent timber for strength and durability, it is thinly distributed, seldom sound at the heart, and does not develop large sizes. This timber is found in its best form in a belt of country running North and South on the Eastern flank of the jarrah forests, which region, from its position, is unlikely to be afforded railway facilities for a long time to come. The large area of white gum country apart from the above is being rapidly converted into wheat fields.

MALLET, SPOTTED, AND FLUTED GUMS.

These three timbers are of no commercial value, but the bark of the mallet is being collected in considerable quantities for tanning purposes along the Great Southern
Railway, between Beverley and Mount Barker, and a bark-grinding mill is working successfully at Pingelly. The bark of the spotted gum in the same district yields by analysis qualities about equal to those of mallet. Analyses of these barks, as well as of the fluted gum (supplied by Mr. S. S. Dougall, F.I.C.), are attached. (See Appendix B.)

FORESTS OF THE EASTERN GOLDFIELDS.

The Commission have made inquiries and taken evidence as to the supplies of timber on the Eastern and Murchison Goldfields. The Eastern Goldfields have many extensive belts of timber, from which the mines have been supplied at reasonable prices. From Mingenew South there is still a large supply of firewood timber available; but further North, and also on the Murchison fields, practically the only timber growing is the umga, which is of small dimensions, and very scattered.

The only centre on the Eastern Goldfields which is completely demuded of timber is the Hannans’s Belt, comprising all the mines in and around Kalgoorlie and Boulder, the whole area within carting distance having been exhausted. All the firewood used in this district is cut on lands outside the reserved timber areas surrounding each goldfield, and is supplied by three companies, each having tramways totalling 80 miles, connecting with the Government railways.

Regulations for the construction and working of these timber tramways are provided for in “The Land Act Amendment Act, 1902,” by which (though no leases of timber country are granted) the tramway proprietors practically control the cutting of all timber within two miles of their existing lines or of any extensions or deviations.

These lines, which are of the same gauge as the Government railways, viz., 3ft. 6in., are constructed very cheaply (second-hand rails, and in many instances sleepers which have been taken up from the Government railways being used in the construction), averaging about £800 per mile completed, including rails and fastenings.

A local board, known as the Timber Tramways Application Board, acts in an advisory capacity to the department when applications are received for permission to lay lines; but as at present constituted it does not appear to give entire satisfaction. Perhaps it would give better results if it could be made more representative of all interests and invested with greater powers.

LIFE OF SUPPLIES.

The weight of evidence taken is to the effect that within the scope of the existing, and applied for, tramways, there is a sufficient firewood supply for the probable requirements of the next eight years. Further increases and extensions of tramways would double the supply.

The present consumption of firewood on the Eastern Goldfields is at the rate of about 650,000 tons per annum. Of this the Hannans’s Belt alone takes 375,000 tons. The general price per ton is 13s., delivered on the mines, which is considerably less than the prices formerly ruling. Most of the other mines outside the Hannans’s Belt are supplied from sidings on the Government line, or from local gazetted reserves attached to each mining centre.

The supply of round mining timber is drawn principally from the sidings on the railway between Kellerberrin and Coolgardie, although a certain quantity is obtained from the tramway companies, the principal round timber that is used being salmon gum.

Jarrah forms the larger portion of the sawn timber that is being used on the mines, although a limited quantity of wandoo is also used by some of the mines, while Oregon pine is utilised to a very large extent for surface constructional work.

FORESTS OF THE MURCHISON GOLDFIELDS.

There is a consensus of opinion among all interested that, within two years, the demand for firewood will have exhausted these forests within ten miles of the railway line on either side, and as the cost of carriage for a greater distance would be prohibitive, the question must then arise: Whence is the supply of fuel to be procured? From the more distant forests by tramlines, or coal from Geraldton? Whatever may prove upon inquiry to be the best source of fuel supply for these centres, no time should be lost in rendering it available, in the interests of forest conservation as well as of the mining industry. The comparative value of coal and wood as at present available for fuel purposes on the mines will be found in Appendix C.

WASTE OF FIREWOOD.

Specifications for firewood supplies provide that the wood shall be 5ft. long, with a diameter of not less than 3in. at the small end; pieces to be fairly straight for stacking, contractors being paid by measurement. This means that not more than 70 per cent. of the available firewood is utilised, the remaining butts and limbs being left as waste.

In the interests of economy and the husbanding of supplies, a regulation should immediately be promulgated insisting on all wood being felled close to the ground. It was apparent to the Commission that in many instances the best part of the tree was left standing, to be destroyed by fire. The cost of installing weighing machines at the main centres, viz., Coober Pedy, Day Dawn, Nanine, Leononville, and Mount Magnet, would considerably increase the amount of fuel obtainable per acre.

The management of the Great Fingall Mine, acting on the suggestion of the Commission, have already purchased one 30-ton weighbridge (for bogey trucks), and two smaller machines, to determine their consumption, and at the expiration of the present contract intend to amend their specifications as to size and length, and to purchase by weight instead of measurement, which is the system adopted by large firewood contractors on the Eastern Goldfields.

PAST CONSUMPTION.

3. What are the areas of cut-over jarrah and karri forests respectively?
Of jarrah, about 530,000 acres; of karri, about 150,000 acres.

PRESENT CONSUMPTION.

4. At what rate are the forests being depleted?
Jarrah at the rate of about 60,000 acres per annum. Karri: Present leases having been practically cut over, no more can be cut pending the opening of new forests.

ALLEGED WASTE.

5. Are the reports of the enormous waste accurate? If so, what steps are necessary to prevent the same?
This question was to some extent dealt with in the progress report. An exhaustive test was subsequently made, however, to ascertain the facts with regard to the comparative waste involved in the two systems of timber-cutting: namely, milling
and hewing, the result being that from a number of selected logs from virgin forest, it was found that the hewing process yielded a percentage of 57.12 of marketable timber, against 72.73 per cent. by the milling process, or a loss in hewing of 15.61 per cent. (See Appendix A.) This test was carried out with the fullest opportunity for the representatives of each method to obtain the best possible results, the Mornington Mill being efficiently equipped with modern machinery and appliances, while the hewers were represented by experienced axemen of their own selection. The result definitely proved that sleeper-hewing in high-class virgin forest involves enormous loss to the State (nearly one-fourth more marketable timber being obtained by milling than by hewing).

Exact evidence of the quantity of timber on a given area of virgin forest was also secured at this trial by the following method:—A block of 16 acres of forest was first surveyed; representatives of the millers and hewers respectively were then chosen, who drew lots for the first pick, after which a tree was selected in turn to the number of ten each; these were cut, carried, and dealt with as shown in Appendix A: the remainder of the milling logs standing upon the said 16 acres were cut, and yielded 88 trees, producing 165 loads, which, added to the produce of the 20 trees already dealt with, made the total from the 16 acres 206 loads of marketable timber, equal to 12'-87 loads per acre.

Another fact of considerable importance, as furnished by this trial, is that the straightness of grain in sleepers demanded by the Maintenance branch of the Railway Department, and supposed to be obtainable only in the hewn sleeper, can be just as well secured by the milling process, provided the log is subject to inspection, as well as the resulting sleepers. The quantity of hewn sleepers cut from this class of tree for local purposes is small, however, compared with the quantity exported. It is therefore in the interests of the State that no jarrah trees suitable for hewing purposes should be converted into hewn sleepers, provided that they are reasonably accessible to log-handlers.

As indicated in a previous report, it is clear that the great source of waste at the mill is when distance from the metropolitan market makes sawing a waste product. Some attempts, however, are being made to market this class of timber outside the State.

Your Commission is of opinion that in the interests of the State it would be a wise policy to discourage any increase in the rate of timber cutting till the consumption of sawing is fairly space with the export of the larger sizes.

State sequoicence in the destruction of good timber only because the export trade demands it, is a crime against coming generations; and any attempts to increase the export to the interest of the log companies, or with the object of inducing more men to join in timber getting at the expense of posterity, need wise resistance.

**SOFTWOOD SYLVICULTURE**

6. What steps, if any, should be taken, and in what locality, to plant softwoods in the State?

The great success achieved in the planting of the maritime pine in the drifting sand dunes along the shores of the Bay of Biscay, as described in the report of the Victorian Forestry Commission, is instructive in this connection. The report is as follows:

For several hundred miles along the West coast, but especially between the Gironde and the Adour, there is a tract of country consisting of barren dunes and ridges of sand formed by the high sea winds which sweep over that region. The encroachment of these sands advancing steadily inland, and in their course overwhelming villages, farms, and roads, because so great a public danger that, towards the end of the last century, strenuous endeavours were made to arrest their progress. Various plans were tried, but the most successful were those adopted in 1789 by M. Bementsan, a civil engineer, who built palisades to stay the dunes and then, on the landward side of these protective barriers, planted the seed of the maritime pine with a mixture of broom, gorse, and goutelat or marram grass, the sowing being continued in successive belts until the whole width of drift sand was gradually brought under close. The work then began steadily pursued for many years, until today a great part of the dunes and land, which embraced an area of over 320,000 acres, is covered with valuable pine forests. They yield a handsome return on the original expenditure, furnishing timber, resin, turpentine, and fuel in abundance, while the more open tracts afford good pasture for cattle.

This experience, added to our own, would seem to justify the belief that good results should be obtained by planting softwoods in suitable situations on the coast country between Mandurah and Albany.

The Commission is, however, of opinion that experiments in this direction should be undertaken only by a staff well qualified to carry out both planting and maintenance.

**SECOND COMMISSION.**

The evidence attached hereto supplies much information on the questions raised in this second reference to the Commission, all of which has strengthened the opinion of the Commission as to the utter impossibility of making adequate provision for conserving the forest interests until they shall have been placed under the administration of an Inspector General qualified by experience and scientific training, and aided by a board qualified by a knowledge of local conditions.

Realising, however, a possible delay in obtaining an officer qualified to fill the important position of Inspector General, the Commission is of opinion that no time should be lost in securing the legislation necessary to put the administration under the effective control of a board as suggested. Such a board would find ample occupation in establishing some degree of order out of the present destructive chaos, preparatory to the appointment of an Inspector General.

The task of inaugurating a system of forest conservation in this State (such as is recognised as necessary from long experience elsewhere) is one of great magnitude, in consequence of the timber industry having been permitted to grow into its present dimensions uncontrolled by effective administration. This neglect of an important industry has been the rule, apparently, at some stage or other, in the history of most countries. Many have, however, after long years of assiduous attention to conservation, recovered much lost ground, the highest example of this which is found in the communal management of Sihiwald, in Switzerland, as:

With an area of only 2,400 acres, this forest, in the year 1830, gave a return of over £115 per acre, or £4,000 for the whole property. Its working is so regulated that areas of equal productive capacity are covered by stocks of every age, from the seedling to the matured tree. The age gradations, it is said, are so regular that in the course of an hour's walk one may pass from an area, just cut over, through compartments of steadily advancing age and growth, till the trees which have attained the full age limit of 50 years are reached. The forest is managed under different plans of working, and while great care is taken to secure a large annual yield, it is not obtained at the expense of the permanent productivity of the forest, the precautions to ensure regular regeneration being studiously observed.

While the conditions of soil and moisture are favourable, it would not be easy to account for the exceptional productivity of the Sihiwald, but for the fact that the land has been continuously under forest cover for over 1,000 years. Hence it has that great depth of alluvium and rich vegetable mould which can never be furnished by denuded or partly denuded lands covered interminently with forest, but which, when existent and combined with suitable climatic conditions, produces the finest tree growth.

All countries seem now to realise the importance of stopping the reckless waste of the past and making provision for the future. The responsibility of making provision for the reforestation of the 530,000 acres of cut-over jarrah country is important and urgent; the longer it is delayed the more difficult the task.

A great natural advantage is possessed by the jarrah over almost all forest trees, in that fire, the terror of the conservator elsewhere, causes but trifling injury to a
forest, provided fallen limbs and logs are kept away from the trunks of the standing trees. An undergrowth of scrub may send flames high up the trunk of the jarrah; but the non-inflammable character of its bark preserves the tree from harm.

It may be safely said that the devastation we so often read of as occurring to pine forests could never happen in a jarrah forest. It might even be fairly argued that, given a staff to keep limbs and logs removed from the butts of the standing trees, an Inspector General might with advantage occasionally give fire free play through his forest of jarrah. Nevertheless, much harm occurs when a fire passes through a cut-out jarrah forest. The masses of fallen logs and limbs create a furnace destructive alike to young trees and to seed in the ground.

In most countries the forest lands have had two distinct lines of enemies: First, the timber trader, whose only aim is to get all he can out of the forest, heedless of its future; the second enemy is the agriculturist, who is interested in the uprooting of the forest for the sake of the rich soil beneath. It is not surprising, therefore, that under the united strength of these two influences, the interests of pesternity in timber supplies have been so long ignored in many lands. Fortunately, however, our best jarrah lands have only the one class of enemy—the timber trader—the soil upon which the tree reaches its highest degree of perfection being unfitted for agricultural purposes. This encourages the hope that no effective hostility should be encountered by the future forest administrator in his work on behalf of jarrah. It is true that throughout the jarrah forests there are valleys containing rich pockets suitable for fruit culture, upon which the orchardist may cast covetous eyes, and which doubtless may in time be granted for this purpose; but the Commission is strongly of opinion that these lands should be dealt with by the future forest administrator, and not by the Lands Department, it being manifestly important that the Forest Department should first establish its working plans, providing its lines of access to forests for all time, without any hindrance through the prior alienation of lands.

Much of the land on which karri grows is credited with great richness; and although something approaching two million loads of this timber have been cut, it is not a foregone conclusion that the future value of karri would justify the inclusion of all karri lands in State forests sacred to the exclusive production of that tree. To prove the value of the land to be greater for other purposes.

The same may be said with regard to blackbutt and red gum, but with greater confidence; for there is probably no doubt that the future demands for homes on the land will make blackbutt and red gum country too valuable to be conserved for the production of those woods.

The case of tuart, however, is different. The high value of that timber, the proximity of its habitat to transport facilities by land or sea, justify a vigorous conservation and early steps in replanting.

**EXPERIMENTS.**

Your Commission recommends the immediate initiation of an experimental station adjoining the railway in the vicinity of Chicklow's Well, by fencing an area of 640 acres of the best jarrah country, to be placed in charge of a resident officer instructed to apply thereto the first principles of forest conservation, viz.:

1. Protection from predation;
2. Protection from fire of desirable trees;
3. Destruction of undesirable growth;
4. Training saplings.

This situation offers the advantage of having a certain market for waste as firewood, or for charcoal-burning; therefore a considerable portion of the current expenses would be recouped, while the regeneration of the forest would soon become an interesting object lesson under the eye of the general public, which should prove of educational value and a test unit for forestry records.

The far inland forests, from which the goldfields draw their supplies of fuel and mining timber, offer a serious problem in sylviculture, which needs experiment and time to solve. The dry climate of the interior produces a wood of high calorific value. This fuel can therefore successfully compete against coal landed from the coast; and it becomes especially important in the interests of the mining community, as well as those of the railways, that the regeneration of those forests should be secured if possible. As a general rule, the *eucalyptus* have great regenerative capacity, as our farmers will sadly testify; but it seems that the forms of the genus found in our Eastern and Murchison goldfields are of a degenerating character. Whether this is due to natural race decadence or to unfavourable environment is not yet known.

This, however, is self-evident: from Kimberley to Coolgardie a heavy and lasting demand for supplies of mining timber and fuel is either urgent or impending. It follows that the interests of the State require that before resigning any of this trade to foreign suppliers, earnest endeavours should be made to test the practicability of supplying every industrial centre throughout the State with its own forest products. There is no definitely established reason why some of the harder quick-growing *eucalyptus* should not be found capable of forming forests in the broad region from Kimberley to Leonora. It is claimed, in some parts of the world, that experience proves that the planting of eucalyptus yields better financial results than the purchase of coal.

**CONCLUSION.**

In conclusion, your Commission desires to place on record the heightened impression effected by the evidence herewith of the importance of the task before the State in inaugurating a satisfactory forest administration. Great as the subject seemed at the opening of the Commission's work, every step in the inquiry brought fresh problems into view; 'or at whichever phase of forestry we, as a community, may look—whether it be at the export, or at the internal trade; at conservation or sylviculture; at the interspersed, locked-up, cultivable land; at the future interests of mining, or at the present fettered enterprise of mill-owners outside the "Combine"—the same dark shadow of the Nemesis of neglect threatens. From this situation relief can only come by immediate legislation, through which measures, means, and men may be secured wherewith to cope vigorously and effectively with the vital interests of the vast potentialities which we inherit in our magnificent forests.

Attached hereto is further evidence taken.

We have the honour to be,

Your Excellency's most obedient servants,

CHARLES HARPER, Chairman.

ROBERT HASTIE,
WILLIAM ATKINS,
NEWTON J. MOORE.

19th May, 1904.
and have a good knowledge of the bush around Cue. Mulga is the principal timber; and though gum trees are to be found at Milly’s Soak, this, is, so far as I know, the only locality in which they occur. I do not know of any soil which would be suitable for tree-planting. Each cutter pays a license fee of a shilling per month, collected by the police. A man gets about one cord per day, for which he receives about 9s. Chaff costs £10 per ton wholesale, oats £4.5d. per bushel, bran 2s. per bushel, carting per cord for six miles 9s., loading 1s. The carting would be considerably reduced in proportion to the shorter distance. I can see no prospect of conserving any new growth. Suckers are growing from gum trees at Milly’s Soak, this is, so far as I know, the only locality in which they occur.

To the Chairman: I am a miner, resident for nine years at Cue. I have been on these fields for eight years, and have several times travelled all over the bush to Lawlers and Leonora. We have a few miles to the north of Nannine. I have employed 300 horses carting wood. There is a fair patch of firewood 25 miles E.N.E. from here, which would yield about 20,000 cords if a railway was constructed 50 miles to this point (indicated) within five miles of the line, and would average two cords per acre. If the line were then laid in the direction of Lawlers for another 30 miles, it would strike a locality known as the Timber Country which has been cut over. I have not noticed what would be the average per acre. In the best patches, a man gets about one cord per month. The consumption will increase. The only relief which we expect is from a reduction in freight on mining timber. We use sawn timber. I think we shall have to depend on the coast for our future supply of mining timber, as I know there is no hope of getting any new growth. Suckers are growing from gum trees at Milly’s Soak, this is, so far as I know, the only locality in which they occur.

To the Chairman: I am a contractor and general dealer, residing at Cue. I have been on these fields for eight years, and have several times travelled all over the bush to Lawlers and Leonora. I have supplied mines at Lawlers, Leonora, Mount Morgans, Cue, Day Dawn, and Lemmonville. I have employed 300 horses carting wood. There is a fair patch of firewood 25 miles E.N.E. from here, which would yield about 50,000 cords if a railway was constructed 50 miles to this point (indicated) within five miles of the line, and would average two cords per acre. If the line were then laid in the direction of Lawlers for another 30 miles, it would strike a locality known as the

To the Chairman: I am a miner, resident for nine years at Cue. I have been on these fields for eight years, and have several times travelled all over the bush to Lawlers and Leonora. We have a few miles to the north of Nannine. I have employed 300 horses carting wood. There is a fair patch of firewood 25 miles E.N.E. from here, which would yield about 20,000 cords if a railway was constructed 50 miles to this point (indicated) within five miles of the line, and would average two cords per acre. If the line were then laid in the direction of Lawlers for another 30 miles, it would strike a locality known as the
22-Mile Thicket. This extends from Woodley's No. 1 Well on the west for 25 miles east. This patch is at least 22 miles east and west and eight miles north and south, and would yield at least six cords (all mulga). It is by the road 25 miles from the new find at Black Range, and is the only patch that I think might be prospected near Mullewa if freight were reduced, otherwise people will have to burn coal within two years. The price of wood has been gradually falling for the last eight years. At the beginning of that period I received 36s. per cord, whereas at the present time timber is being delivered at 26s. per cord, a price which I do not consider can be profitable. The price must go up. I know of no locality other than Milly's Siding which carries gum. I should say these would be about eight square miles of gum country at that place. The soil at Milly's Siding is of 10 limestone formation and fairly hard. Water is procurable at eight feet. I am sure that trees would not grow in this country. The stumps are shooting from the stumps. This is the only patch of gum country in the district. Mulga is of very slow growth. I have noticed one patch particularly, and could not see any difference in the trees during the last eight years. Cutters' licenses have come down from 5s. to 1s. per month.

15.

The Commission adjourned.

(The witness retired.)
Three Mulwala, ... 4in. diameter, small end ... Day Dawn, 8th September, 1903.

Day Dawn, W.A., 10th September, 1903.

The Great Fingall Consolidated, Limited.

ROUND MINING TIMBER.

<table>
<thead>
<tr>
<th>Season of Supply</th>
<th>Size</th>
<th>Price</th>
<th>Per</th>
<th>Railway Freight per ton.</th>
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<tr>
<td>Mulwala ...</td>
<td>4in. diameter, small end</td>
<td>100 lin. feet</td>
<td>14s. 6d. 20ft. minimum length</td>
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<td>6in.</td>
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<td>12in.</td>
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Day Dawn, 10th September, 1903.

THE GREAT FINGALL CONSOLIDATED, LIMITED.

WOOD AND COAL.

Coal—Newcastle.

1902—1903 tons F.O. Geraldton

Railway Freight

Per ton

Add: Extra cost handling and working jarrah instead of Oregon (9d. per cubic ft., 2200) 20", of same

Day Dawn, W.A., 10th September, 1903.
Mr. Edward Lushington Lloyd, examined.

To the Chairman: I am manager of the Light of Asia gold mine, situated one mile north of Cue, and have been resident on this field since 1892. We use 2,000 cords per year, and about 12,000 feet of round timber, approximately 6,000 feet sawn, principally jarrah. We pay for firewood 2s. per cord and 5/- delivered, and 1s. for stacking; 1s. 6d. per hundred for jarrah at Geraldton, 8 x 2; round timber, from 12s. 6d. to 20/- per 100 running, at Mullewa; average size, seven inches diameter. Within 30 or 40 miles of Cue the firewood supply is very limited—patchy; and even by putting down a line 30 or 40 miles out toward the ranges, I do not consider that more than three years' supply would be obtained. The best of the firewood forest lies in my opinion, been cut out within 15 miles of the line; but I consider there would be 10 available between here and Mullewa any quantity of timber if the railway freights were reduced. At the present time some of the best mining timber on the Midland is being destroyed by ring-barking; and the sooner this is put to a better it will be for the country. The only alternative means of reducing the mining would be to provide proper facilities for handling coal at Geraldton. I agree with Mr. Allen that the best patch between Namnine and Peak Hill is that in the vicinity of Midden.  

The Commission adjourned.

Mr. Alfred Pemberthy, examined.

To the Chairman: I am manager of the Cue Victory gold mine, and reside at Cue. We use about 1,000 cords per year, 750 delivered, and 600 feet firewood cut and running obtained from Mullewa. Firewood is carted direct to the mines from 14 miles east. I confirm Mr. Lloyd's evidence.  

The Commission adjourned.

FRIDAY AFTERNOON, 11th SEPTEMBER, 1903.

Present:  
Mr. W. Atkins, M.L.A. | Mr. W. V. Fitzgerald.

At Namnine.

Mr. Alfred Walker Morgan, examined.

To the Chairman: I am a Government contract surveyor. My district extends from Magnet to Peak Hill. I do work for the Lands and the Mines Departments, and have a good knowledge of the timber country. The timber between Magnet and Cue is practically cut out. There is fair bush in patches in the neighbourhood of Stake Well; but that is being cut out fast. I have had to send these for timber for survey purposes. Between Stake Well and Namnine the timber is practically cut out. In the 25,000-acre block, growing on a limestone formation, the timber has been cut, and young shoots and trees are very rapidly growing. They will, if not protected, cut very soon. The same remark applies to the flats, about eight miles north of Namnine,—just a few acres. The 2,500-acre patch was cut out some four years ago. The gum is restricted to the limestone formation; and water is, as a rule, found north from Namnine in the direction of Stake Well.  

The tree-harvests have been assessed. I consider that the wood should be reserved for the mining companies, and that the wood should be cut under Government supervision, to avoid waste. At the present time a drive through the bush shows anywhere that butts are left 18 inches and more in height; and this is the best and most solid portion of the tree. I do not know of any extensive tract of firewood country in my district, with the exception of one run of 20 miles north of Namnine, where there is a fair amount of firewood. The best soil in this district is that at the foot of the Diorite Bluffs. I would recommend that a forest reserve should be declared around the foot and four miles east of Namnine, in order that the young timber may have a chance to mature.  

(The witness retired.)

Present:
Mr. N. J. Moore, in the Chair.
Mr. W. Atkins, M.L.A. | Mr. W. V. Fitzgerald.

At Namnine.

Mr. Charles John Whillas, examined.

To the Chairman: I am mining engineer in charge of the Champion Mines, Queen of the Lake Mines (Namnine), Allong's Mines (40 Miles), Star of the East Tundragn Mine (20 miles east). All these mines are situated in the Namnine district. At present we are using about 400 cords of wood per month (for the two Namnine mines). When running full time we shall use 250 per month. We obtain our supply from Stake Well, through contractors, Irvine and Douglas, costing, delivered on the mines, 37s. per cord, although just recently I have paid 30s. for small lots. I consider that the price will not be higher during the next 12 months. I do not consider that the supply at Stake Well will last another six months, if the supply for all the other mines (South) be drawn from there. After 12 months the price of firewood must go up. We draw our supply of round mining timber from Mullewa, and the shift 16 tons; from the Combined. We pay for round wood at Mullewa, five inches to seven inches, small end up to 24 feet, 18s. to 20/- per 100 running; and for six inches and over, small end up to 24 feet, 25s. per 100 running. This runs about 900 running feet at 12-inch truck, costing about 50s. per 100 feet running, at Namnine railway station, plus 7s. cartage to the mine. Mulga mining timber, which is procurable within 50 miles of Namnine, is unsuitable, being too small, and the lengths too short. This is about 6d. per foot running on the mine. For jarrah I pay at the present time 13s. per 100 super at Porth, 10s. freight, and cartage, making 24s. per 100 super on the mine. This is 8/- to 10/- per 100 super than what I have paid before. I estimate that we shall use, during the next 12 months, at least 60 loads of jarrah, and the same amount of round timber. Oregon is quoted by two firms at 16s. per 100 super on trucks at Geraldton. This costs, to land on the mine, 100 super per 100 super, and it is used solely for surface structures. I am not aware whether there is any reduction made by the Railway Department when large consignments of Oregon are conveyed. For underground work ("shaft") jarrah is much superior to Oregon. I have several shafts made with Oregon, and the timber becomes quite strong and pulpy with the water. In places I have had to substitute new timber; the evidence I have given so far refers to the two mines in Namnine. At Albany we pay 25s. 6d. per cord. There is not a stick 20 miles within 14 miles of the mine, and I expect to pay 35s. in the immediate future. We use 130 cords per month. We pay 6d. per foot running for a poor class of mining timber (mulga), which is obtained about 30 or 40 miles from the mine. At the Star of the East we pay 10s. per cord, the same amount being about six miles from the mine. We use 150 cords per month. We have not used any round timber for some time. We use jarrah for shaft timber. I consider that the firewood country within 10 miles of the railway to the north of Tucknarras should be reserved for 10 miles in the neighbourhood of Tucknarras and Namnine.  

(The witness retired.)

Mr. John George Robinson, examined.

To the Chairman: I am manager of The Nannine Gold Mine, and have been on these fields 13 years. I use 300 cords of firewood per year, and pay 27s. 6d. per cord, delivered on the mine. I think the price of firewood must increase during the next 12 months. I use very little mining timber. What I use is obtained from Nannine, at the same price as that quoted by Mr. Whillas. I have included on Plan II M the beauty of the various patches of gum timber. At Abbott's there is a fair supply of mulga. This range crosses the telegraph line at about 60 to 65 miles, extending for a few miles east of the telegraph line. Between the Mingenew and Mootwingee Creek, Peak Hill good mulga is to be found in the vicinity of the Nannine Range. The Peak Hill mine, which is a drawing supply from this township, does not completely exhaust the supply, but insists on a high standard of firewood; should be cut under Government supervision, to avoid waste. At the present time a drive through the bush shows anywhere that butts are left 18 inches and more in height; and this is the best and most solid portion of the tree. I do not know of any extensive tract of firewood country in my district, with the exception of one run of 20 miles north of Nannine. The best soil is in the vicinity of stake. The Commission adjourned.

(The witness retired.)
Mr. John Irving, examined.

To the Chairman: I am a contractor at Nannine, where I have resided some nine years. I have been over most of the country within 20 or 30 miles of Nannine. I supply most of the mines here with wood, obtained principally from Lake Well. We are now cutting about five miles east of the line. There is good timber for some miles farther east. I have been back about the line. The timber here is as good as farther back. I consider that in the belt referred to we could get one cord per acre, all over twenty feet clear, in the vicinity of the railway line that I know of. I have about 100 men wood-cutting at Lake Well and in that vicinity. In my opinion the wood-cutters will be out 10 miles in about six months. The belt seems to widen farther east. The nearest wood from Nannine to the east is 15 miles out, and this is of an inferior quality. About 20 miles north-north-west of Nannine there is a good patch of mulga, about 10 miles square, around Combom Clay Pan, equally as good as at Lake Well. It is very easy to work, being very level. About three miles east from Nannine there is a patch of gum country which was cut over about six years ago. It is what we call York gum. The suckers from the stumps on this belt see four inches in diameter, and some of them 15 feet high. There are many young trees coming on. This patch is about five miles in diameter. These suckers appear to grow well when there is a good season, and make no growth during a dry one. Water is to be found about three miles from Lake Well. People here have to go about 15 miles for firewood.

There is a belt of gum country about 40 miles north, where mining timber is obtainable. I do not know the Ord River country. There is no extent of timber between here and Peak Hill.

(The witness retired.)

The Commission adjourned.

MONDAY, 14TH SEPTEMBER, 1903.

Present:
Mr. R. Bartle, M.L.A., in the Chair.
Mr. N. J. Moore. | Mr. W. V. Fitzgerald.

(Appeared)
Mr. Samuel Allen, examined.

To the Chairman: I am a contractor at Lennonville, and have resided on these fields for the last nine years. I possess a good knowledge of the country between Mount Magnet and Peak Hill. From Nannine to Peak Hill the firewood belts are very scattered. The best belt of firewood that I know of lies about five miles this side of Poster Well, 55 miles from Magnet, starting some four miles from the line, to the north. I should say it would be three miles wide, extending some distance. This belt contains mulga suitable for mining. At the present time we are cutting 11 miles to the east of Lennonville, and get 270 per cord stacked on the mine. I have been some two or three miles farther out, and the timber continues very fair, but it is scattered. Woodley's Soak is about 40 miles east of Magnet, and the good bush commences about two miles beyond it, and continues for about 20 miles in the direction of Lawlers. In the belt good mining timber can be obtained as well as firewood. Mulga is not so suitable for mining work as morrell. About 20 miles out from Magnet there is a large belt of firewood.

I consider the timber is the best I have seen in the country. At Woodley's Soak one would get three times as much firewood out of a tree as one would at Lake Well. It is very level country. I consider that 300 cords of cords per month would be consumed per month at Lennonville (Kearsney's), and 60 cords for the public battery. I am sure 1,000 cords per month would suffice for the whole district. The firewood is getting very scarce, and this involves very long cartage. The only mining between Lea and Lennonville is at Lake Austin, but I am not acquainted with the firewood supply in that neighbourhood.

(The witness retired.)

Mr. Robert Hamilton Allen, examined.

To the Chairman: I am a contractor at Lennonville, where I have resided for three years, and I have a good knowledge of the country in this vicinity. The best timber that I know of lies to the east of the railway, some 10 or 40 miles in the direction of Lawlers. This belt of timber commences near Woodley's Soak. I have not been off the track, but should say it was 20 miles through. It is fair bush right from Lennonville to Woodley's Soak. I think 300 cords per month would supply Lennonville and Magnet. Perhaps 140 cords per month would be used at Lake Austin.

(The witness retired.)

Mr. George J. Smith, examined.

To the Chairman: I am a resident of Lennonville. The mallet timber is generally found on the top of the ranges. The bulk of this timber lies to the east and south-east of Pinjelli. Not much will be found beyond 20 miles to the westward; but this timber can be found for 20 miles to the east of the Great Southern Railway. We have used mallet for timber rafters; and it has proved satisfactory, but not 10 per cent. when used close to the ground. The white ants are destructive to mallet. Very little grass is found in the mallet country; but good grass is generally found at the foot of the ranges. Mallet grows up to three feet in diameter. If the bark were stripped from the trees, the country would be improved for grazing purposes. Mallet suckers do not grow to any extent, except on large stumps. The suckers and seedlings grow very quickly, but I have no record of their growth. Box poison is always associated with this mallet. The small trees, as a rule, are sound, the larger ones being pitted.

(The witness retired.)

Mr. Oliver Greenwood, examined.

To the Chairman: I am engaged in obtaining and crushing mallet bark for tanning purposes. My firm has a plant erected at Pinjelli, consisting of an eight-horse power engine and dephlegmator, the capacity of which is about eight tons per day. We employ about 40 men for four months in the year on piece-work. We pay for the bark at the tree, carting it to the mill with our own teams. On an average it costs 10s. per ton to cart for eight miles. We shall soon have to go much farther to obtain bark. It takes on an average about 40 trees to produce one ton of bark; the trees averaging from nine inches to two feet in diameter. According to an analysis which we have of the bark of the mallet, it produces from about 40 to 45 per cent. of tannin. This compares very favourably with the wattle bark of this State. The South Australian wattle bark, I believe, is sold on a basis of 22 per cent. of tannin. This is the best wattle known. We are now engaged in this business about 18 months, and are the pioneers of this industry. During this year another firm has taken up the business. During the past 18 months we have lost about 600 tons of bark to our business. About 750 tons of bark are required annually in Western Australia for tanning purposes. The mallet timber is very tough, and should be suitable for wheelwrights' purposes. I understand that in tanning equal proportions of wattle and mallet bark are used. The mallet trees are stripped of their bark for 20 feet from the ground. Probably there would be as much bark left on the trees as taken off. If the trees were ringed in December, about three months latter the bark would come off of its own accord; and I should think that the bark thus removed would be as valuable as the bark we get at the present time. The mallet seedlings appear to grow very quickly, especially after a bush fire.

(The witness retired.)

Mr. Francis Tuttle Wake, examined.

To the Chairman: I am in partnership with Mr. Greenwood. We have been engaged in the bark 40 crushing industry for about 18 months. I attend to the selling part of the business, and can inform the evidence of Mr. Greenwood. During the last 12 months we have disposed of about 120 tons of bark. The whole of this quantity was supplied to two firms. We have endeavoured to open up a trade with English tanners; but so far have not been successful, owing, no doubt, to the English people being unable successfully to treat the bark. The contracts which we have on now will give us a margin of profit 45. During last year we forwarded about 80 tons of bark to Victoria; and we still have orders for 200 tons for Victoria, which shows that if the bark is properly treated it will give satisfactory results. We have four men working at the mill. The cost of hoistage runs up to about 20 per cent.; that is to Perth. We pay 5s. per man per month for stripping licences, which are obtained from the clerk of courts at York. At the present time the bills on which the mallet grows are being rapidly selected, and the selectors are 50 ring-barking the mallet trees. In this way the bark is being wasted, and the supply will be depleted. I would ask that the protection be given to the native trees. If there is any extent of the mallet growing. Between Ouball and Narrogin, about two miles, or east of the railway line, there is an area of mallet country extending for about 10 miles, and varying from half a mile to two miles in width.

(The witness retired.)

The Commission adjourned.
Mr. John Whitecross Lyall, sworn and examined.

1. By the Chairman: You are the owner of a mill at Werribee, on the Eastern Railway?—Yes.

2. What timber are you cutting?—Jarrah and wandoo.

3. In equal proportions?—I cannot say in what proportions; but we are now cutting more jarrah than wandoo.

4. Is there a pretty good supply of those timbers in that neighbourhood?—Decidedly the reverse. There is not a good supply of either.

5. Over what area have you been cutting?—Over four square miles of run which we leased, a reserve to the south of the line, and Crown lands to the north.

6. You have been paying a licence fee for cutting?—A licence fee on the Crown lands, and royalty on the reserve.

7. Can you give the Commission any idea of the number of loads per acre of wandoo?—No. That would be difficult; because the Jarrah and wandoo are mixed. But my firm estimates that there is but a little more than a load per acre of either, taking the whole country.

8. Is there much more timber available outside that area of which you speak?—Not within payable distances.

9. Then you would have to remove your mill if you wished to continue cutting?—Yes.

10. Have you inspected the surrounding country with a view to moving your mill?—We have no idea of moving it to any other spot in that locality. We have inspected the country, and we do not consider that there is in it a ball of timber good enough to justify our putting down a mill.

11. You think, then, that there is no hope of carrying on the milling industry in that neighbourhood?—No. There is another mill about three miles from ours, at a place called Karrijeep, farther east; and that cuts us off.

12. By embracing all the valuable timber?—Yes. There are small patches farther out; but nothing good enough to put a mill on.

13. Then you will have to close down?—Yes.

14. And you do not know of any other place in which your industry can be prosecuted?—No, but not in that locality.

15. Are you inclined to tell the Commission where you wish to continue, if such be your wish?—I do not intend telling the Commission. We have inspected one area near Donnybrook; but I am afraid it is not available. Another is near Donnybrook. If we could secure either of those areas we should start work immediately, sending men down to make preparations.

16. Do you know of any locality where the cutting of wandoo can be carried on?—No.

17. Has your experience led you to believe that there is a special demand for wandoo?—Not a special demand. We receive about a certain but small quantity. Some mines prefer it to jarrah, and some are prejudiced against it; but at present we sell a fair quantity on the goldfields. Some mines specify wandoo for certain work, and will not have anything else as long as they can get it.

18. If you move your mill, will you be prejudiced against it?—Is their objection due to mere prejudice, or have they tried the wood?—As far as I know, they are prejudiced against the wood because it is hard to work.

19. And why does not that objection weigh with those who do wish it?—They consider that the superiority of the wood more than compensates for the extra labour.

20. So experience brings it into favour; and its hardness is the cause of the prejudice against it?—Yes.

21. If I rightly understand you, your object is to prosecute your trade in jarrah?—Yes.

22. How long have you been cutting at Werribee?—About three and a-half years.

23. Can you give a rough idea of the quantity of wandoo you sent away from your mill in that time?—I will consult my books and let you know the area cut over, and the approximate quantity sent away.

24. By Mr. Atkins: How long will the timber last where you are now?—Not more than three months. It will not longer be payable. After that we shall have to put on extra teams.

25. We do not wish to know your private business; but have you any contracts which will extend beyond that time?—There is a contract with one of the largest mines at Kalgoorlie, the Golden Boulder.

26. For how long?—It is only an oral contract, but the company hold us responsible, and are willing to take the timber as long as we are willing to supply at the price.

27. It is a running contract?—Yes. At present they have a lot of work in hand; they are about to put in extra stampers, and there is a large order coming out. Then we have with the Great Boulder mine a contract of a similar nature. They are large customers of ours. And there are one or two contracts with small timber merchants on the goldfields, who use a great deal for construction work. Do you have a going trade which you have to keep up. That is what is the matter?—Yes. If we stop, we shall lose it altogether.

28. And under the present conditions of the timber lease, you cannot go any farther after three months?—No.

29. By the Chairman: If you moved to Donnybrook or to Collie, could you keep those contracts going, having regard to the extra freight?—Yes; we could. I consider that the better class of timber there would more than compensate for the differences in freight, which would be about 20d. a ton. I am certain that we could make a greater saving than that in the cutting.

30. Then those contracts of which you speak are for jarrah only?—For jarrah and wandoo.

31. But you say you cannot supply wandoo from Collie?—No, but according to the contract, the customers will take either jarrah or wandoo.

32. By Mr. Hotlie: Could you get any fair-priced area of wandoo timber on the Eastern Railway?—No.

33. By the Chairman: As to the wandoo, have you a scale for all classes of it, or for any class in particular?—That is the trouble. There has always been a difficulty in getting rid of the small sizes.

34. On what is it principally used for on the mines?—On some it is used for construction work. On the Great Boulder mine it is preferred for any heavy construction work such as stant stands, and for all their opening sets underground, at the plats where there is a great strain.

35. By Mr. Hotlie: Does it resist the white ant?—Yes. That has been proved by the Government.

36. By Mr. Atkins: Do the mines use it for building timber?—One or two mines use it; but the contractors do not like it. It is too hard, and is heavier than jarrah.

37. By the Chairman: Is it not apt to warp?—No. In our experience, after stacking it at Kalgoorlie, it does not warp.

38. But you refer to large sizes?—No; to small sizes also. It stood better than jarrah.

39. By Mr. Fitzgerald: What is your daily output?—About seven loads.

40. By Mr. Atkins: How many men do you employ?—Twenty-two.

41. In what capacities?—We have six fallers and four tramiers; and the remainder are in the mill. These include the foreman blacksmith, and the loaders.

42. By the Chairman: What percentage of good timber do you get out of your logs?—We have not any records.

43. You have a general idea, I suppose?—We sell a large quantity of slabs; and taking that fact into consideration, we reckon on getting 65 per cent.

44. Then as it pays you to sell slabs, much timber is thus saved from the fire?—Yes.

45. What proportion, apart from sawdust, goes into the fire?—I should say about 20 per cent.

46. By Mr. Hotlie: About the highest saving in the State?—We cannot prove the statement by figures; so it may be wrong. Last month we sent away about 80 tons of slabs, both jarrah and wandoo, to the mines.

47. I suppose you have a practically unlimited demand for slabs?—Yes. We have never accumulated any, and we can cut all we can. In cutting wandoo we prefer to make slabs rather than sawdust, because slabs are more salable. Sometimes we have found the wandoo sawdust accumulate on our hands, and it has proved troublesome to get rid of.

48. What is the freight on timber from Werrabbee to Kalgoorlie?—It is 28d. 7d. a ton.

49. By Mr. Atkins: That is about 34d. a load, is it not?—About 40s. a load.

50. By Mr. Hotlie: It is usually sold by the ton?—The slabs are sold by the ton; not the sawn timber.

51. Suppose you think it would be a good idea to reduce greatly railway freight on timber sent to a big centre like Kalgoorlie?—For a long time we have heard complaints about the high freight on other timbers, and other producers. Do you think the freight too high?—It seems to me not too high; because it is almost the lowest freight there is.

52. By the Chairman: Would your trade be affected by a reasonable reduction in the railway freight from your mill to Kalgoorlie?—I do not think so. I do not think there would be any more timber used. It would not give one man any advantage over another.

53. Would a small reduction (for it could be only a small one) pay you to haul farther, or encourage you to go on at Werrabbee?—No.

54. It would not help the trade in your locality?—No.
56. By Mr. Atkins: I suppose the trouble in your locality arises from the scarcity of timber?
That is just the trouble.
57. By the Chairman: How far south have you travelled in search of wandoo particularly? Are there any large supplies farther south of your mill?—No. We go into private property about three miles south.
58. Poisson country?—Yes.
59. And is that ringed?—I do not know.
60. I was wondering whether, if there is timber in that direction, it would pay to put down a tram?—I do not think it would pay to put down a tram anywhere in the neighbourhood. We have inspected local belts of timber, and consider that it would not pay to put a tram line into any of them.
61. There is a good deal of wandoo on the track between Childhine and Newnham. Have you looked over that?—No.
62. And there is a good deal to the west of the track. Do you think that any wandoo forest you have seen would pay to work alone, irrespective of jarrah?—No. It might pay for 12 or 18 months, or perhaps two years; but it would not afterwards be payable. So far as I am concerned, I would not again cut wandoo only.
63. Wandoo dogs the saw, and prevents its cutting freely.—It does.
64. By Mr. Atkins: What do you want to do? You said you would like to tell the Commission of the position you were in, so that they might understand how you were suffering disabilities through the present timber regulations?—We want to shift our mill, and we want an area to put it on, and some security of tenure. If we shift the mill now, we are liable to be interfered with by anybody who comes along. The sleeper-hewers may come in, or another man may put a mill alongside of ours, and that would not be good enough.
65. By the Chairman: Have you read the first progress report of the Commission?—Yes.
66. You saw our recommendation as to the Flora and Fauna Reserve?—Yes.
67. Had you an exclusive right of cutting over an area proportioned to the capacity of your mill, would that give you a satisfactory outlet? That is a recommendation we made with a view to the better preservation of the timber in that area. The standard was mixed to three feet, so as to have the country fit for cutting within a man's lifetime, instead of adhering to the present practice, by cutting it right out and rendering it useless for a period equal, one might almost say, to the lifetime of a tree. Do you think such conditions would induce you to establish a mill on the Flora and Fauna Reserve?—We have not inspected that reserve.
68. By Mr. Atkins: Suppose the timber in that reserve to be as good as the other or better, would the conditions suit you?—We do not like the three-feet limit. Without inquiring more thoroughly into the matter, I cannot say whether we should be prepared to put down a mill under those conditions.
69. Suppose you put down a plant to enable you to hobl, say, ten years' cutting. Before your lease terminated, a lot of the stuff which you left this year as being under three feet would come in again and be cut over?—I suppose some of it would.
70. The evidence shows that the increase is about half an inch per year. Take it at a quarter-inch. In 1840, 10 inches was the width to be allowed; so much of that timber would be cut off, and still there would be more coming on. A 10, 12, or 14-year cutting would be available, instead of, as now, a 40 or 50-year. But that system is recommended only in the Flora and Fauna Reserve.—So I understand.
71. By Mr. Hastie: Are there any areas of Crown lands, other than the Flora and Fauna Reserve, which you might take up with a view to erecting a mill?—Yes.
72. In those cases the limit suggested is two feet six inches?—Yes.
73. Do you approve of the conditions on which the Commission recommended that land should be made available?—Yes; in proportion to the horse-power of the mill.
74. With a small royalty instead of rent?—Yes.
75. Do you think those conditions pretty fair?—Yes; but much depends on the amount of the royalty.
76. By the Chairman: But you do not object to the principle?—No; I quite approve of it.
77. By Mr. Hastie: The only objection you recollect to our recommendations pertaining to the Flora and Fauna Reserve is that regarding the three-feet minimum?—Yes.
78. If you cannot get fresh country you will be unable to enter into any new contracts?—Yes; or to carry out our existing contracts.
(The witness retired.)

The Commission adjourned.
Mr. P. V. Davies, continued.

109. By the Chairman: Have you seen much of billian?—Yes. It is used for bridges and railway sleepers.

110. Is the tree large?—Yes. It grows to a girth of about 12 or 14 feet.

111. You have not visited Borneo?—No.

112. Did you glean any information as to the quantity of billian in that country, and the likelihood of its competing against our timber?—We lost a large order, worth about £6,000 or £7,000, which was filled by Borneo timber.

113. By Mr. Atkins: Do you mean billian?—No. There are other Borneo timbers.

114. Is there a quantity of billian, or is it only scattered?—There is a quantity in the north-east of the island.

115. By the Chairman: In the mountains?—Yes. Most of the country is very hilly, right up to the coast.

116. By Mr. Atkins: Is there a large supply of billian, or is it scarce?—There is a fairly good supply; but it is not the principal timber.

117. How much of it is there?—I have not any idea.

118. By the Chairman: What other wood is there in Borneo?— Principally camphor wood.

119. What is the wood used for what work?—Yes, in Northern China.

120. What wood has been used at Port Arthur, and the port at the other side of the peninsula?—A lot of jarrah was sent there.

121. And karri also?—No. I do not think any karri was sent.

122. Did you supply the jarrah?—No. It was supplied by the Jarraldale Company.

123. The works have now been erected some years?—No. I think the timber was sent there some two years ago.

124. What are your prospects of competing with Borneo wood in Europe?—I think the Borneo timbers can be very usefully supplied much cheaper than ours.

125. Why?—Labour is cheaper; and the trees give a bigger percentage of good timber. There is less waste.

126. What about the hardness?—The hardness is much cheaper than here. Much of it is done on the rivers, the logs being floated down.

127. What means are used of getting the logs to the railway?—About 70 or 80 miles of railway have been laid into the interior by the Government.

128. There is a line from port to port on the north-east coast; but there was a complaint that it did not tap the interior?—The railway goes from a place called Jesselton, inland.

129. How far from the coast?—I think at least 40 or 50 miles.

130. It goes into the timber ranges?—Yes.

131. How is the timber brought to rail or water?—In some places there are chutes—milling laid on the ground; and the logs are skidded on them by hand or by buffaloes.

132. And in those cases where the sleepers were replaced with wood, was that done because wood was cheaper, or because the pot sleepers were unsatisfactory?—I think one of the principal reasons was that the maintenance of pot sleepers is more expensive.

133. By Mr. Moore: Not so much give?—With pot sleepers you must use broken camphor wood, which is another hardwood, are used for sleepers in South Africa. A billian sleeper, although some have been used; but not to a large extent.

134. By Mr. Atkins: Of those 14 or 15 kinds of timber, how many would be commercially useful in competition with hardwood?—The timbers range from billian, which is a very hard wood, to timber as soft as pine; and all are marketable. About five or six of the varieties are hardwoods.

135. Are they eucalypts?—No.

136. By the Chairman: Are the soft woods of the pine or cedar variety?—There are some cedar trees.

137. And what do we call the pine?—Yes.

138. By Mr. Hasle: What do you mean by billian?—For sleepers, bridges, and wharves. It resists white ants—Yes.

139. Did you find that billian compete with jarrah in South Africa?—No; but the camphor wood and the mahogany, which is another hardwood, are used for sleepers in South Africa.

140. Are any of the Borneo timbers used in South Africa for mining purposes?—I think some have been used, but not to a large extent.

141. By Mr. Atkins: Do you know whence the South African mining timbers come?—Not from personal experience.

142. By the Chairman: Have you visited the forests of India and Burmah?—I have not been to Burmah. I have been some of the Indian forests.

143. In India likely, in the near or fairly near future, to supply itself with timber for railways or wharf works, or will it have to rely on Borneo or Australia?—To a certain extent it supplies itself; but it cannot get a large quantity of timber or a large number of sleepers in a short time.

144. How is the timber brought to rail or water?—About 2s. 6d. The sal and gum kai are Indian.

145. By the Chairman: Is there no sal in Borneo?—No.

146. By Mr. Atkins: What is the price of the steel sleeper?—I am not certain. I think I can ascertain.

147. By the Chairman: For the lines laid with steel sleepers did any of you timber people tender, or was steel specified?—We tendered.

148. Steel or wood was optional?—Yes.

149. I do not know whether the steel people beat you in price per mile?—I think the decision rested with the Consulting engineer in London.

150. Do you know whether the steel people beat you in price per mile?—Yes.

151. And salwood?—About the same.

152. By Mr. Davies: Do you mean billian or hard wood?—No.

153. What is the comparative cost of the steel sleeper, the jarrah sleeper, and the Borneo billian sleeper, taking the standard weight of rail, and sleepers of proportionate size?—An 8r. 4s. 6d. 6f. 6m., or 6f. jarrah sleeper, costs, delivered there, about 3s. 7d., and a Borneo sleeper about 2s. 6d.

154. By Mr. Davies: Sawn or hardwood?—Either hard-sawn or steam-sawn.

155. By Mr. Atkins: What wood?—Campbell wood.

156. By Mr. Davies: And a billian sleeper?—About 2s. 6d.

157. By Mr. Fitzgibbon: And salwood?—About the same.

158. By Mr. Hasle: Do you mean billian or hard wood?—Yes.

159. By Mr. Atkins: What is the price of the steel sleeper?—I am not certain. I think I can ascertain.

160. By the Chairman: For the lines laid with steel sleepers did any of you timber people tender, or was steel specified?—We tendered.

161. Steel or wood was optional?—Yes.

162. Do you know whether the steel people beat you in price per mile?—I think the decision rested with the consulting engineer in London.

163. Do you know whether the steel people beat you in price per mile?—Yes.

164. What means are used of getting the logs to the railway?—About 20 or 25 years ago they had been replaced by wooden sleepers; but the lines from Bombay to Calcutta has iron pot sleepers.

165. By Mr. Atkins: What do you mean by billian or hardwood?—Yes.

166. By Mr. Davies: In what proportion of the railway?—About 2s. 6d. The sal and gum kai are Indian.

167. By the Chairman: Is there no sal in Borneo?—No.

168. By Mr. Atkins: What is the price of the steel sleeper?—I am not certain. I think I can ascertain.

169. By the Chairman: For the lines laid with steel sleepers did any of you timber people tender, or was steel specified?—We tendered.

170. Steel or wood was optional?—Yes.

171. Do you know whether the steel people beat you in price per mile?—I think the decision rested with the consulting engineer in London.

172. Do you know whether the steel people beat you in price per mile?—Yes.

173. What is the comparative cost of the steel sleeper, the jarrah sleeper, and the Borneo billian sleeper, taking the standard weight of rail, and sleepers of proportionate size?—An 8f. 4s. 6d. 6f. 6m., or 6f. jarrah sleeper, costs, delivered there, about 3s. 7d., and a Borneo sleeper about 2s. 6d.

174. By Mr. Davies: Sawn or hardwood?—Either hard-sawn or steam-sawn.

175. By Mr. Atkins: What wood?—Campbell wood.

176. By Mr. Davies: And a billian sleeper?—About 2s. 6d.

177. By Mr. Fitzgibbon: And salwood?—About the same.

178. By Mr. Hastie: And salwood?—About the same.

179. By Mr. Hasle: Do you mean billian or hard wood?—No.

180. By Mr. Atkins: What is the price of the steel sleeper?—I am not certain. I think I can ascertain.

181. By the Chairman: For the lines laid with steel sleepers did any of you timber people tender, or was steel specified?—We tendered.

182. Steel or wood was optional?—Yes.

183. Do you know whether the steel people beat you in price per mile?—I think the decision rested with the consulting engineer in London.

184. Do you know whether the steel people beat you in price per mile?—Yes.

185. What is the comparative cost of the steel sleeper, the jarrah sleeper, and the Borneo billian sleeper, taking the standard weight of rail, and sleepers of proportionate size?—An 8f. 4s. 6d. 6f. 6m., or 6f. jarrah sleeper, costs, delivered there, about 3s. 7d., and a Borneo sleeper about 2s. 6d.

186. By Mr. Davies: Sawn or hardwood?—Either hard-sawn or steam-sawn.


188. By Mr. Davies: And a billian sleeper?—About 2s. 6d.

189. By Mr. Fitzgibbon: And salwood?—About the same.

190. By Mr. Hastie: And salwood?—About the same.

191. By Mr. Hasle: Do you mean billian or hard wood?—Yes.

192. By Mr. Atkins: What is the price of the steel sleeper?—I am not certain. I think I can ascertain.

193. By the Chairman: For the lines laid with steel sleepers did any of you timber people tender, or was steel specified?—We tendered.

194. Steel or wood was optional?—Yes.

195. Do you know whether the steel people beat you in price per mile?—I think the decision rested with the consulting engineer in London.

196. Do you know whether the steel people beat you in price per mile?—Yes.
179. By the Chairman: How or by whom are the sleepers made ?—The sleepers are made by Government order. The whole of the Government orders for the construction of railways, bridges, etc., are made by the Board of Works, and are executed by European contractors.

180. By Mr. Moore: Have you examined the different Indian timbers used?

181. By Mr. Moore: Do you know where they went from ?—Some from Java and some from Ceylon.

182. By Mr. Moore: Did you examine any sleepers of other woods ?—Yes; I have examined the different Indian timbers used.

183. By Mr. Moore: How were they standing ?—The pyramidal and sal sleepers had been used in different parts of India.

184. By Mr. Moore: Ever since they have had railways ?—Yes; they give the life of these sleepers about fifteen to twenty years.

185. By Mr. Moore: What size were they ?—I have seen 8 by 4 feet, six inches long, 9 by 4 feet, seven feet, and 10 by 5 feet.

186. By Mr. Moore: Those on the different gauges ?—Yes. Sleepers were taken to India 18 to 20 years ago, but no record has been kept.

187. By Mr. Moore: Are there any jarrah sleepers in China; of course they have not many railways lines there ?—I do not think there are any sleepers there, but there are in the Philippine Islands.

188. By Mr. Moore: Did you inspect those ?—Yes.

189. By Mr. Moore: How long have they been down; not very long ?—Yes; between five and six years.

190. By Mr. Moore: Are they standing all right ?—Yes.

191. By Mr. Moore: That is a very moist climate ?—Yes.

192. By Mr. Moore: Mr. Jenkins: Some were taken over there—There is a greater number of trees scattered over a great area there than in our country.

193. By Mr. Moore: You say there is a large quantity of timber there: can you give us some idea of the area of it there ?—Yes.

194. By Mr. Moore: That is good timber ?—Yes.

195. By Mr. Moore: What is the principal timber there ?—The principal timber is mahogany.

196. By Mr. Moore: What is the species ?—Yes.

197. By Mr. Moore: What are the forests the same as in Western Australia ?—No; the trees run in belts, the same as they do here.

198. By Mr. Moore: Then it is different from India ?—Some of the Borneo and Philippines are much alike.

199. By Mr. Moore: What part ?—In the northern part, at Yasson.

200. By Mr. Moore: What is the principal timber there ?—Biliana and mahogany wood.

201. By Mr. Moore: How far will the mill be from the coast ?—Right on the coast.

202. By Mr. Moore: You haul the logs from the mill ?—They will float them down. There is a small mill there at the present time, and they bring the logs down by float.

203. By Mr. Moore: Do you purpose employing native labour or will you import labour ?—We shall employ European labour to cut the timber and a few Chinese to carry it to the saw.

204. By Mr. Moore: By the Chairman: You will import Chinese ?—There are a great number of Chinese in Borneo now.

205. By Mr. Moore: Are they not of the same character as those in India, a great number of species of trees scattered over a great area ?—Not so much in the Philippines.

206. By Mr. Moore: Do you refer to the company itself ?—Yes.

207. By Mr. Moore: How do you pay for the timber there ?—Have you a concession or do you pay royalty ?—We have a concession from the Government.

208. By Mr. Moore: Can you tell us the extent ?—We get the timber all along the railway.

209. By Mr. Moore: By the Chairman: Is that under the Borneo Chartered Company ?—No, not this particular land.

210. By Mr. Moore: Some of it ?—This is the British North Borneo Company.

211. By Mr. Moore: By the Chairman: Can you tell us whether there has been any experience of wood-paving with the Borneo timbers; whether they were competing with our woods for that ?—I do not think it has been tried very much for wood-paving.

212. By Mr. Moore: Is railway construction there ?—No; the railway is being constructed by the Government.

213. By Mr. Moore: Have you any idea of the trade from Borneo to any of the South African ports ?—No, I do not know what the trade is.

214. By Mr. Moore: By the Chairman: What strikes me particularly about Borneo and the Philippines is that the timber is good and can be produced so cheaply there, why the people of Western Australia cannot think of going in for an export trade at all ?—The forests have never been worked there, anything like the forests have been worked here—to the same extent.

215. By Mr. Moore: And so systematically ?—No.

216. By Mr. Moore: By the Chairman: How about railway freights on the Government railways, are they cheaper than here ?—Do you mean in Borneo ?
267. Yes.—The railway freight on logs is very cheap; I would not like to say what it is, Mr. Templerly; but I will be able to tell you that.

268. By Mr. Moore: Were you carrying the logs from the mill by private railway or are the logs brought down on the Government railways?—The Government railways.

269. By the Chairman: The mills are along the Government railways?—Yes.

270. By Mr. Moore: At the port?—Yes.

271. By Mr. Hastie: You have to lift from the water?—Yes, there is a crane alongside.

272. By Mr. Hastie: What does the Borneo Government get out of the timber? Do they charge a royalty?—There is really no Borneo Government.

273. Mr. Hastie: A Toyalty?—There is really no Borneo Government.

274. By Mr. Hastie: You said railway construction was very expensive and the freight on logs very cheap, and that native and Chinese labour are employed. Does the Government, or anyone in charge of the country, get anything out of it?—They will under our arrangements with them; they get freight on the logs, for bringing the logs in from the forest to the mill.

275. That is the sole profit they get; there is now no export duty.—No.

276. No royalty?—I am not sure. Mr. Templerly will tell you about that. The Government are anxious to have the country opened up. The railways are not purely for timber purposes.

277. Of the country, get anything out of it?—They will under our arrangements with them.

278. Will they deal with wood?—Yes.

279. The Government?—Yes.

280. By Mr. Hastie: Would it make a big difference to you, if the timber were carried at a loss on the railways, it would not be advantageous to develop it, would it?—No. It does make a big difference at present. The railway freight being so expensive to Freemantle, it means that we have to send so many ships to Bunbury.

281. If there is no coastwise trade in timber, Australia will be able to go without it, will it?—We would certainly have to get it from a company.

282. By Mr. Hastie: You speak of the freight. Can you tell me of any other country in the world where the freight is cheaper than here?—In India, the freight on railway sleepers. The different railway companies have an arrangement amongst themselves, and they carry the sleepers at a very nominal rate.

283. A special rate for sleepers alone?—Yes.

284. By Mr. Ferguson: Is that imported sleepers, or sleepers cut in India?—No; only local sleepers.

285. By the Chairman: Can you tell us the rate per mile?—No, I cannot; but I can obtain that information for you.

286. By Mr. Hastie: And that freight is cheaper than freight for other timbers? It is a special thing for sleepers alone?—Yes. They have a special arrangement for carrying their own sleepers.

287. By Mr. Aikins: Is that for Government sleepers?—Railway companies, Indian railways.

288. By Mr. Hastie: For what consideration do they do that, carry their own sleepers?—They use the sleepers themselves.

289. On account of their using the sleepers themselves they do it?—Yes. They have an arrangement with Musgrove and other railway companies. They reciprocate.

290. My principal reason for asking this question was that we have heard a general statement about great cheapness. We cannot get figures about it. I can get you the figures. I have the exact price.

291. (The witness retired.)

292. By the Chairman: Is there anything you would like to state to the Commission throwing any light upon the timber industry?—Yes; except that I think people interested in Western Australian timber, indirectly principally, do not recognise the fact that we have to compete with a great many more timbers than they think; and we find that out by tendering.

293. Can you suggest any means by which the cost of production here could be reduced, or enable you to tender in competition with those?—No, I do not think I can. Of course, the principal item in the production here is the cost of wages, which is higher than in any other country in the world where timber is produced.

294. That is a thing that time alone can settle?—Yes.

295. There is the haulage, but the little alteration in the rail gauge would not make the difference you would require to be able to compete, would it?—Well, it would make a considerable difference. We have not the gauge. It applied on railway sleepers. The different railway companies have an arrangement amongst themselves, and they carry the sleepers at a very nominal rate.

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303. (The witness retired.)

304. Mr. Charles Templeyore, sworn and examined.

305. By the Chairman: What is your profession?—I am a steamship owner.

306. Have you been brought up to an engineering profession?—No.

307. You are in business as a timber merchant?—I presume we are timber merchants. In England we do not call ourselves timber merchants. A merchant is a man who buys from a producer and sells to a retailer.

308. You are a producer, and sell too?—Yes; we are everything; wholesale, retailers, and middlers as well.

309. How long have you been connected with the Western Australian timber trade?—I think 1890 was the first time.

310. What timbers did you deal with first?—Karri only.

311. What works did you put that wood into?—I am a very difficult question to answer now. Do you mean in the first year? I think 1890 was the first time.

312. Yes. What uses did you put them to? Was it for sleepers or for marine work?—The first business we had in London was the street paving.

313. How long ago did you put down any street paving in London?—I think 1891.

314. That was karri?—Yes.

315. Can you tell us the conditions of that now; what reputation it has gained?—The first sample came down in 1891; but as far as I know at present it has been removed owing to a street improvement. It was only a small sample piece.
Mr. C. Trougshy, P.C.

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315. It was not removed because of defects?—Oh dear no!

316. Did you have any report made upon the blocks when they were taken up as to how they had worn?—No; not on that particular piece.

317. Was there a complaint about the present amount, had it?—Yes. We had the misfortune to beat the Jarrahdale into a pulp in the first instance, because we made some comments on the results of our trials.

318. That was on the Lambs?—Yes; the entrance to the Lower Marsh; that is the name of the street.

319. What was your next piece of karri blocking?—I could not tell.

320. Have you any reports or records of the karri paving you laid down?—Yes. I can give you plenty of them which have just been published. They arrived by the last mail. As a matter of fact you will not find any record of paving in the pamphlets.

321. They were not put into the pamphlets?—Absolutely; far more than I can give you.

322. Is the demand for blocks still maintained, or is it increasing or decreasing?—It is not increasing, I am sorry to say.

323. Is that due to competition?—No. It is principally due to the bad results obtained from the use of Western Australian timbers.

324. That is, it does not answer what it was hoped to fulfill?—No.

325. Can you give us the reason for that?—Principally there is only one reason—shrinkage.

326. Give and take?—Shrinkage. That is the only thing. The actual wear has exceeded our expectations; that is to say, the depth of wear.

327. Are you insulating any experiments in the endeavour to find out how to overcome this difficulty of shrinkage?—Well, yes; we have tried. I could not say right off, but I should say five or six different methods—electrical, hot air, steaming, and various other processes; but the only practical way to do it is to keep the planks in the first instance, and to keep the blocks in the second instance, before being used.

328. That is age?—Keep them; store them. We find that the local authorities who buy their timbers are—ahad of requirements and store their blocks six months before putting them in on the roadway get perfect results.

329. It is only a question of six months' saving?—Oh, no! Blocks six months; the timber must be left long enough for satisfaction, and store their blocks six months before putting them in on the roadway get perfect results.

330. Then it requires two years' seasoning before you can lay them with safety?—Yes. I would say two years' proper seasoning. We have stored timber three years improperly, and, when we cut it, it was properly the same as when we cut it first. But in fact that they kept it before cutting it into blocks and when they cut it out into blocks it kept them happy.

331. By Mr. Moore: It means that you keep timber two years on shipping direct from here, and then you wish it kept six months after it has been cut up into blocks?—Yes. The municipal authorities in Portius have had the best results from it, everyday facts in the fact that they kept it before cutting it into blocks and when they cut it out into blocks it kept them happy.

332. By Mr. Hutson: It would do if you cut it into blocks when it arrived?—It might do, but if you cut it into five-inch blocks and the order was for four-inch you would be glad. If we could say what depth of block would be used, we could do it, but there is no standard; 5, 4 or 6.

333. By Mr. Chitman: Each engineer has his own idea?—They have with regard to the particular size of bricks, but not pavings.

334. By Mr. Hutson: That is, clay bricks and not wooden ones?—Yes.

335. By the Chairman: What other lines of use do you find promising with regard to timbers?—In England, I do mean.

336. Yes; in Europe principally?—I do not know how far I am compelled to answer your question, because it may prejudice the interests of our company.

337. I do not wish to prejudice the interests of your company at all, but we would like to give you some idea of what we may hope for in the development of the timber?—I can answer that without prejudicing our company, because wherever hard wood is used, jarrah can be applied, except, perhaps, in the case of ligustrum; that is about the only name I can think of at the moment; and it is a substitute for any hard wood almost.

338. There is no hardwood in Europe, if I may trouble in competition with?—Oh, yes, undoubtedly. Oak.

339. But European oak is not as plentiful as it is?—It is sufficiently plentiful to put the price down at the present moment to £2 per load less than we can supply it at.

340. Are they any limits for blockings?—No.

341. In what wood does it compete?—Wagon-building, furniture, engineering generally.

342. What work?—No; we do not use much oak for wagon-building.

343. By Mr. Moore: As a matter of fact, do your representatives here prefer blackbutt to either karri or the hardwoods for building purposes?—No; they prefer the karri all the time and the jarrah. In fact they never use jarrah for trucks. At Yarloop the other day I found them repairing a wagon which had been on the road for five years without going into the shop. I was so much impressed by this that I had that frame packed in boxes and sent to London to show the results. The bolts where the iron work had been were just as sharp and clean as they had ever been, though they were made five years previously.

344. By the Chairman: That truck had been on rough timber traffic?—Very rough indeed. I have sent on the statistics with regard to the duties the truck had to perform, which were a long way in excess of anything it would have to do in England, not only with regard to weight, but in the nature of the road, it would have to travel over. I also hope to be able to send a blackbutt wagon he has as soon as one of the wagons can be obtained; but the results of blackbutt are more promising. We get blackbutt sizes in England, because the Great Northern use it. They get it from New South Wales, but will not give us an order in Western Australia.

345. It is not quite the same timber?—It is not quite the same, but the appearance is identical. I had the other day a truck at Mornington and brought it to the works. It was 24ft. and 26ft. long, so that it was a pretty good tree, but I have not had the results yet. They claim here that the cutting of English wagon timbers is a most punishing thing for the mill. They reckon that they would say three or four times as much as they could get, but I found we could get hardly any blackbutt. We happen to be in a belt of it to-day and for the next few weeks we may get a few thousand lengths, but after that they do not expect where to get others.

346. By Mr. Atkins: A sewerage selection?—Yes; I am sending on the results of this log to the North-Western Railway as a present, and am going to ask them to try it. After making up my mind to do so, I asked the engineer how much he could get, and then I found we could get hardly any blackbutt. We happen to be in a belt of it to-day and for the next few weeks we may get a few thousand lengths, but after that they do not expect where to get others.

347. Your Worley mills are great places for blackbutt?—Between that and Mornington generally.

348. It only grows in the flats?—Yes.

349. By the Chairman: Have you found any other special service you value for karri, such as arms for telegraph posts?—That is so. We supply the General Post Office. In fact, I may say that the specifications for telegraph arms have, since telegraphy has been in existence, said "English oak." Now they say "Western Australian karri."

350. That is after a test?—After years and years of it.

351. By Mr. Hutson: Is karri exclusively used?—No; they use every kind of timber offered to them. They say: "Send us five thousand pounds and we will try the wood." But they require every piece of timber to be sound. It has to be young, and the grain has to run from one end to the other. No one will be taken with a grain diagonally, so spong and stuff and they put it to a very severe test. Although we know what they want they reject 25 per cent. of the stuff we send them.

352. By the Chairman: Do you cut it out for them?—No; we send the scantlings and they plane and chamfer and bore it themselves. They pickle it as well. I do not know how much gets into the telegraph posts. Their grandchildren did it; it is in the school books: "When you get a telegraph arm, put it in the bath."

353. By Mr. Hutson: Is the demand at home for karri as great now upon the whole as it was years ago?—Yes.

354. There is a decreasing demand?—Yes.

355. We are exporting less than before?—A good deal less.

356. By Mr. Atkins: How does it compare with jarrah? Is the demand for jarrah also decreasing?—Do you mean as far as England is concerned, or the entire world?

357. Europe generally?—It is only recently that the Continent has taken any Western Australian timber at all; within only the last few months, I may say.

358. You say the demand for karri has decreased. Has the demand for jarrah increased to the same ratio, or has there been a drop in the whole thing?—Yes; but not only in England. It is a general depression really.

359. Proportionately there is a greater decrease in the demand for karri than jarrah?—No; not at all.

360. They are the same?—Yes; we cannot distinguish between the two.

361. Are you able to estimate?—Yes; and at one period, quite recently, West African mahogany.

362. American oak?—Yes; and at one period, quite recently, West African mahogany.

363. Could you give us any information as to the cost of production and delivery at the ports of the various hardwoods of the world?—I could; but unfortunately I left all my figures in London. I had the hand of nothing but that for three months. I can give it roughly.

364. That is very exact knowledge which would be very useful to the State in framing its laws with regard to timber, if you could possibly supply us with it?—It was when we got a cable with regard to timber, that I thought I must not go on to make exhaustive reports and the reports were so pronounced that I did not think it was worth while bringing the figures. There is no part of the world where the cost of shipping the timber approaches this place.

365. The softwood answers?—Yes; it may be able to get them for you.

366. By Mr. Atkins: You mean that the cost of production is higher here?—Yes; so much higher that it is not worth while having details. Any person not in this business can answer the question. You know what the wages are here, and if you read any newspaper you can see what the wages are in other places.
By Mr. Fitzgerald: A complete mill?—No; only a sleeper mill. If Paulings have the contract for building the railway, it might account for the thing. They have the record for the whole railway building. The railway to Welwyn was built at a mile a day.

By Mr. Atkins: Nearly a hundred miles a year?—They did a mile a day.

For the whole of the line they established a record. But it was only on level ground that they did so, and it is not reckoning on culverts and bridges?—They ran the railway over 900 miles in the year.

You say you can account for the Egyptian business. I understood when I left England that the tender has not been let to anyone.

As the railway is the principal project in Borneo, we are at present solely interested in doing railway business. In working out these forests do you propose to cut timber as it comes?—At the present moment the Chinese authorities take five woods. They have given us an order for sleepers, and we can cut five different sleepers.

Do you have an option over five?—Yes.

Such as we might specify karri, jarrah, or red gum?—If we could only do that here it would be well.

By Mr. Fitzgerald: Do you receive the same prices for all?—No.

Mr. Henry McCoy, sworn and examined.

By Mr. Moore: You were appointed to superintend the sleeper-makers at the test held by the Commission at Mornington?—Yes.

Do these figures correctly state the result of the hewing operations?—Yes.

And you put them in as evidence?—Yes. They are as follows:

<table>
<thead>
<tr>
<th>Size</th>
<th>No. of Sleepers</th>
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<tbody>
<tr>
<td>7in. x 5in.</td>
<td>300</td>
</tr>
<tr>
<td>9in. x 4in.</td>
<td>275</td>
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<tr>
<td>10in. x 5in.</td>
<td>240</td>
</tr>
<tr>
<td>7in. x 5in.</td>
<td>120</td>
</tr>
<tr>
<td>9in. x 4in.</td>
<td>160</td>
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Out of the above 170, 10in. x 5in., and 190, 9in. x 5in., were cut on the quarter. I also passed 14 sleepers that were split posts 9in. x 5in., 10in. long.

Have you anything further to add to your previous evidence with reference to hewing versus saw sleepers?—I was under the impression that I said I thought about 30 per cent. of hewn sleepers was superior, and the rest was equal; but I may have been mistaken.

If you make a mass of sleepers, and do it so quickly. I can understand that the mill is a well timbered?—Yes; the principal timber we are to work is on that river.

Do you think there was any saw-millers there?—The only conclusion I can form is that the people had the contract for the big sleeper mill.

Is your mill erected near the port of Jesselton?—Yes; the North Borneo Trading Company is the port of Jesselton. This mill was erected principally for the construction of the railway, which is just about finished.

Do you have the right to run over the railway?—Yes; we have made arrangements for a special rate.

Does the timber come right down to the coast?—Yes; but we are, as well, quite independent of the railway. A month ago there was a washaway on the railway, but we kept the mill going by hauling timber from the nearest islands. Most of the woods of Borneo are valuable lightwoods in Borneo, there are about seven kinds.

Do you import any wood?—Yes; and one that would not twist. The best now is jarrah. Could not look at it at the price.

However, what I say may account for the Egyptian business. I understood when I left England that the principal part of the northern part of Borneo is held by the British North Borneo Company, who have rather extraordinary arrangements with the company to the fact that we were the first people to go there with any pretence to exploit the trade.

You have concessions in Borneo?—Yes; and one that would not twist. The best now is jarrah. Could not look at it at the price.

Is there any saw-millers there?—There have been no saw-millers there. Were there no saw-millers there?—There was the North Borneo Trading Company, which we are now trying to purchase. They ruined themselves on tobacco and rubber.
Mr. Charles Temperley, further examined.

452. By Mr. Moore: Can you give us any information as to the difference in freight between the ports of Borneo and South Africa, and the ports of Western Australia and South African ports?—If I did, it would be conjectural.

453. By Mr. Atkins: Probably there would not be much difference—I have not tested the South African market.

457. What do you suppose?—I suppose the freight would be practically the same. We should expect them to be similar.

458. By Mr. Moore: So it appears that Borneo timber will be a formidable rival to ours in the South African market, as well as in the Eastern.—Yes. Since last I saw you I have had a cable informing me that samples were being sent from Borneo to South Africa. Any new interruption upsets the trade, because it disturbs the market.

459. Will timber be used for railway and for mining purposes?—No; it is too good. The same tree will used with jarrah.

460. Does the camphor tree grow high enough to be able to compete with jarrah for piles?—I can give you ocular demonstration of that by producing a photograph of the trees with which we are operating.

461. By Mr. Atkins: What is the average height of the tree, without branches?—I do not think we have any average. We can get a camphor tree longer than a jarrah tree. I do not know that camphor is anything like as generally tendered to the Dock Company in their requirements as jarrah timber; and they gave us the 3 x 9 portion of the order, but gave the whole of the square timber to Borneo; not to us, but to our competitors (the North Borneo Trading Co.), at a price much lower than ours. I think the dock company would have given us a slight preference; but the Borneo price was so far below ours that there was nothing else open.

462. The Borneo Company cut the price as usual.—No. Their timber costs them much less.

463. I suppose you were keeping up the price somewhat?—No. We did not quote any Borneo timber.

464. By Mr. Moore: How far is the scene of operations of the North Borneo Company from you?—They are on the east side of the island, where we are on the west.

465. By Mr. Fitzgerald: Are you near Borneo?—We are north of Borneo.

466. By Mr. Atkins: From your point of view, what do you think about the Western Australian timber when speaking generally?—I think you will think it of it?—That is a pretty wide question.

467. Would you care to make a statement with reference to the timber trade generally?—I will say this, that the difficulties we have had to cope with since 1895 (I have not the dates with me, but that is nearly so) could not have been foreseen without visiting this country, which I did not do; they are of a sufficiently serious nature to render the future of the industry problematical, and we shall have to have some advantage either in freight or in short production in other parts of the world to enable us to do any good at all. At the present moment, for instance, freight are at a minimum, 53s. a load.

468. By Mr. Hastie: To London?—Yes. We have timber lying in London unsold which cost us 53s. 6d. per load. That is an enormous variation.

469. By Mr. Atkins: You mean, cost you 53s. 6d. freight?—Yes. And if you go to Liverpool you will find stock there which cost us 66s. per load.

470. By Mr. Moore: Was that occasioned by the war?—The war had nothing to do with it.

471. Did the war send freight up?—Not in the slightest.

472. By Mr. Atkins: How do you account for it?—One of the waves of the trade fluctuation which take place from time to time. The war did not affect sailing ships; they were not occupied in transporting troops or provisions.

473. It seems a tremendous fluctuation—I do not think so. I have known worse than that. The waves of depression in shipping alter. I have been 35 years at it, and I know something about it. You get a wave of depression, then a wave of prosperity; the waves of depression increase in height, while the waves of prosperity, which are just as acute, shorten. That is due to the fact of the facilities for building ship, and the constant increase in price. Take this as an instance. My firm lost two ships the year before last in the Atlantic, they were 3,000-ton ships; we did not replace them with 3,000-ton ships. The cost of the two was 256,000, whilst the cost of the other two was 208,000, which gives a difference of more than the cost of the other two 10 years previously. The building of tonnage is overwhelming the demand quicker than it did in all years. For two years ago we had a tremendous boom, and the difference then was about 7d. per sleeper, on trucks. They would cost more delivered.

474. The timber so cut is not inferior jarrah.

475. By Mr. Moore: Those sleepers taken out are 8 x 4. With what are you replacing them?—With 9 x 5.

476. Do you not think they would have a much longer life if you made them 9 x 5, so that the dog would not go through the sleepers?—Better 10 x 5.

478. What is the difference in the cost of the 9 x 4, the 9 x 5, and the 10 x 5?—The difference between the 9 x 4 and the 10 x 5 is about 7d. per sleeper, on trucks. They would cost more delivered.

The witness retired.
prandals and padouk; beautiful timber. Padouk has been almost entirely absorbed by America. The same is true of mahogany. The Baltic states have been the great suppliers of teak and other hardwoods. 

486. Do you find hardwoods from East Australia come into competition to any extent with Western Australian hardwoods?—We have lost an order for 300,000 sleepers for South Africa. New South Wales supplies tallow wood, red gum, boxwood, mountain ash, and pearwood. They have the oplon of fine woods, whereas we have only the oplon of one; but the New South Wales Government has been able to use a commercial agent in London and by virtue of his designation he has been able to get labour, wages, and railway rates.

487. We have been trying to get a shipment of teak and mahogany for the London market. We have been told that Zeitoun has riddled by to redo in the world millions of acres of hardwood forest which have never been touched, nor even surveyed nor examined. They are inaccessible to the saw-mills in the whole world which can beat our Mornington mill.

488. Do you think the exhibit at Glasgow and Paris led to any result?—They came to London, are far from cut out. I have been through a forest at Jarrasdale which was cut 20 years ago, and I have seen logs which they say were not milling logs 20 years ago. At Yarloop I saw a magnificent array of jarrah trees all under-sized for milling logs, but yet coming along. So with proper conservation I do not think your forests are ever going to be cut out.

489. By Mr. Hastie: Is that the same as the American mahogany?—There is none in America.

490. By Mr. Pigott: Is it the same as the Honduras mahogany?—It is the same tree. We are paying this State £15,000 for the timber we get where £200 would be sufficient, and we cannot legally hold our leases. The Government point blank refuses to grant any legal right, but they jump on our chespe like a vulture on to beef when it comes along.

491. By Mr. Moore: You propose starting a timber business in West Africa?—We are importing mahogany from West Africa. It is all shipped in logs and converted in London. All mahogany is converted at the port of destination.

492. By Mr. Hastie: Is that the same as the American mahogany?—There is none in America.
FRIDAY, 20th NOVEMBER, 1903.

Present: Mr. N. J. Moore, in the Chair.
Mr. R. Hasting. | Mr. W.V. Fitzgerald.

[At Coolgardie.]
Mr. Godfrey William Ellis, sworn and examined.

To the Chairman: I am the managing director of the Western Timber and Firewood Company. The company was floated on 1st November, 1902. We commenced operations on the 20th November. Our plant consists of one locomotive, 15 wagons, and two water tanks. We have 12 miles of railway down, and expect to extend the line as required. We pay a licence fee of £50 per annum per mile. No timber leases are granted on the goldfields. Some 150 men are employed in 15 connection with our business. We pay for the wood delivered on the trucks. As a rule, each man is allotted a frontage to the line of three chains by a depth of 30 chains; and our lines are laid out in such a manner that it does not necessitate more than one mile of carting. We pay, delivered on trucks, 6s. 6d. per ton. The carters get 4s. per ton, 1s. 1/2d. goes for carting, and 7d. for loading. Our daily output is about 100 tons of firewood, besides a considerable amount of mining timber. The principal timbers found in the vicinity of our operations are salmon gum, gimlet, and mulga. As a rule, the firewood supplied is 12 ft. long with a minimum thickness of three inches and a maximum of 10 inches. I consider that mulga makes the best fuel. I anticipate that our output will increase next year. We supply the Kalgoorlie and Associated mines, in addition to the local mines at Kanowna and local household firewood merchants in Kalgoorlie. We cut out the timber suitable for mining purposes for throwing open the areas to woodcutters. I consider that in good timber country five tons per acre would be about the average right through. We have cut about 60,000 tons off, approximately, 8,000 acres. We must be in timber country the whole time to secure this average. The standard price for firewood delivered on the mines is 1s. 6d. per ton. I do not consider that the re-growth after the timber country is cut out will be of sufficient importance to ever warrant putting down a railway line in the future for firewood. I think that in such considerations for timber tramways and also extensions and developments, the Government should be careful to provide that the operations of adjoining licensees are not hampered owing to their areas overlapping. I consider that if the present regulations are insisted upon no harvest will arise.

The witness retired.

Mr. Henry Nelson, sworn and examined.

TO THE CHAIRMAN: I am the managing director of the W.A. Goldfields Firewood Supply Company, and have been in that position for two years. The company was incorporated in 1902. The company was formed for the purpose of supplying the mines with firewood. At the present time we are working under the Land Act Amendment Act, 1902, which provides that all applications for construction of timber tramways shall be accompanied by plans showing the line of the proposed railway. I consider that the present regulations with reference to spur lines (two and a half miles) should be amended, and that provision should be made for spur lines to be laid out beside the various belts of timber. There is a Timber Tramways Application Board which deals with all applications for tramways in the district. This board is appointed by the Government, and consists of Mr. Ellis, who has a good local knowledge and who is eminently suitable; Mr. Kelso, who has a good local knowledge and who is eminently suitable; Mr. Maughan, the inspecting engineer; Mr. Kernohan, the secretary of the Western Australian Chamber of Mines, who has a good knowledge of the timber requirements, and as he is the representative of the companies it is highly desirable that he should have a seat on the board; and Mr. Cunningham, who is understood to represent the various firewood companies. We had, however, no voice in his appointment. As the companies are represented by the Secretary of the Chamber of Mines, I consider that the firewood companies should have a direct representative of their interests on the board.

By the Chairman: Does not Mr. Cunningham represent the company?—In my opinion he does not.

Do you think your output will increase?—Yes.

What mines do you supply?—We supply part of the Kalgoorlie, Associated Northern, Great Boulder, and Hannan's Star, two-thirds of the Perenween, part of the Lake View, and Ivanhoe. The Horse Shoe is

[At Coolgardie.]
Mr. William N. Hodges, sworn and examined.

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Since this estimate was made I have had four years' experience in the trade, and I do not consider I have over-estimated in any way. We get our water supply from the Broad Arrow dam at present. I have taken an interest in the growth of the young timber, and consider that for the first year or two the growth is more noticeable, but I do not think timber will be derived from the seedlings. At the present time a considerable amount of small timber is left standing—timber under about five inches at five feet from the ground. We do not pay for the youngest timber unless an average cutter can make 44c. per day of six hours. I consider that a firewood cutter on the fields is 4s. per day better pay than theoller on the coast, working eight hours per day. I do not think it costs a man on the fields more than 2s. 6d. per week in excess of what he would have to pay for his food on the coast. I do not consider that after the bush has been cut out it would ever pay to put in a tram line again. We have cut about 60 square miles of country for 80,000 tons of firewood, or two tons per area. We run over 26 miles of Government railway at the rate of 1d. per ton per mile, and pay 4d. per ton for shunting charges, and for hire of tracks 3d. per ton up to 25 miles, the total payment to the Railway Department being 2s. 9d. per ton. I think if the Railway Department charged 4d. per ton per mile they would make a handsome profit. We estimate our running expenses at 3d. per ton mile. I consider an efficient officer of the 15 department should be appointed to see that the bush is cut out in a systematic manner, and that no isolated patches are left. I consider that the present licence fee of 1s. per month is altogether too low, as the revenue derived from this source cannot be sufficient to pay the official whose duty it is to collect the same, and that the companies should be responsible for the men's license fees. What is required in this regard is an officer with a knowledge of surveying should be appointed. He would be capable of keeping out our tramways so that different applications would not clash, and he would be able to point out when we are in danger of crossing into a reserve, and to generally advise us.

(The witness referred.)

Mr. Alexander Porter, sworn and examined.

To the Chairman: I am Secretary of the Kalgoorlie and Boulder Firewood Company. I have 25 heard Mr. Coghlan's evidence, and can corroborate it. The financial department is my particular business. I wish to give a few particulars of the coast and water, which may understand into what a large industry the firewood supply has developed. Our wages for ten months of this year amounted to £29,000. We have paid in radlings during the same month £12,000, and our output for that time was £1,000, tons. Horse feed has cost us £2,000. Our company is a purely local one, consisting of the shareholders, with one exception, being resident on the fields. We supply in part the Lake View Mines, Whites, Pernissawamy, we distribute the Kalgoorlie Electric Power and Lighting Corporation, Golden Link, Lake View South, and Oroya-Brown Hill.

(The witness referred.)

Mr. Edward Johnston, sworn and examined.

To the Chairman: I am a general storekeeper and contractor, of Lake Side, Mount Malevolent, and Bones of Gawlia, and have been a resident on the goldfields for 10 years, having been over practically the whole of the fields, and possess a good knowledge of the country carrying timber. In my opinion the finest belt of timber lies from Lake Side to the Santos Claus mine (south-end), a distance of 50 miles. It has a width of 25 miles, and averages about four tons per acre. This timber is principally salmon gum. The best mining timber on the fields within 60 miles of the Government railway is found on this belt. Another good belt lies between Lake Side and Wildmougham to the south, and this should go about 9½ tons per acre. To the north-east of Foundations, in the direction of Edjudina, for 50 miles, one would go through timber for a distance of about 1½ miles. This would average 6½ tons per mile. South of 45° Broad Arrow one can get for 50 miles through fair timber country carrying 2½ tons per acre, the northern portion of this belt being exclusively unsuitable. The country lying to the west of Broad Arrow, in the direction of and beyond Siberia, carries real good salmon gum, and should average 8½ tons per acre. I am of opinion that there is within a 60 mile radius of the Golden Mile at least 15 years' supply, taking the present consumption as a basis.

(The witness referred.)

The Commission adjourned.
Yes. Broad Arrow goldfield, Arrow district. Open up new areas. Board representing the Chamber of member.

Timber cutting mostly. I have never had any practical experience in forestry conservation, except what I fees?—That is one of the duties.

Yes; clown below in the South-West. The timber tramways it would not pay I might state, the possession of a miner's right timber... Holders may go on mining purposes''

Yes; there would be no trouble in collecting that.

What is the extent of your district?—Yes.

The possession of a miner's right crop up in the collecting of it?—Well, of it. It was originally constituted as follows:—One member representing the Government; one member representing the Chamber of Mines, and another member representing the company.

Since its formation you have been continuously on the board?—Yes.

How long has the board been in existence on the fields?—Since the 1st of January, 1900.

You have been three years in the district?—Yes; I am in my fourth year.

Have you had any previous experience in forestry matters?—I have been connected with cutting timber mostly. I have never had any practical experience in forestry conservation, except what I saw in Europe.

What part?—In the south of France and in Italy.

Practical experience or observation only?—Practical experience.

And since you have been in this State have you had any experience in timber matters?—Yes; down below in the South-West. I was there connected with one of the mills on the coast.

I suppose that one of the principal duties you have to perform is the collecting of licensing fees?—That is one of the duties.

Will you give us your opinion in reference to that?—Personally, I find that if it were not for the timber tramways it would not pay to collect the licence. What is your idea as to the licensing fee?—Monthly licenses are ridiculous. I should prefer annual licenses.

What do you consider a fair price?—Say, 20s. for an annual license.

That would mean 1s. 3d. per month?—Yes; 1s. 3d., as against 2s. 6d. Under the new Act, I might state, the possession of a miner's right gives most drastic rights in regard to the cutting of timber. Holders may go on Crown lands and take any timber they may require for mining purposes.

Do you consider that firewood would come under the heading of "timber required for mining purposes"?—It has been so construed. Under these miners' rights the holder can go and cut timber without an ordinary license.

In reference to the royalty system, do you think that if were adopted that trouble would crop up in the collecting of it?—Well, of course, the royalty would have to be applied for. I do not think it practicable.

But the whole of the firewood supply for Kalgoorlie and Boulder comes over the railway?—Yes; there would be no trouble in collecting that.

What percentage of the whole amount of fuel consumed on the field goes over a Government railway?—Roughly, three-quarters.

Not more?—I am taking this Kalgoorlie and Boulder belt as against the whole of the field.

The Kalgoorlie supply is brought in by rail, is it not?—No; they are still getting it in from the bush. I have a record for it. Some of these outlying fields have been decreasing. I know that at Southern Cross there was about 12,000. Southern Cross is 11,000 tons per annum.

By Mr. Fitzgerald: Will you give us any other list?—Yes. Broad Arrow goldfield, 4,800 tons; say, 5,000. Those are all the goldfields. I do not take in Minyars.

But you have not given this district?—Oh, that is 372,000. These are our latest figures:—Yilgarn goldfields (that is Southern Cross), 10,306; Coolgardie goldfields, 25,728; East Coolgardie (that is Boulder and Kalgoorlie), 375,000; North-East Coolgardie (that is Kanowna and district), 16,800. I have Broad Arrow queried at 9,000. Minyars I have got at about 25,000. Of course this latter does not come in my district. The total consumption would be about 462,420 tons. This return was made on the 26th October, 1900. Now I have the prices paid in the different districts. They are as follows:—Coolgardie area, 8s. 6d. to 14s. per ton; Southern Cross, 8s. 7d. per ton; East Coolgardie, 11s. per ton; North-East Coolgardie, 10s. 7d. per ton; Broad Arrow, 12s. per ton, and 11s. for the outlying districts; Minyars, 12s. per ton.

By the Chairman: That practically comprises the whole of the centres?—Yes.

Is there any firewood within the East Coolgardie-Hannans belt?—Practically none. Some people go out and get in a load or so; but no firewood worth mentioning is brought into the mines.

Have you formed an estimate of the total amount of firewood that has been consumed on the fields?—Of course there are no reliable figures previous to 1890. In that year the runouts began to work; and before that the firewood industry was very intermittent.

Can you give us an estimate of the amount of firewood consumed during the last three years: since you have kept a record?—Yes; 1,517,050 tons.

What area of country do you estimate that that timber was cut off?—About 41 square miles.

May I put this question to you:—Is there any firewood within the East Coolgardie area?—About 220,000 acres.

Then that would be an average about six tons to the acre?—Yes.

In making out an estimate, what do you generally consider a fair average?—Five tons to the acre, and others four and a-half. It should be remembered that this first lot was mostly taken off early from railway sidings down the line, and of course was cut in rather picked country.

What proportion do you consider the timbered country bears to the whole area within a radius of 60 miles of the Hannans Belt?—I am prepared to say that a third of it is not timbered country.

You think that two-thirds of it is timbered?—Yes.

In your opinion is the present rate of consumption? How many years available fuel is there?—Under the present timber reserves in existence and applied for, there is about eight years. Of course I am not taking outlying centres.

Eight years only?—Yes.

Under the present tramways applied for?—Yes.

Eight years only?—Yes.

You think that two-thirds of it is timbered?—Yes.

Give us the mode of procedure in making an application?—A man applies for a tramway license to the board for his tramway; he signs the licence, he gets it sworn and examined. By Mr. Fitzgerald: Can you give us an estimate of the amount of firewood consumed during the last three years: since you have kept a record?—Yes; 1,517,050 tons.

In reference to the timber tramways, have you any suggestions to make, or do you think they give satisfaction?—They are satisfactory. Still, the mode of application is not satisfactory.

Give us the mode of procedure in making an application?—A man applies for a tramway in a certain locality to the Minister for Mines. It is advertised in two issues of the local paper circulating in the district, and a notice is posted on the wander's notice board. The application is accompanied by a plan, very rough plan indeed. Most of these people advise me of their application in my capacity of forest ranger; and in my case I show them where the best timber is. Then the Minister forwards the application to the board for their report. A meeting of the board is held, and the application is considered. In some cases the board make a point of going over the ground. They make certain recommendations, and those are forwarded to the Minister.

Are these recommendations of the board so carried out?—Not in every case.

Do you consider that the lines should be pegged out before the application is sent in?—Yes.

Do you consider that the lines should be pegged out before the application is sent in?—Yes.

If there was an instance of where a recommendation has not been acted upon?—In the case of an application made by W. E. Prince, at Ulmit. In this case a prior application was considered by the Minister without referring the matter to the board for their consideration.

In that case the application was considered without any reference whatever to the board?—Yes.

What was the result eventually?—The Minister's recommendation was acted upon.

Are the objections to any applications for a tramway deposited with the board, or with the Minister?—In the case of an application made by W. E. Prince, at Ulmit. In this case a prior application was considered by the Minister without referring the matter to the board for their consideration.
By Mr. Fitzgerald: In the case of the Kurrawang Company?—If it is necessary and there is any cost, I do it for everybody.

By the Chairman: Otherwise the reserve is surveyed.—Yes.

Do you wish to make a statement with reference to the permanent reserves around declared townships?—Yes; I consider the present system unsatisfactory. A reserve is declared over a rising township; it becomes necessary for the prospectors and pioneers of the district to obtain their mining timber from the nearest point; and the prevention of the commonal forest areas system.

The wood number of men restriction on prospecting for gold.

Mr. Kelso says the block out clean to a depth of one mile, I made a report on each tramline, loads it on the trucks, and delivers it to the company at the rate of 6s. 3d. per ton.

Mr. J. O. 8tewart: Is not firewood cutters' licenses give the holders the right to cut mining timber?—Well, the present regulations are very much mixed on that point. There is no definite rule. But there are some along the Eastern lines. And the departruenet for the trouble of many.

What do you consider the cost of supervision, including administration of cutters' licenses?—By the Forest Department get?—I can ascertain that later on.

With reference to this desuckerizing, do you know of any area suitable for that purpose?—I should like to see the butt-gang plantation should be made. The numbers vary from four to five inches.

What kind of timber grows there?—Mostly gum.

What method of desuckerizing would you favour?—I should like to see the butt-gang system adopted. Send men out into the bush to desucker. Their operations would have to be supervised and their work passed.

What are your views on re-afforestation on the goldfields?—Mostly gum.

How many that 1,000 are actual woodcutters?—The numbers vary from 375 to 420.

How much per ton do they get?—4s. Some make £1 a day.

What revenue does the Forest Department get?—Eight miles.

What kind of a tree do you think most suitable for growing here?—I like the gimlet wood.

In reference to planting, have you any idea as to what extent you would favor the butt-gang system?—I should like to see an experimental station.

Have you received any trees from the State nursery at Hannell?—Yes; but I had no previous acquaintance with them. We had sugar gum, acacias, etc. Eucalyptus was the most successful species so far.

In connection with the other there is about 18 inches in girth. I find that where they have been desuckerized the growth increases in the first year from one to two inches. Is it subject to the attacks of the borer?—No.

Is there much sugar gum?—Yes, or 1,920 tons to the square mile, to be exact.

What is the number of the butt-gang on the Kalgoorlie-Ballarat line?—No. Without the line. I took measure around.

Have you any questions thrown?—I should like to see an area set apart to be used as a special station.

What timber would you recommend?—I should like to see gum trees tried, and I should certainly like to see gimlet. It is fairly quick of growth in the early stages and very suitable all round.

What is your position at present?—Engineer for the W.A. Goldfields Firewood Supply Company.

What is your notion as to what extent you would desucker?—I should call out some men to spare the butt, which should be fixed by regulation.

Do you have any idea as to what it would cost to desucker a square mile of country?—I have some mean timber of the State.

I am responsible for the laying down of the company's tramways.

What is your position at present?—Engineer for the W.A. Goldfields Firewood Supply Company.

In that connection you are responsible for the laying down of the company's tramways?—Yes.

Have you any ideas as to what extent you would desucker?—I should call out some men to spare the butt, which should be fixed by regulation.

How far into the bush do you go at the present time?—About 48 miles.

Is there any tree in the bush that would grow no down?—Yes.

How far from Kalgoorlie are you in fairly good bush?—Yes.

What is your idea as to what extent you would desucker?—I should like to see an experimental station.

By the Chairman: Do I understand that the municipalities and road boards sell them?—That is quite true.

Mr. W. E. Kelso, esquire.

By Mr. Fitzgerald: As in France and Austria?—Yes.

By the Chairman: How many men are employed in connection with the firewood industry on those fields?—There are about 1,000 directly employed.

How many of that 1,000 are actual woodcutters?—The numbers vary from 375 to 420.

How does your calculation on the number of licenses issued?—Not exactly. I believe Mr. Richardson, the secretary, had some conversation with the Minister on the matter; but I believe nothing came of it.

Consumption of firewood per return dated 30th October, 1893.

Coolgardie.

Southern Cross.

Kalgoorlie.

North-East Coolgardie.

Bread Arrows.

Manton.

Total... .

(Cut the witness retired.)
292. Yes. What proportion of that country would you call timbered?—Without having regard to its being cut out?
293. Yes; as it is at the present time?—Well, about 10 per cent. of that might be considered timbered country at the present time; that is, exclusive of reserves.
294. And you think 10 per cent. would carry three tons per acre or more?—Well, I suppose there would be about three tons to the acre. Of course that gives me a very rough idea. It would not be a very hard matter to get a map and trace the proportion. Within 30 miles of Kalgoorlie there is a terrible lot of timber gone off. Originally I consider 40 per cent. of this country was timbered.
295. And what do you consider that portion averaged?—About three tons. I think that is a good average.
296. At the present rate of consumption, how many years' supply can you see within the zone of your operations?—Of the Kurrwung Company's operations?
297. Yes?—Well, of course, that would depend on various things; but I should say from three to four years.
298. That is, by extending your lines?—Extending the lines, of course, to the areas we know of and exclusive of reserves.
299. Have you formed any estimate as to what you consider the life of the firewood supply on the field?—No, but I have thought that that should be done. A careful estimate should, I think, be carried out. That means going into the matter pretty closely.
300. It would not be a very expensive matter?—No. If it were done by a compass traverse it probably would not be difficult to arrive at the quantity of timber available.
301. What timber predominates in your area?—Gum. We have practically nothing else.
302. Which timber do you think gives the best results as a fuel?—I think there is very little difference; but, of course, the fact of the mines excluding oak may be considered sufficient evidence of its unsuitability. They will not take oak at all.
303. Is that prejudice merely, or the result of actual experiments?—Well, I think it is mostly the result of experiment; but I think oak thoroughly dried is not a bad fuel. In places where the object to oak, if you can supply them with oak that has been cut for a considerable length of time, they will oftentimes take it; but they will not stand it green.
304. Does your company supply any mining timber?—No. What do we do in this: the logs that will not split readily we send in as mill logs. About half-a-dozen trucks a day of mill logs would supply the whole of the mines in the Kalgoorlie belt.
305. Are these cut up by local mills?—Yes; nearly all have small benches. The salmon gum is a very suitable timber for using underground as passes.
306. And do they give satisfaction?—Yes. They are perhaps not heavy enough for Government.
307. What is your average train load?—About 46 tons; one bogie equals two ordinary trucks.
308. And do they carry—fix tons; one bogie equals two ordinary trucks.
309. What class engine do you use?—About a Class G. We have one locomotive ('the 'Kurrwung') which is just on a par with a Class G.
310. What are your rails?—Forty-five lbs. per lineal yard.
311. And your sleepers: do you purchase old ones or do you buy new?—Lately we have been taking many of those relay sleepers.
312. On the Eastern line?—Yes.
313. And do they give satisfaction?—Yes. They are perhaps not heavy enough for Government.
314. What weight are the Government sleepers?—94 lbs.
315. Do you think that the present procedure in making application for timber tramways is giving satisfaction?—Through the Mines Department?
316. No; through the Lands Department?—I have never heard of any dissatisfaction.
317. Are you now making an application for a tramway?—No.
318. Why not?—Because the Minister refused a recent application of mine without giving any fair reason.
319. Why?—I understand there was a prior application. There is one thing, however, that I should like to draw your attention to, and that is the creation of these reserves. Some of them are marked off without sufficient judgment having been exercised. The Balgownie reserves, for instance, contain enough to supply the whole of Kalgoorlie for a considerable time; and I think there is far more timber there than is warranted by the mines in the locality. That timber will never go to Kalgoorlie; because the Kearnouna country is cut out, and nobody would ever think of laying a road into a single belt. I think more care should be observed in defining these reserves. Due regard should be given to the quantity of timber that the mines in the vicinity are likely to require.
By the Chairman: You are the General Secretary of the Chamber of Mines, and have been appointed by the Executive Council to give evidence with regard to the consumption of firewood and mining timber by the mines?—Yes.

What do you estimate to be the consumption of firewood on this field?—I estimate that the present consumption of firewood in this district is 1,200 tons per day of six days per week. That means 7,200 tons per week, or say 350,000 tons per annum. This includes the consumption by the mines on the Hannan Belt or "Golden Mile.

How does that compare with the preceding year?—There is a slight diminution in the consumption due to the dismantling of the condensing plants on the mines since the advent of the Murchison water.

Do you anticipate that the consumption will increase?—I think it will increase insomuch as several mines are increasing their treatment plants and installing additional roasting furnaces.

How are the mines on the "Golden Mile" being supplied with wood?—Almost entirely by rail, the supplies being chiefly drawn from three companies.

What are the companies?—The W.A. Goldfields Firewood Supply, Kalgoorlie and Boulder Firewood Company, and the Western Firewood and Timber Company. There is still a small amount of wood carted in.

Is there a standard price or a contract price?—The standard price is about 13s., and most of the mines are paying that now, which is about 1s. 6d. cheaper than the mines were paying under contract two years ago, namely 1s. 6d.

Do you anticipate that under present conditions the price will increase?—That is chiefly dependent upon industrial matters. I understand that at the present time some of the firewood companies have been cited by the cutters to appear before the Court of Arbitration in connection with a strike for increase in the rates for cutting. It follows that if there is any increase in the rate for cutting, that increase will fall upon the consumers.

What is the principal firewood used on the mines?—Mixed gum in this district and principally myrtle in the Northern districts.

Do you know which particular timber is giving the most satisfactory results?—Salmon gum.

I should say.

Why is oak objected to?—Well I suppose it is because it does not burn so freely.

Do you know which particular timber is used for poppet legs and where long timber is required?—A considerable amount of Oregon timber is used for constructional work on the mines.

With reference to the mining timber, where do the mines draw their principal supplies from?—Round timber for underground work is chiefly procured from the district below Coolgardie, Nangeen, Doodlakine, and Kellerberrin, whilst a fair amount of suitable mining timber is procured from the firewood companies.

Where do you procure most of your sawn timber from?—With regard to sawn timber, jarrah represents the largest amount used of local sawn timber to my knowledge. There is also some business in wandoow, and a considerable amount of Oregon timber is used for constructional work on the mines.

Could you give us the price of jarrah delivered on the mines, or do you buy f.o.b. Perth?—Arrangements with regard to the price of timber vary; in fact the several timber people have different methods of grading timber, and that renders it somewhat difficult to make a fair comparison.

Needless to remark, it is much higher now?—Yes.

How does the price for jarrah compare with what it was in June last year?—The following comparative prices for standard sizes at Golden Gate will give you an idea of the increase:—

<table>
<thead>
<tr>
<th>Size</th>
<th>Present price, ft.</th>
<th>Present price, dm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 x 10</td>
<td>20 6</td>
<td>20 6</td>
</tr>
<tr>
<td>9 x 2</td>
<td>19 8</td>
<td>19 8</td>
</tr>
<tr>
<td>4 x 8</td>
<td>15 2</td>
<td>15 2</td>
</tr>
<tr>
<td>1 x 8</td>
<td>21 0</td>
<td>21 0</td>
</tr>
<tr>
<td>1 x 6</td>
<td>19 2</td>
<td>19 2</td>
</tr>
<tr>
<td>1 x 4</td>
<td>17 6</td>
<td>17 6</td>
</tr>
</tbody>
</table>

A considerable amount of Oregon is also used, is it not?—Yes; but it would be difficult to mention specific amounts. Oregon is chiefly used for surface work, although if it were cheaper there would be some inclination to use it for certain classes of work underground. Having a greater elasticity than jarrah, it will carry a heavier lateral strain.

What is the price of Oregon at Fremantle?—The price of Oregon at Fremantle is £12. 6d. to 14s. per 100 superficial feet, free on rail.

What is the principal sawn timber used?—Salmon gum. I estimate that 1,000 logs of mining timber averaging 12 inches to 14 inches diameter, about 16 feet long, are used in this district every week, the price varying from 10d. to £1. 4d. per foot delivered, according to size.

What timber do you use principally for poppet legs and where long timber is required?—Jarrah chiefly, although in some instances karri logs have been used for poppet legs. The Golden Link poppet logs, which are 100 feet long, are of karri.

Do you find that white ants affect the timber underground?—A little while ago I received a report from a manager to the effect that in inspecting the underground workings of a mine on the Golden Mile, white ants were found in the timbers at a depth of 200 feet.

Would the Chamber of Mines be prepared to make a test of some of our other timbers, such as blackbutt, with a view to seeing whether they would be suitable for mining purposes?—I may say that this matter was submitted to the Chamber by the secretary of the Commission some time ago, and the Chamber then decided to order a truck load—for each of the large mines—of blackbutt and red gum in order to test their utility and suitability for underground work, and this order is being prepared.
Statement showing Quantity of Western Australian Hardwoods used on this Mine during 1901 and 1902, and an Estimate of our Annual Requirements in the immediate future.

<table>
<thead>
<tr>
<th>Class of Timber</th>
<th>Scantling and Pickets</th>
<th>Paved and Post</th>
<th>Sleepers</th>
<th>Posts</th>
<th>Percentage obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>MULGA (local).</td>
<td>2,000</td>
<td>44,800</td>
<td>16,446</td>
<td>50,000</td>
<td>10,559</td>
</tr>
<tr>
<td>Small end</td>
<td>2,000</td>
<td>44,800</td>
<td>16,446</td>
<td>50,000</td>
<td>10,559</td>
</tr>
<tr>
<td>6in. diameter</td>
<td>2,710</td>
<td>55,000</td>
<td>18,092</td>
<td>50,000</td>
<td>15,069</td>
</tr>
<tr>
<td>6in.</td>
<td>3,292</td>
<td>62,000</td>
<td>19,767</td>
<td>50,000</td>
<td>15,531</td>
</tr>
<tr>
<td>8in.</td>
<td>16,835</td>
<td>33,000</td>
<td>12,165</td>
<td>50,000</td>
<td>7,173</td>
</tr>
<tr>
<td>9in.</td>
<td>979</td>
<td>19,000</td>
<td>107</td>
<td>50,000</td>
<td>107</td>
</tr>
<tr>
<td>MULGA LATER (local).</td>
<td>2,000</td>
<td>44,800</td>
<td>16,446</td>
<td>50,000</td>
<td>10,559</td>
</tr>
<tr>
<td>Small end</td>
<td>2,000</td>
<td>44,800</td>
<td>16,446</td>
<td>50,000</td>
<td>10,559</td>
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<tr>
<td>6in. diameter</td>
<td>2,710</td>
<td>55,000</td>
<td>18,092</td>
<td>50,000</td>
<td>15,069</td>
</tr>
<tr>
<td>6in.</td>
<td>3,292</td>
<td>62,000</td>
<td>19,767</td>
<td>50,000</td>
<td>15,531</td>
</tr>
<tr>
<td>8in.</td>
<td>16,835</td>
<td>33,000</td>
<td>12,165</td>
<td>50,000</td>
<td>7,173</td>
</tr>
<tr>
<td>9in.</td>
<td>979</td>
<td>19,000</td>
<td>107</td>
<td>50,000</td>
<td>107</td>
</tr>
</tbody>
</table>

Note: As soon as the railway line is extended to here, jarrah will be used in place of Oregon for buildings, etc.

For the Westralia Mt. Morgans Gold Mines Co., Ltd.,

M. V. MORGANS, Manager.

The Committee adjourned.

Information obtained from Mr. Gooden, Engineer, at Gwalia.

The Sons of Gwalia Mine uses about 1,100 cords, or say 2,000 tons of firewood per month, for which they pay 10d. per cord for cutting and 6d. per cord carting. The firewood is brought in 12 miles over a 20 inch gauge tramway by a 10-ton locomotive. About 60 men are employed in connection with the firewood supply, and 300 men on the mine. Mulga is the only firewood available and will not go more than one cord per acre. Most of the timber used comes from Doodlakine and consists principally of gumlet wood and salmese wood. Oregon is used largely for building, about 7,000 feet per month, and a considerable quantity of jarrah. We also use about 4,000 feet of tarred monthly for mill guides, bearings, etc., and it gives great satisfaction.
### APPENDIX C.

Comparison—Coal and Wood.

Wood.

Taking one cord of wood equal to 35cwt., and one ton of coal equal to 45cwt. of wood, 45cwt.

<table>
<thead>
<tr>
<th>Country</th>
<th>Coal</th>
<th>Wood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£  s. d.</td>
<td>£  s. d.</td>
</tr>
<tr>
<td>Newcastle coal, in slings at Geraldton</td>
<td>0 18 0</td>
<td>0 2 0</td>
</tr>
<tr>
<td>Wharfage</td>
<td>0 9 9</td>
<td>0 9 9</td>
</tr>
<tr>
<td>Loading from slings</td>
<td>1 6 8</td>
<td>1 8 9</td>
</tr>
<tr>
<td>Freight to Cue</td>
<td>2 6 6</td>
<td>2 6 6</td>
</tr>
<tr>
<td>Cost of coal</td>
<td>1 16 0</td>
<td>1 16 0</td>
</tr>
<tr>
<td>Cost of wood</td>
<td>1 16 0</td>
<td>1 16 0</td>
</tr>
</tbody>
</table>

Amount in favour of wood: £0 10 6

### APPENDIX D.

Return showing the Quantity of Jarrah and other Timber Exported during the Year 1903.

<table>
<thead>
<tr>
<th>Country to which exported</th>
<th>Port from which shipped</th>
<th>Albany</th>
<th>Bunbury</th>
<th>Flinders Bay and Hamelin</th>
<th>Fremantle</th>
<th>Rockingham</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>loads.</td>
<td>loads.</td>
<td>loads.</td>
<td>loads.</td>
<td>loads.</td>
</tr>
<tr>
<td>Adelaide</td>
<td></td>
<td>3,559</td>
<td></td>
<td></td>
<td></td>
<td>3,559</td>
</tr>
<tr>
<td>Algoa Bay</td>
<td></td>
<td></td>
<td>874</td>
<td></td>
<td>158</td>
<td>2,138</td>
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<tr>
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<td>304</td>
<td></td>
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<td>170</td>
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<tr>
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<td></td>
<td></td>
<td>498</td>
<td>498</td>
</tr>
<tr>
<td>Colombo</td>
<td></td>
<td>67</td>
<td></td>
<td></td>
<td>140</td>
<td>140</td>
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<tr>
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<tr>
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<tr>
<td>London, East</td>
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<td></td>
<td></td>
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<td>2,916</td>
</tr>
<tr>
<td>Madras</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,046</td>
<td>1,046</td>
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Total: 10,823 107,621 10,292 (c) 21,921 2,232 153,080

* Exports, including 4,851 loads of hewn Jarrah. Including 9,708 loads of South Africa.

### APPENDIX E.

Comparison—Coal and Wood.

Coal.

Algoa Bay (c) 21,921 2,232 153,080

American Trade Journal, April 1904.