

QUEENSLAND FOREST SERVICE.

Annual Report of the Director of Forests for the Year ended
30th June, 1921.

INDEX.

	PAGE
Poem, " The Tree "	3
T h e Year's Work	3
PART I.—TECHNICAL OPERATIONS.	
FOREST DEMARCATION—	
The Forest Map of Queensland	6
Reservations	7
SYLVICULTURE—	
The Queensland situation	8
Sylvical Experimentation and Investigation :	10
Commercial Plantations	11
Natural Regeneration and Kindred Operations	11
The Forest Nurseries	12
FOREST PROTECTION—	
Birds and Insects	13
<i>Hypsipyla robusta</i>	14
Noxious Weeds	16
Fires	16
Forest Offences	18
Ringbarking	18
FOREST SURVEYING AND ENGINEERING—	
The Forest Working Plan	18
Survey Operations	18
FOREST ORGANISATION—	
Record of Projects completed	22
FOREST PRODUCTS BUREAU—	
Wood Technology	23
Forest Products Showrooms	23
Industrial Chemistry of Forest Products	24
PART II.—TRADING OPERATIONS.	
THE TIMBER MARKET—	
Rise and Fall of Timber Prices	24
Market c o n d i t i o n s , 1920-1921	26
THE FOREST AND TIMBER INDUSTRIES—	
T h e Year's Operations	27
Forest Service Log Trading	29
TIMBER CONTRACTS OFFICE OPERATIONS—	
Hewn, Split, and Pole Supplies	31
Balance-sheet	33
FOREST SERVICE SAWMILLS—	
Present P o s i t i o n	33
Balance-sheet	37
PART III.—ADMINISTRATION.	
FINANCIAL—	
Revenue and Expenditure	38
ADMINISTRATIVE MATTERS—	
Deaths	39
Distinguished Visitors	39
Organisation of Personnel	39
Office Arrangements	40
Industrial Awards	41
The Forestry Bill	42
AN ACKNOWLEDGMENT	43

Brisbane, 25th September, 1921.

SIR,—I have the honour to present to you the Annual Report of the Director of Forests for the year ending 30th June, 1921.

I desire to acknowledge the sympathetic consideration given by you to forestry matters during the year.

I have, &c.,

E. H. F. SWAIN, Director of Forests.

The Hon. J. H. Coyne, M.L.A.,
Minister for Public Lands, Brisbane.

THE- TREE.

(Written by Joyce Kilmer, American Expeditionary Force, Killed in France.)

I think that I shall never see
A poem lovely as a tree. ,
A tree whose hungry mouth is pressed
Against the earth's sweet flowing breast :
A tree that looks at God all day,
And lifts her leafy arms to pray:
A tree that may in summer wear
A nest of robins in her hair ;
Upon whose bosom snow has lain ;
Who intimately lives with rain.
Poems are made by fools like me,
But only God can make a tree.



Queensland Forest Service, 1920-21.

THE YEAR'S WORK.

Wood is the only crop which the private agriculturist avoids.

Forestry is a farming proposition, which, therefore, has been left on the hands of Governments.

Until present crops be marketed future crops cannot be sown. In North Queensland only 200 super. ft. of timber are saleable at present out of an acre stand of 10,000 super. ft. The practice of silviculture thus awaits upon the canvassing of markets.

Forestry as well as timber farming is also timber trading. It is impassible to separate its two reciprocating functions.

The Queensland Forest Service, therefore, becomes and must remain a wholesale timber trading and wood farming activity. This fact explains the business expansion of the past twelve months.

On the 1st July, 1920, four State Sawmills were acquired from the State Trade Department. A hardwood mill and associated forest rights for the Blair Athol State Forest mere purchased from the Railway Department during the year, and a sawmill was erected in the Injune State Forest for the purpose of supplying sawn Cypress Pine to the Roma-Charleville districts.

The Central Timber Yards and Planing Mills in Brisbane were made to serve as the sale distributing agency of the forest mills.

The gross expenditure upon sawmilling operations during the year was £83,245 16s. After paying 16½ per cent. in depreciation, interest and redemption charges, the year's transactions showed a credit balance of £4,348. Full market prices were charged the mills for logs, and the sawn product was sold consistently below merchants' lists.

Forest Products Showrooms were set up in which to display the very many timbers of our State for which little or no market offered. These showrooms constituted a liaison office between the sawmills, the timber user, and the forest, and it is expected that, as an agency for the sale of forest products, it will speedily become self-supporting.

A Timber Contracts Office was organised to arrange for the manufacture and sale of hewn, split, and pole hardwood. Its first contract was the supply of the annual requirements of the Queensland Railway System. Numerous other small local contracts were also undertaken. The export market is now being canvassed. The extension of the activities of this office will permit of the removal of faulty hardwood trees from State Forests awaiting silvicultural development.

The Log Sales Branch of the Forest Service disposed of 46,000,000 super. ft. of logs during the year. The earnings from this source amounted to £157,065.

The gross expenditure of the Forest Service was \$110,000, of which £45,000 came from revenue and £65,000 from loan.

One hundred and twenty acres of new plantations were established—the first commercial planting undertaken in Queensland, all previous operations having been purely experimental and therefore small and scattered. One thousand five hundred acres of Maple-Silky Oak reproduction were secured also by assisted natural regeneration measures, and nearly three thousand acres of Eucalyptus forest were treated in the same way.

A quantity of 1,800 lb. of seed was secured and 900 lb. used in silvicultural operations. Nursery stocks at the end of the year totalled 400,000 plants, of which half were the Queensland Hoop Pine (*Araucaria Cunninghamii*).

Some twenty houses and huts were erected upon the State Forests for the accommodation of the resident staffs. The capital expenditure in this direction was conserved by letting on a rental basis.

Twenty-eight new forest paddocks were created by ringbarking and fencing areas aggregating 5,920 acres. The proceeds of agistment of bullocks engaged in timber haulage were sufficient to afford an ample return upon the investment.

Twenty-nine new roads, aggregating 40½ miles in length, were constructed into timber belts. The cost of construction is being redeemed by the saving in coats of timber haulage.

The newly formed Timber Contracts Office cut 16,750 lin. ft., 17,000 super. ft., and 11,000 pieces of railway hewn, pole, and split timber.

Forest surveys during the year covered a total area of 820,646 acres, and 782 miles of line were run.

Part I.—Technical Operations.

FOREST DEMARCATION.

THE FOREST MAP OF QUEENSLAND.

Appended to this report is the first published map of Queensland illustrating broadly the distribution of the natural forests of the State.

The map is a remarkable revelation of the condition of Queensland in so far as its natural timber resources are concerned. Whilst it does not affect to be entirely complete or absolutely precise, it represents as nearly as possible a bird's-eye view of the forest position of the State at the present moment.

Summed up there appear to be only 24,000,000 acres of commercially wooded area as against the 40,000,000-acre estimate of the Commonwealth Year Book. The territorial extent of the State is 429,000,000 acres. Of this limited resource only 4,000,000 acres so far have been demarcated for retention for the production of a timber supply in perpetuity.

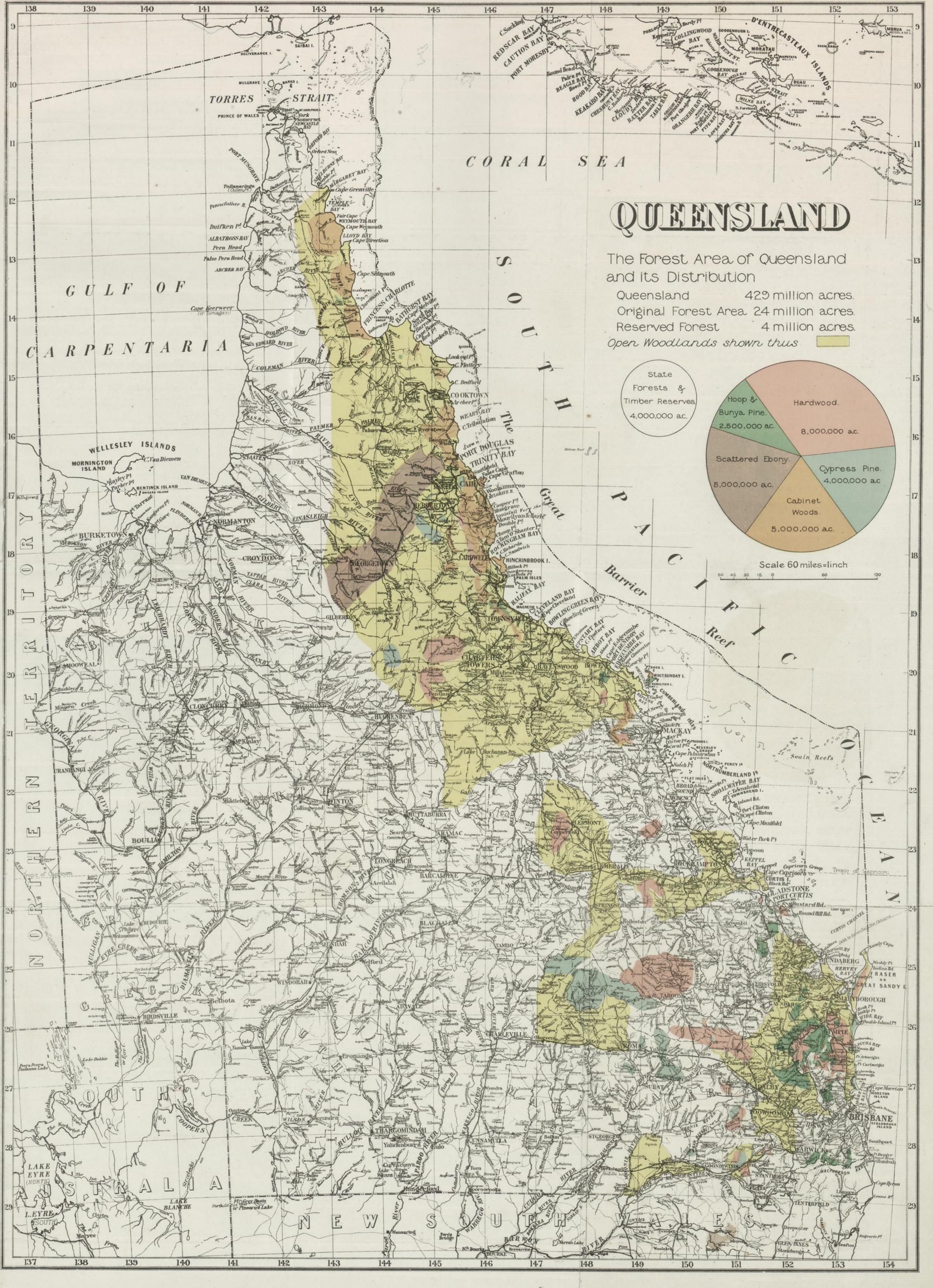
The vital necessity of safeguarding as much as may be of the existing resources in cabinet timbers and constructional hardwoods is emphasised by the clear revelation of their exhaustibility. The scanty blue patches representing the stands of the western general utility wood—the Cypress Pine—plead on their own behalf. But most striking of all is the revelation of the grave limitation of the hoop pine forests, the chief wood asset of Queensland—the basis of its timber trade. The scanty patches on the south-east corner of the map represent the sum total of our resources in this direction on both Crown and private lands. The valuable pineries of the Gympie district stand out as the most important of these forests, the dissolution of which would shatter the fourth greatest industry of the State. It is an instance of popular shortsightedness that the destruction of the Gympie timber reservations and their associated industries is being advocated at the time of writing this report as necessary to the development of the district. The fact that forestry offers a greater field of profitable employment than does dairying, that in the butter factories of Queensland there are only 643 workmen as against 4,306 in the sawmills of the State, that without Hoop Pine the butter industry could not ship its products to market—all these things are lost sight of in the blind lust to loot those rich timber belts, the possession of which should give pride to the Gympie district as it does in fact shower wealth, and employment, and natural irrigation upon it. Were it possible for those interested in the future well-being of these fortunate regions to weigh calmly the forest advantages they enjoy, a senseless agitation for their dissipation would not have ensued, and attention might have been concentrated with profit upon the all-important question, of utilising to the full the many acres that have been idling since the day of their alienation.

The Brooloo State Forest practically supports two townships, whilst it contributes to the prosperity of Gympie itself. The traffic in logs and sawn timber is the chief source of revenue for the Mary Valley Railway. Half-a-dozen sawmills are sustained by the raw material provided by the forest. The teamsters and cutters and the large number of workmen employed by the Forest Service are living on the forest, which is being managed on the basis of perpetuity, and is distributing full award wages to the entire population dependent upon it—a payment impossible in the dairying industry. Finally, the forest yielded a profit last year to the Treasury of no less a sum than £30,000.

No sound progress can accrue from a policy of extirpation of thriving industries in order to set up new ones in their place. It has been said aptly that the advocacy of the "pen" of the timber reserves of the Gympie district for dairying is on all-fours with the proposition to transfer the mines of Queensland to the mushroom farmer because of the excellence of the mine galleries for the propagation of edible fungi.

Apart from the Brooloo State Forest, the remaining timber reservations of the Mary Valley Railway Line amounted at the date of original gazettal to 47,600 acres. To-day only 25,464 acres remain, the rest having been whittled away and transferred to settlers whose chief source of income for years thereafter was in the realisation of the timber values presented to them by the Crown. During the past year, no less than 6,322 acres of these reservations were released for settlement, after a final and most intensive forest classification and engineering survey had been made of the whole. The irreducible minimum has been reached, and on no account should a further acre be revoked. Hereafter what remains of the famous Mary Valley pine forests should be devoted to the active practice of timber farming by the Forest Service, whose resident workmen on the forests are just as much settlers on the land as is the dairy farmer alongside.

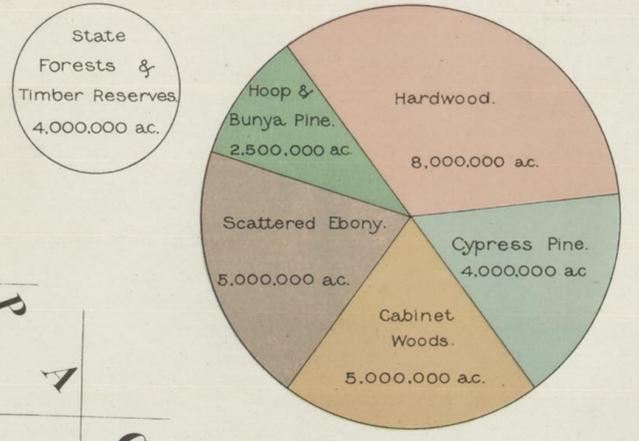
The McIntosh case remains as a final warning against the unwise alienation of valuable timber lands. The lands situated in the Killarney district were thrown "pen for settlement for E300, with the timber given in. Fifteen years later it became desirable to reinclude them in the adjoining State Forest, of which they were actually an integral part. The Crown, however, was asked to pay £40,000 for what it had sold for £300 to an expected settler upon the soil fifteen years before.



QUEENSLAND

The Forest Area of Queensland and its Distribution

Queensland 429 million acres.
 Original Forest Area 24 million acres.
 Reserved Forest 4 million acres.
 Open Woodlands shown thus



Scale 60 miles=inch

The Commonwealth Government in its turn was compelled last year to pay nearly half a million pounds for timber lands which the Crown years ago had sold similarly for a song, and similarly on the plea of *bond fide* land settlement, which never eventuated.

RESERVATIONS.

From a demarcation standpoint the year under review is notable. At 30th June, 1921, two records had been reached—the number of permanent State Forests had attained their century, and the total area of forest reservation in Queensland had passed the 4,000,000-acre mark.

PERMANENT RESERVATIONS.

The sixteen areas dedicated as State Forests during the year, however, were small, and the increase in acreage was only 13,000 acres, the total area held as State Forest at 30th June, 1921, being 1,273,830 acres. The new reservations in most instances covered belts of good timber adjacent to existing Forest Service holdings, and were secured to consolidate these areas and to rectify boundary anomalies.

PROVISIONAL RESERVATIONS.

Seventeen new timber reserves were gazetted during the year. The net gain in area, after making allowance for decrease by recomputation and the permanent dedication of several of the older timber reserves, was 95,461 acres. These timber reserves have resulted from preliminary reconnaissances, and are held as such pending detailed classification inspection and final determination as to their suitability for State forest purposes. The total area of country provisionally reserved at the end of the year was 2,679,091 acres.

The following table sets out the areas under the control of the Forest Authority at 30th June, 1921 :—

	Acres.
state forests	1,273,830
National parks	74,316
Timber reserves	2,679,091
	4,027,237

These figures show that the Queensland demarcated forest area has improved by 106,975 acres during the present Annual Report period. This is considerably better than the previous year's gain (51,000 acres), but the quota still falls far short of the 6,000,000 acres adopted by the Government as the minimum forest reservation for Queensland.

Demarcation, however, is proceeding, and the Forest Service has advices of a large scope of potential forest reservation for later examination.

The proportion of total forest reservation to territorial extent in Queensland has advanced during the year from .89 per cent. to .94 per cent. Less than one-hundredth part of the area of the State and little more than one-sixth of the estimated original forest area has as yet been secured for the practice of forestry.

The movement of demarcation is detailed in the following schedule :—

FOREST RESERVATION—JUNE, 1921		
<i>State Forests.</i>	No.	Area in Acres.
30th June, 1920	8 4	1,260,832
Proclaimed 1st July, 1920, to 30th Judd,		
1 9 2 1	1 6	12,819
Increase by recomputation		179
	100	1,273,830
<i>Timber Reserves.</i>		
30th June, 1920		2,583,450
Made State forests	Acres.	
Cancelled	20,863	
Decrease by recomputation	447	
Total decrease	21,216	2,556,172
Added since 30th June, 1920		122,919
		2,679,091
Total forest reservation at 30th June, 1921		3,952,021
National parks at 30th June, 1920		13,980
Proclaimed 1st July, 1920, to 30th June,		
1 9 2 1		336
National parks (at present under Forest Service control) at 30th June, 1921		74,316
Total		4,027,237

REPURCHASE OF TIMBER LANDS.

The following table shows the areas repurchased for forestry purposes during the year :—

Forestry District.	Particulars of Area.	Remarks, Timber Stand, &c.
Brisbane	Portion 170, Maleny, 318 acres, purchased from Queensland Government Savings Bank for £221 5s. 3d.	Timber stand—Hardwood, scattered pine, and cedar
Nanango	Portion 59v, Taromeo, 160 acres, purchased from W. E. Houston for £1,200	Acquired for access, forest station, and grazing. Improvements valued at £400—Timber stand, 337,000 super ft. hardwood
Ipswich	Portion 37, St. John, 307 acres, purchased from W. L. D. Salkeld for £800	Timber stand—743,000 super. ft. Hoop Pine and young timber

The timber reservations made during the year included several sizeable areas in the Brisbane and Ipswich district, carrying stands of Hoop Pine, while a number of areas carrying good quality hardwood in quantity were secured in the Bundaberg district. In North Queensland several cabinet wood areas were reserved, the chief of these being a forest of 50,000 acres in the Mackay district.

Excisions from the temporary reservations during the report period totalled 20,863 acres, the bulk of which was released in the Inglewood district, where an area of 12,000 acres was alienated, following upon a forest classification report.

The return which follows indicates the distribution of the area reserved for forestry throughout the various districts :—

RETURN OF STATE FORESTS, TIMBER RESERVES, AND NATIONAL PARKS IN THE STATE ON 30TH JUNE, 1921.

District.	STATE FORESTS.		TIMBER RESERVES.		NATIONAL PARKS.	
	No.	Area in Acres.	No.	Area in Acres.	No.	Area in Acres.
Atherton	7	40,890	3	17,043		
Bowen	1	73,383	6	73,383		
Brisbane	21	67,317	40	117,560	8	47,880
Bundaberg	5	64,770	20	76,142		
Cairns	1	37,850	3	63,260		
Charters Towers			1	125,000		
Clermont			2	164,350		
Cooktown			4	411,080		
Dalby	5	368,061	17	212,420		
Dalby and Nanango					1	22,500
Gayndah			10	33,375		
Gladstone	5	37,007	13	137,663		
Gympie	12	60,279	38	245,422	1	106
Herberton	2	731	5	20,793	1	270
Ingham			3	96,728		
Inglewood			11	83,343		
Innisfail			2	23,810		
Ipswich	7	80,423	28	72,335		
Mackay			14	249,884		
Maryborough	6	257,775	24	97,856	1	100
Nanango	22	88,073	8	22,120		
Port Douglas			5	173,016		
Rockhampton	2	48,320	5	33,887	1	216
Roma	1	8,695	4	55,571		
Springsure	1	69,000	2	20,440		
Taroom			1	2,240		
Toowoomba	2	17,239	4	35,450		
Warwick	1	27,400	8	29,280	2	3,235
Windorah			1	240		
Totals	100	1,273,830	282	2,676,091	15	

SYLVICULTURE.

THE QUEENSLAND SITUATION.

The outstanding fact of Australian sylviculture in the past has been the phenomenal planting success in the Southern States of the introduced Californian *Pinus insignis*, a 26-year old crop of which in South Australia yielded 50,000 superficial feet of wood per acre, which was sold in 1913 at 10s. 3d. per 100 super. ft., or f410 per acre on the stump.

The chief feature of the Queensland experiment of the last five years, on the other hand, is the comparative triumph of the Australian species and the virtual rout of the exotics.

Silky Oak at Imbil in five years reached a height of 25 feet. Spotted Gum planted experimentally on Fraser Island in the autumn of 1919 is now a dense plot 20 ft. tall. Blackbutt of the same age is perhaps two feet behind this development, whilst a seven-year old patch had acquired a girth of up to 30 inches and a height of 75 ft. Tallowood of the same sowing showed a height growth of 50 ft., whilst Fraser Island Cypress Pine had risen to only half this stature in the same

time. Specimens of the inland Cypress Pine established at Imbil late in 1917 were 13 ft. high at June, 1921; whilst Loblolly Pine from Florida planted in 1919 were only six ft. high on 30th June, 1921, and *Cupressus macrocarpa* of the same planting averaged only 2 ft. 6 in.

The Hoop Pine of Queensland stands out as the most determined tree in the experimental plots. It has thriven under conditions which would kill *Pinus insignis* to a plant. It has established its capacity to endure the weight and shade of the succulent weed masses of the after-bum and to finally overtop them. Neither frost nor drought has deterred it. Despite its slow start, it has caught up to and run shoulder to shoulder with the fast-growing *Pinus insignis*. A five-year-old planting at Imbil now shows both species to be about 21 ft. high. At Atherton in the same time Hoop Pine plants have reached a similar height. Bunya Pine on the contrary is slow to move and in the same period has attained only 13 ft., but even this is better than the imported Loblolly Pine, and in the long run the greater diameter growth still balance the height, increment and produce as high a return of wood per acre as will Hoop Pine.

The Queensland Kauri Pine on Fraser Island has done well. In three years, 20 plants had made a height growth of 12 ft. Were not seed difficult to procure, this species would be planted to as large an extent as Hoop or Bunya.

The fourth of the Queensland conifers—the Cypress Pines of the Western lands and those of Fraser Island and the coast (*Callitris glauca* and *Callitris arenosa*)—assumed a larger sylvical importance during the year when their possibilities of successful association with Hoop Pine in coastal plantations were realised. Cypress Pines are the only coniferous species which have been successfully established in Queensland by sowing *in situ*. They have shown an unexpected capacity to overcome the competition of coastal weeds and grass, and have reached new rank as shade bearers. The rate of growth in early youth is rapid. In later life the rate of growth falls off. The wood, however, is utilisable in the small pole stage. In Western Queensland and New South Wales it is saleable as sheeppark rails at 4 inches diameter. It suggests itself, therefore, as a promising admixture for the coastal Hoop Pine forests, in substitution for the natural uncommercial brush of the lower story.

The possibilities of extending the natural range of valuable Queensland species in place of the introduction into the plantation% of trees altogether foreign, is exemplified by the case of Maple—one of the most costly of our woods. At present it is to be found only on the highlands of Northern Queensland within a strictly limited circle, the centre of which is the Atherton plateau. Queensland Maple ranks among the superfine timbers of the world, and its beautiful pearl-sheen lustre has won for it first place in Australia among cabinet woods.

Unfortunately there are now only eight or ten years' supply in sight.

It is a congener of Yellowwood, Silver Ash, and Crow's Ash, and its sylvical requirements are not vastly dissimilar from these. It frequents the red volcanic soils of the Atherton Tableland; yet the chief difficulty in handling it is its liability to frost injury. It appears quite practicable to grow it in plantation in such places as the frost-free recesses of the Mary Valley reservations of South Queensland, a situation so close to market as to make the proposition a lucrative investment.

The extension of the natural range of Queensland Maple is therefore one of the sylvical objectives of the Forest Service.

A recent visitor of international fame in arboriculture, Professor E. H. Wilson, Assistant Director of the Arnold Arboretum, Harvard University (U.S.A.), says of Queensland:

"It is the most favoured of all the Australian States in the matter of forest wealth. The north-east of New South Wales has similar country to the Queensland jungles, but that area is botanically really portion of Queensland. For the most part, the rest of the States have only hardwoods, but here you have also magnificent forests of softwoods, including the splendid pines. Really, I do not know any country in the world that has as fine a range of trees as Queensland. That is a commonplace statement of fact. Canada has only softwoods, and the United States, possessing both hardwoods and softwoods, has made such inroads into them that they have been seriously depleted. New Zealand has little or nothing in the way of hardwoods. You really have too many varieties here—it is hard for people to appreciate them. If Queensland had only two or three timber trees she would value them more."

With such a generous abundance of forest ingredients, the search for suitable species need scarcely be extended beyond our own borders. Ultimately great, artificial forests of *Pinus insignis* and other cheap coniferous softwoods will make their appearance in southern Australia. In certain specific cases in Queensland, such as that of the unforested fruitgrowing Stanthorpe district, where the demand for case timber cannot be supplied from natural timber lands, it may become necessary to follow the suit of other States by establishing similar plantations, but for the most part the forest policy of this State will resolve itself into the provision for Australia as a whole of cabinet timbers and high-grade native pine woods, plus a quota of constructional hardwoods for local and export purposes.

The responsibility of the Forest Service is to make the best possible use of the native species. Whilst these are of superlative excellence as woods, however, they are not always sylviculturally satisfactory. Nor has Nature proved itself an adept forester. Its disposition of species has been haphazard, and the forests generally are mere jumbles. It remains for the forester to sort out the multiplicity of tree species and rearrange them in ordered commercial forests capable of producing the maximum quantity of high-grade wood in the minimum rotation.

The duty is no light one, nor can it be done within one Annual Report period.

SYLVICAL EXPERIMENTATION AND INVESTIGATION.

Sylvicultural practice is founded upon intimate knowledge of the life-histories of trees. The life-history of every species is different, and most be observed, investigated, and recorded patiently for each, from the seed to maturity and decay. Whilst Red and White Cedar and Maple spring exuberantly from the ground only to meet in frost, drought, and twig-borers, the very dangers to which their undue succulence exposes them, the minute Hoop Pine seedling lurks unseen beneath the weed masses, and by its ability to endure in babyhood an almost overwhelming shade, and later to resist the blight of frost and drought which lays low its fast-growing competitors, succeeds to ultimate dominance of the forest. Bunya Pine, unlike its sister species, descends into the secure shelter of the soil, and there forming a tuber full of reserve material awaits an opportune moment for commencing the struggle of existence. At intervals tender shoots emerge to reconnoitre, only to retreat before untoward circumstances. Finally, and armed with still greater capacity than the Hoop Pine seedling to bear shade, it begins the slow ascent, gaining in girth, however, what it has lost in height. The eucalypts again claim the sun from the beginning, whilst *Pinus insignis*, fast-growing as it is, and capable of flourishing in almost sterile soil as it does, cannot contend against the weed competition over which Queensland Hoop Pine is readily triumphant.

Better than Hoop Pine for the dry hills is Bunya Pine, but the force of gravity takes the w-eighy bunya cone to the bottom of the gully, whilst the wind wafts the light reed of Hoop Pine to the tops. Thus does contrary Nature defeat the human demand for efficiency in wood production.

All these processes and a myriad more must be isolated before sylvicultural command over species may be established, and in no State of Australia are the difficulties greater or the sylvics more complex than in the sub-tropical State of Queensland.

For these reasons sylvical experimentation and investigation occupy a large place in the work of the Forest Service, which unfortunately has at its disposal too few special investigators, and is obliged, therefore, to carry on the work at considerable disadvantage, and too often in empirical fashion.

At the beginning of the report period, Deputy Forester W. R. Petrie was detailed to the special work of sylvical investigation. The number of inspections undertaken by him in this regard was 104. His commentaries and advice were made available to the executive officers engaged in the preparation and treatment of various forestation sites, and the discussions which ensued proved of value to all concerned and resulted in the crystallisation of many sylvical truths. Among the more important tasks assigned to Mr. Petrie was the inspection of available Crown lands in the Stanthorpe district with a view to the selection of suitable sites for the establishment of coniferous plantations for the supply of case timber to this developing fruitgrowing district. Steps are now being taken to secure the reservation of the chosen areas.

The matter of the extension of the naturally limited range of important Queensland species occupied the attention of several district administrations. The most daring of the experiments was that of the transfer of coastal species to the West. Encouraged by the remarkable drought-resistant qualities of Hoop and Bungs Pine, experimental plots of these species were established in the Dalby forests. Operations were hampered by dry conditions until May, 1921. Hoop Pine did not become established, but Bunya Pine survived the transfer to a remarkable degree, although it was found that white ants were attracted to the tubers of the young plants. Pink Poplar (*Euroschinus falcatus*), which was found flourishing under the dry black soil conditions of the Good-night Scrub (Bundaberg district), was also the subject of local acclimatisation efforts in the Dalby district, and in this case the prospects are promising.

Seed-spotting experiments with Hoop and Bunya Pine and with the two Cypress Pines were also carried on in the Clermont district (Central Queensland) on the Blair Athol forest. Here again Bunya Pine succeeded best.

The seed spotting of western Cypress Pine was also essayed on coastal forests, and the results offer an expectation of ultimate success. Seed sown in April on Kilkivan State Forest *in situ* resulted in seedlings 1 inch high in June. A 50 per cent. seed-spotting success was secured on the Benarkin State Forest with the same species which were found to resemble *Pinus canariensis* in their inability to withstand open-root planting. The former species was experimented with on the Braemar State Forest (Dalby district), but here again its constitutional inclination to succumb to planting shock stood in the way. Among the species awaiting trial in the nursery beds of the same forest are *Pinus insignis*, *Pinus ponderosa*, *Pinus Thunbergii*, *Pinus densiflora*, and *Pinus halepensis*.

The application of a charcoal mulch in seed spotting experiments with Ironbark, Tallow-wood, Blackbutt, and the Cypress Pines on the Benarkin Forest did not produce anticipated results, the balance of success appealing on the ride of the unmulched spots. The disposal of leaf litter by burning as against raking favoured the Eucalypts, whereas the Cypress Pines succeeded best on the raked patches. The "cut and mulch" process of weed disposal was found to serve *Pinus insignis*, but had little or no effect on Ironbark.

Among other experimental operations were the sowing *in situ* of 3 acres on Amamoor Forest with seed of Silver Beech, whilst seed of the two Cypress Pines was broadcasted over a rough stony area alongside. The germination in the latter case was excellent. It is too early yet to forecast ultimately successful regeneration. About 5,000 Hoop Pine and *Pinus insignis* yearling plants and Bunya Pine tubers were sown on a contiguous lot, with satisfactory results. On Reserve 355 Kilkivan, 280 Hoop Pine plants were planted on an area previously infested with lantana, and 40 per cent. were established at the end of the year.

On the Imbil State Forest methods of planting were experimented with. It was found that the weeds of the after-burn offered Hoop Pine the greatest protection, and that the survival was much higher where weeds were allowed to take possession and planting lines opened up through them. In other cases, where the planting took place immediately after the fire, operations had to be confined to showery days, and the mortality was yet considerably higher than under the weed shelter.

A review of the purely experimental plantings upon the Imbil Forest showed that upon an area of approximately 30 acres there had been established 3,700 Hoop and Bunya Pines, 500 *Pinus insignis*, 200 *Pinus taeda*, 350 Red Cedar, and 180 Silky Oak and miscellaneous species.

The failures in the experimental plots at Imbil were refilled with 8,000 plants of Bunya and Hoop Pine, *Pinus insignis*, *Acacia melanoxylon*, Cypress Pine, and a number of miscellaneous species.

The collection and identification of specimens of the forest flora of the State were gone on with. For Fraser Island alone 244 distinct species so far have been listed.

Tree studies similarly have been pursued and the co-operation of the non-commissioned staff has been listed in this investigation with quite gratifying results.

Observations with regard to the flowering and fruiting of native trees were maintained.

COMMERCIAL PLANTATIONS.

Strengthened by the fruits of several years' sylvical experiment the Forest Service launched in 1920-21 the first of its commercial plantations. During the season, over 60,000 nursery-raised tree plants were set out upon cleared forest, compartments aggregating 120 acres, 65 acres of which were on the Mary Valley Forests, 30 acres in the Atherton areas, and 25 acres on Fraser Island. Naturally, proven species were selected for the operations, Hoop and Bunya Pine furnishing 80 per cent. of the planting stock. The remainder consisted of Maple, Cedar, Kauri, Cypress Pine, *Pinus insignis*, Camphor Laurel, Yellowwood, Red Stringybark, and Biscbutt. The planting success throughout was generally over 66 per cent., which was considered satisfactory. In North Queensland, Hoop and Kauri Pine, Maple, and Red Cedar gave a result of over 80 per cent. The average age of the planting stock was 1-0, i.e., one year in the nursery beds, untransplanted. The season was climatically a favourable one.

NATURAL REGENERATION AND KINDRED OPERATIONS.

The reforestation policy of the Forest Service, however, is not to plant where a forest may be produced by a natural seeding prior to the final logging. But whilst natural regeneration is the cheaper operation it is much more complex, involving as it does the entering into of a working partnership with fickle Nature.

A fundamental necessity is the synchronisation of rainfall and seedfall.

The rainfall for the season was well above the average, came late, and extended through the ordinarily dry winter.

Climatic conditions, therefore, were exceptionally good. In some cases the precipitation was excessive. At Boongee, in North Queensland, there fell 235 inches between January and May. Meteorological observing stations were established during the year on State Forests at Amamoor, Biggenden, Birrigan, Braemar, Corella, Killivan, and Yeulba.

The seedfall of Hoop and Bunya Pine, however, is more or less triennial. In 1920 the yield was excellent, as it was also in 1917; but in 1921 the crop was confined to very small scattered patches of light seeding, and very little seed was available. So also with Kauri, Red Cedar, Scented Maple, Ironbark, and Spotted Gum.

Operations for the natural regeneration of these species, therefore, were beyond possibility for this year.

The Cypress Pines, both of the West and of the Coast; however, seeded prolifically, as did White Beech; whilst in North Queensland the Maple seeding was ample, and was supported by yields of White and Silver Ash, Silver Maple, and Hickory (al. *Flindersia* spp.), Brown Osk, and Milky Pine. The Northern Bally Gum and the Southern Pink Poplar also seeded well.

Extensive preliminary regeneration fellings were carried out on the Gadgarra and Evelyn State Forests on the Atherton Tablelands, more than 1,500 acres were disposed of, chiefly on the former reserve, and over almost the whole of this treated area, a fine reproduction of Maple, Silky Oak, Putt's Pine (Silver Maple), and Ash has been secured at a very small cost. Some of the advance growth of Maple a foot or so high at the completion of the work is now up to 12 feet high, whilst Silky Oak has reached 3 feet 6 inches. The future of these cabinet wood forests may be said to be assured.

In the hardwood forests of the South, the natural regeneration processes include and overlap damage cuttings and liberation fellings. The Benarkin State Forest, for instance, originally one of the finest Ironbark stands in the State, was taken as it stood, a cut-out, burnt-over, weed-infested wilderness, following upon many years of unorganised and untended railway timber-getting. The stand consisted of damaged *Eucalyptus* veterans—too often of the inferior species—and an unevenly distributed underwood of mixed wattle and *eucalyptus*, sometimes congested, often dwindling to sheer vacancy. The operations consisted of the utilisation of the damaged and overmature overwood, with associated thinnings and regeneration cuttings. On the first areas treated, the

improvement is now marked. Grey Ironbark and Tallowwood advance growths have made generous crown and height development, whilst a fine reproduction of Blackbutt seedlings has succeeded the removal of the wide-spreading veterans which formerly held entire possession of the forest floor. Twelve months after germination of the seed, this new Blackbutt regrowth is now up to 6 feet in height.

An area of 590 acres, comprising the whole or parts of compartments 1, 2, 3, 9, and 10 of Benarkin Logging Area, and compartments 1 and 2 of Bald Pocket Logging Area was dealt with upon this State Forest. The cost, of ringbarking averaged 2s. 6d. per acre, and of combined thinning and regeneration cuttings, 30s. per acre.

On the Brooloo State Forest, work of the same nature extended over 300 acres. On the Corella Timber Reserve, 2,000 acres were completed in the same fashion, whilst on Fraser Island 36 acres were regenerated by the seed-spotting of Eucalypts, *in situ*. Here 15 per cent. of the spots were effective, each showing on the 30th June, 1921, 4-12 seedlings averaging $\frac{3}{4}$ inch high. The same method applied to Cypress Pine in April, 1918, resulted in a growth of the species now 2 feet 6 inches high.

An area of 60 acres of unassisted Blackbutt-Tallowwood regrowth of fine quality situated at the end of Wilson Hart's old tramline (Fraser Island) was taken into the regeneration scheme during the year and protected from possible destruction by fire. Concerning this, Deputy Forester F. C. Epps writes:

"The regeneration was consequent upon the aced falling in December-January on a just burnt "cut over" area.

"The fire occurred in December, leaving a perfect seed bed; seed fell December-January, and 10 inches of rain in the first week in January, 1920, gave the seed ideal conditions. Thus we have about 60 acres of Blackbutt and Tallowwood trees for the cost of fire protection work and perhaps one cleaning.

"Natural regeneration, if we can reproduce these conditions! will be an assured success. I would advocate following logging operations closely, stacking tops, and cutting out undesirable species, and burning in December or January. Indiscriminate burning should not be allowed, and the area should be protected from accidental fires. Fires occurring at any other time than December-January will only result in the area being stocked with acacias and other undesirable species. By following up logging operations closely with reforestation the latter work is cheaper than is the case if it is delayed say twelve months, as the breaking of the canopy that occurs in logging operation always lets in light that promotes a luxuriant growth of wattles and undesirable weeds, which are very difficult to contend with once they invade an untended area. We should be ready to plant or seed-spot areas as soon as they are cut over."

The process of liberating already established growths of juvenile Hoop Pine has been continued. Thirty-two acres situated upon compartments 27 and 28, Benarkin Logging Area, Benarkin State Forest, were dealt with at a cost of 16s. 1d. per acre. One hundred and fifty acres on Reserve 74, Nangur, and 50 acres on Reserve 26, Kilkivan, were subjected to similar treatment.

On the Imbil State Forest, 120 acres of liberation of Hoop advance growth combined with primary regeneration cuttings were conducted. A mixed reproduction of Hoop Pine, Silky Oak, and *Flindersia* spp. is anticipated with some degree of certainty. The interplanting of Bunya Pine tubers at 10s. per acre is projected as a final insurance against the ever-present sylvicultural risk. The work is being carried out by compartments in groups of 5 to 8 acres, with intermediate 1-2 chain strips, which incidentally serve as firebreaks.

THE FOREST NURSERIES.

Planting stocks are being produced at the forest nurseries of Atherton, Fraser Island, and Imbil. An additional nursery was established during the year on the Benarkin State Forest.

The necessary seed is collected by the Forest Service itself, supplemental purchases of small supplies of exotic conifers and broad-leaved species being made for experimental purposes.

The Fraser Island Cypress Pine fruited prolifically during the year, and no less than 1,200 lb. of the seed of this species was secured for use, mostly in seed-spotting operations. White Beech seed to the extent of 200 lb. was also obtained, together with small supplies of seed of *Evodia accedens*, *Euc. microcorys*, *Agathis robusta*, *Elacarpus grandis*, *Casuarina siberosa*, and *Euroschinus falcatius*.

Hoop and Bunya Pine did not seed in 1921, except most scantily. Eighty-seven pounds only of Hoop Pine seed were secured, and this at the Benarkin Nursery yielded the very low germination result of 3 per cent. Similar returns were obtained from sowings of Bunya. At Imbil, however, 300 lb. of Hoop Pine seed had been kept over from the 1920 seedfall, and stored for ten months in forest, mould in closed receptacles. Aided by a water supply improved by the addition of a second reinforced brick and concrete tank, the old seed produced a better germination than was obtainable when the seed was newly pulled. At this nursery, 100 lb. of White Beech and 52 lb. of Bunya seed were also sown, together with smaller quantities of *Acacia melanoxylon*, Kauri, Silkwood, *Pinus Thunbergii*, *Pinus densiflora*, *Pinus palustris*, Silky Hornbeam, Silver Maple, Stringybark, Cypress Pine (*C. Macleayana*), White Cypress Pine (*Callitris glauca*), and Pink Poplar.

At Benarkin, seed of *Pinus insignis*, *Pinus ponderosa*, *Pinus Thunbergii*, and *Pinus densiflora* was sown with success, but a small experiment with *A. melanoxylon* was unsuccessful owing to the depredations of caterpillars.

As in former sowings, poor results were obtained from Kauri Pine.

At the Fraser Island Nursery 109 lb. of seed were sown at a cost of £7 13s. 2d. Seed-bed preparation cost £9 7s. 5d. The 1½-year old Hoop Pine plants in the abandoned Woongoolver Nursery were transplanted into the new nursery five miles distant at a cost of 1s. 8d. per 100 plants.

At Rockhampton, with the advent of Deputy Forester Mocatta, local sylvical problems came in for attention previously entirely absent. In his own words :-

"The Rockhampton district had received no consideration from a forestry point of view up to my advent in September, 1919. It had been ruthlessly cut over within reasonable distance of exacting railway systems, particularly in respect to pole growth for mining timbers. As previously stated this has been brought practically under control by closing certain areas to cutting operations. With the object of restocking the depleted forest wealth of the district, nursery and plantation proposals have been formulated, and as a starting point in this direction the aid of the Curator of the Botanic Gardens, Rockhampton, has been enlisted by way of conserving a promising natural regeneration of Hoop Pine, Kauri Pine; and *Araucaria Cookii* seedlings, which evidenced itself at the Botanic Gardens in January, 1921. These seedlings remain in healthy growth, and it is estimated that there will be 20,000 seedling plants available for planting at the end of 1921: These, if sanction is forthcoming, will be planted in the proposed plantation area in the Parish of Bayfield during the season 1922."

A small experimental nursery was also established in the Dalby district on the Braemar State Forest.

In the Atherton district the nursery operations at the Evelyn State Forest were discontinued during the year, the nursery on Reserve 191 proving adequate for all present needs.

The following germination tests are recorded from this nursery :-

Species.	Period of Germination.	Method.	Per Cent. of Success.	Remarks.
Quebracho Colorado	10 days	Pricked in	10	Poor-looking plants
<i>Pinus Thunbergii</i>	17 days	Shallow drills covered with sand	30	Some destroyed by snails and by flooding of beds; balance healthy
<i>Flindersia Schottiana</i>	5 days	Covered with hessian	65	Growing rapidly
<i>Flindersia Chatawaiana</i>	7 days	Broadcast, covered with hessian	20	Looking well
<i>Araucaria Cunninghamii</i>	6 days	Shallow drills, covered with sand	25	Doing well. Some seed destroyed before germination

The position with respect to the planting stocks at the end of June, 1921, is given in the following return :-

NURSERY STOCK AT 30TH JUNE, 1921.

Species.	Imbl.	Fraser Island.	Atherton.	Benarkin.	Dalby.	Rockhampton.	Totals.
<i>Araucaria Cunninghamii</i>	83,302	66,186	19,000	7,000	146	20,000	195,634
<i>Agathis robusta</i>	..	310	19,000	..	..	5,000	15,310
<i>Pinus Thunbergii</i>	..	..	4,800	20,000	117	..	136,587
<i>Pinus densiflora</i>	50,000	50,000	..	11,670	..	..	..
<i>Pinus canariensis</i>	..	1,850	750	..	100	..	2,700
<i>Pinus insignis</i>	1,959	..	..	7,798	107	..	9,862
<i>Araucaria Bidwillii</i>	41,370	..	..	6,000	302	..	47,672
<i>Pinus ponderosa</i>	..	..	..	..	67	..	67
<i>Flindersia Chatawaiana</i>	..	..	650	..	..	..	650
<i>Callitris Macleayana</i>	..	200	600	..	..	..	800
<i>Eucalyptus paniculata</i>	..	..	..	200	..	..	200
<i>Flindersia australis</i>	..	60	..	21	..	..	81
<i>Rhodosphera rhodanthema</i>	..	..	..	10	..	..	10
<i>Acacia melanoxylon</i>	..	..	..	24	..	..	24
<i>Cupania anacardioides</i>	..	..	..	38	..	..	38
<i>Euroschinus falcatus</i>	..	..	..	400	37	..	437
<i>Callitris glauca</i>	..	..	..	..	671	..	671
<i>Araucaria Cookii</i>	..	..	..	..	..	1,000	1,000
Miscellaneous	1,000	193	500	..	1	..	1,624
<i>Pinus taeda</i>	..	3,300	..	..	..	..	3,300
<i>Cedrela australis</i>	..	500	..	..	..	..	500
<i>Podocarpus elata</i>	..	580	..	..	..	..	580
							417,747

FOREST PROTECTION.

BIRDS AND INSECTS.

It may be true that the balance of Nature shall be preserved, but the forester's weight must be thrown on the side of the forest, and against its enemies. The ancient *Araucarineæ*, the Hoop and Bunya Pine, survivors of a past age, are standing siege against a surrounding host of modern broad-leaved species which have invaded their stronghold and taken possession of the forest floor. The young pines are escaping into the open Eucalyptian woodlands along the "scrub edges," but only to be scorched by the bushfires and torn by bush rodents.

Forest protection occupies a large part of the forester's life.

During the past year the Queensland Forest Service invited to its assistance, in connection with insect pests, the eminent South Australian ornithologist, Captain S. 4. White, R.A.O.U.

Captain White visited the State Forests of Imbil and Fraser Island, and conducted an extraordinarily strenuous and painstaking investigation into the relationship of bird and insect life in so far as it impinged upon sylvical problems. He was attended by Deputy Forester W. R. Petrie, to whom he entrusted subsidiary studies. Captain White's full report was not to hand by the end of the financial year, but Deputy Forester Petrie, by whom a great deal of forest protection work of an investigative nature has been done, submits the following general observations in the course of his Annual Report :-

" There can be no doubt that insects play an important part both in harming and helping our forests. I am strongly of opinion, given adequate bird protection and temporary breeding assistance of requisite bird species, in order to allow of replacements of past wanton destruction, that the insect menace would disappear as far as most species are concerned.

" I have devoted as much time during the year as my other duties allowed to the study of the different insects responsible for so much damage to our forest at the present moment and to the discovery of their natural enemies, both in bird, animal, and insect life.

" The serious destruction of Eucalypts in the seed-leaf stage again attracted my attention. The insects responsible were chiefly numerous species of grasshoppers, hairy caterpillars, and to a lesser degree smooth-skinned caterpillars and the small beetle, *Ozops* sp.

" The magpie I found to be the most useful bird on the mainland in dealing with the grasshoppers of all kinds, but he is conspicuous by his absence on Fraser Island. Many species of birds eat the smooth-skinned caterpillars, but then, again, bird life on Fraser Island is, comparatively speaking, scarce. The hairy caterpillar, as far as my previous observations went, suffered destruction by bird life (chiefly late flying and night birds) only when in their beautiful silky moth stage, but recent investigations with Captain White educated me to the fact that our mosquito "hawk" and our Melancholy Mo both eat these noxious caterpillars.

" These two bird% are not by any means numerous. The former visits Fraser Island occasionally, and the latter is always there-but never plentiful."

Other observations during the year showed the usual depredations upon seed by the White Cockatoo, which was responsible for destruction of seed of Kauri and Flindersiae in North Queensland, while pigeons devoured the seed of White Beech (*Gmelina Leichhardtii*).

RED CEDAR TWIG BORER.

Were it not for the depredations of the small blue caterpillar known as the Red Cedar Twig Borer or, in entomological nomenclature, *Hypsipyla robusta*, Red Cedar would not now be nearly extinct, and great forests of this valuable timber could be readily created.

The pest operates by boring into the pithy medulla of the leading shoot, causing it to topple over. This is done repeatedly until life is practically extinct, or the tree deformed.

Hypsipyla robusta occurs not only in Queensland but also in India, where its attacks have been the subject of considerable research.

At Imbil, during last year, observation plots were established, and the life-cycle worked out for Queensland.

The following extracts are taken from the resulting reports:—

Life-cycle.—

1. Larvæ Period—From 14 to 21 days.
2. Cocoon Period—Change into chrysalis completed in from 2 to 4 days, except during hibernation period.
3. Chrysalis Period—From 12 to 16.
4. Moth Period—Males from 2-4 days; females from 4-7 days.

" A drawback to the investigation was inability to secure the eggs of the moth, without which finality in the life-cycle cannot be reached.

" *Hibernation*.—This phase of the life-cycle did not engage attention in 1920, as no single case was observed where a longer period than four days was required for the borer to undergo a change into the chrysalis state. It is not common to all borers, as some have completed the change in the usual time (i.e., 2-4 days).

" This period of hibernation does not cause a hiatus, and continuity in the life of the borer is unbroken. This is at once proved by an inspection of the nursery beds at any time during the fiat six months of the year. Borers of all sizes and ages can be seen working down side by side with the percentage that are 'resting,' covered by a thin film over and below them. One specimen was under observation for over four months, remaining passive inside the cocoon. Another case lasted eighty days; then accidentally was displaced from its original cocoon. Even after this prolonged period of inactivity, a second cocoon was spun immediately? and very shortly after the moth emerged. Other specimens have hibernated over six weeks. There is evidently no fixed period for hibernation, doubtless some atmospheric change being sufficient to cause activity again, and the process continues.

" *Sackbanding*.—As soon as the life-history of *Hypsipyla robusta* was worked out, it was seen that the whole principle of the 'Sackband' was wrong, in so far that no measure of success can accrue from it, as the moth disseminates her eggs on and under the leaves. Sixteen cocoons were discovered under bagging placed over trees for other experimental purposes, which fact demonstrates the partiality which exists for pupating in the folds of hessian.

" The borer can pass through all its stages in the stem of one tree, and this is sufficient, in itself to condemn the sackband.

" *Effect of Wet Weather on Hypsipyla robusta*.—On visiting nursery beds of Red Cedar on 31st March, 1921, it was noticed in several cases that a-here recent moisture has penetrated into where the borer was working, a slimy glue-like substance enveloped the pest., and all mere locking sickly and almost dead, their colour ranging from pink to white. Mr. Weatherhead (while Assistant Forester at Imbil) mentioned in his notes on the pest the fact that he discovered several which had been overcome and killed by this glue-like substance.

" *Varieties of Hypsipyla robusta*.—There are two common varieties of the twig borer—blue and brown. The distinction is scarcely noticeable in some, but generally speaking the blue variety attain the greater dimensions.

" *Experiments—Sulphur Experiment*.—Sulphur was applied to the roots of three trees in the nursery in the following manner :—

All soil was removed from the surface roots to a depth of 9 to 10 inches, taking care not to destroy the finer roots in the process. Sulphur was then applied (about $\frac{1}{2}$ lb. to each tree) to the exposed roots, and the soil once more thrown back into position. This was repeated, the first layer being applied 29th January, 1921 ; the second, 14th March, 1921.

" Periodical visits revealed nothing unusual that might be ascribed to the sulphur."

Under instructions from Deputy Forester Petrie, the following experiments were performed by Cadet Forester Kemp, to whose observations the preceding records are due :-

1. A tree was selected and all infested limbs and part of the foliage were removed. On this were liberated three full-sized borers, and the whole covered with light hessian. After a period of three days the hessian was removed, and it was found that two of the three borers had spun up on the bagging, the third having disappeared. The tree had not been bored into or otherwise molested.
2. Two well-infested trees were stripped of about 50 per cent. of their foliage and covered with light hessian (the object being to trap the moths as they emerged). It was visited daily for twenty-two days, when the bagging was removed. Spun upon the bagging were found sixteen cocoons—ten on one and six on the other. No moths were seen or eggs identified.

" Indian control methods include sackbanding and a burning of all affected shoots, which, they claim, should eliminate the pest. No consideration is taken of the fact that the moth spreads her eggs over the leaves and stems of the plants. This being the case no full measure of success is possible (at any rate under our conditions) from such methods.

" On digging around Red Cedar trees in the nursery, cocoons lightly covered with soil were discovered. Nearly all were empty, but were more resistant, and harder to tear than those spun under ordinary conditions. This shows how the borer can adapt itself to its immediate surroundings and pupate even in the ground.

" *Control Methods*.—Spraying with a cheap yet effective poison frequently during the year, also pruning and destroying all affected shoots, would prove a deterrent."

Cadet Forester Kemp's observations are borne out by Deputy Forester Petrie, who reports also that the borer will complete its life-cycle on one tree unless compelled by adverse conditions to seek another location. Mr. Petrie states that the borers are often smothered by an exudation of gum from the Cedar shoots, following on wet weather. Woodpeckers were noticed at work on infested trees, but owing to lack of appliances investigation was not possible. In his Annual Report Mr. Petrie says :—

" With the object of circumventing the twig borer a few experiments were carried out, but results were unsatisfactory, and closer supervision is necessary. Of those tried the most promising was the liberation of bayonet insects (*Pristesanchus papuensis*) on infested Red Cedar tree-lings. Infestation ceased, but close supervision was not possible, and the cessation of hostilities may have been due to other causes.

" Further experiments will be tried out with the bayonet insect. It possesses marvellous powers of destruction of insect life, its mode of attack being most interesting.

" With the same object in view, that of frustrating the borer, certain root and seedling plantings of Red Cedar were undertaken, also root-shoot encouraging operations, thus providing material for further and more investigations during the coming year."

In the Atherton forests the twig borer was active also, but District Forester J. M. Fraser reports that their operations have not markedly interfered with growth, and that the wet season did not result in a pronounced increase in the activity of the borer. The borers did not this year attack the seed of *Flindersia* as in 1920.

NOXIOUS WEEDS.

Work in the direction of eradicating noxious weeds was continued during the year.

In North Queensland extermination of the Arsenic Plant was effected on all the tableland reserves, except for a small area on Reserve 191 on which the plant was left, to try it out as a shelter crop for young Maple.

Lantana is spreading in this region and shows an inimical effect in respect to the reproduction of jungle species.

District Forest & Fraser, writes :-

"The noxious weeds most prevalent on the Reserves and vacant Crown lands of North Queensland are Stinging Tree (*Laportea moroides*), "Arsenic Plant" or "Yellow Bean" (*Cassia laevigata*), Scotch Thistle (*Cnicus lanceolatus*), and Lantana (*Lantana camara*).

"The first named is widespread, and is justly dreaded by those who work amongst it, not for the sting only but for the effect of the so-called dust or minute hairs which float in the air when the plant is disturbed. This dust has a most inflammatory effect on the mucous membrane of the throat and nose, and occasionally causes employees to cease work for some days. The sting, if sustained through clothing, will disappear in a week, but when the tree comes in contact with the bare flesh the effect will be felt for as long as six weeks, and during the railway construction days there were always one or two cases in the local hospital for treatment. It is far more severe than either *L. photiniphylla* or *L. gigas*. This plant proceeds to die out about five years after its first appearance in a clearing. Notes have been collected on this disappearance, and the time averages about five years.

"Lantana is at present confined to an area up to 15 miles from the coast, where it is making a rapid spread. The other two weeds are found plentifully on the Upper Tableland.

"All Forest Officers are asked to report immediately any noxious weed is observed on the State forests, and in the case of Lantana the nearest overseer is instructed to eradicate. This pest is spreading at an alarming rate, having made unheard-of progress since its first appearance in the Cairns district. As usual no serious attempt was made to eradicate Lantana until it had too great a hold to allow of successful measures being taken. Now it exists in large dense bodies in the Redlynch district, up the Cairns Range to Kuranda and O&lands. It is reported as being as dense in the Mulgrave Valley, which is adjacent to our Reserve 310, Gadgarra."

In the Bundaberg district the freeing of Pine from vines and lantana is proceeding on the Goodnight Scrub State Forest.

On the Kilkivan District reservations (Gympie district), 2 acres were cleared of prickly-pear (Reserve 74 Nangur); vines were destroyed on a further 50 acres of the same reserve; while on Reserves R 26 Kilkivan (25 acres), R 82 Grongah (2½ acres), and R 355 Kilkivan (30 acres), areas infested with lantana were cleared.

In the Dalby district strenuous attempts were made to cope with the prickly-pear menace, and on Braemar and Yeulba State Forests an area of 660 acres has been rid of this pest. The method adopted was to pile up heaps of dead timber and burn the pear thereon. Poisoning is being undertaken during the current financial year.

On Nudley State Forest scattered bunches of pear occurring have been eradicated.

On Brooloo State Forest, Bathurst and Nagoora Bum were destroyed on the horse paddock and arboretum area, and on the creek crossing; while heavy patches of Lantana were disposed of on Roadway No. 3. On the adjoining Reserve 256, Imbil and Kandanga, an area of 180 acres was cleared of lantana, and Reserve 235 Amamoor was inspected and freed of this pest twice during the year.

On Biggenden State Forest, of 5,600 acres, lantana and other pests were eradicated, and Coalstoun Lakes National Park was cleared of prickly-pear.

On Fraser Island a small area infested with lantana was attended to.

FIRES.

Throughout the State the season under review has been a favourable one from the fire-protection standpoint.

Peculiarly, this state of affairs was due to two opposite causes. In the Southern and coastal districts the wet summer and autumn created conditions preventing the spread of any fire, while in the Dalby and Rockhampton areas the absence of grass owing to the dry weather left no material to feed a blaze. The most dangerous time from a fire standpoint is during a dry summer following on a bountiful season; at this time the dry grass furnishes material for the spread of disastrous fires. The fire outlook for the ensuing summer is threatening, unless the State is fortunate in its weather conditions.

FIRE PROTECTION.

Fire patrol work was carried out on all areas in process of organisation. Fire lines were constructed also on the various reserves; particulars of these are given in the schedule below. These lines were constructed to fit in with the road system. Should the forthcoming summer prove dry and hot and the fire outlook fulfil its menace, the work done in protection will return its cost many times over in saving valuable forests from destruction.

As a preventive measure, the policy was instituted during the year of providing a clause in timber sale agreements and pasture leases over forest reservations requiring the holder to assist in preventing fires and in extinguishing outbreaks.

The question of undertaking further propaganda work is now under consideration.

DISTRICT OFFICERS' NOTES ON THE FIRE SEASON.

Chief Forester Simon (Brisbane District).—

"The year was again characterised by the forests' immunity from fire. This is attributable largely to the favourable season. It would be fatal, however, to ignore the ensuing fire risk. Owing to the prolific growth of grass and weeds that has followed in the wake of the recent bountiful rains there will now be abundant fuel for terrific fires. We cannot afford to neglect preparations against fires during the coming year."

District Forester Fraser (North Queensland District).—

"The growth of grass this year is very rank and the fire danger threatens to cause a good deal of anxiety at the end of the winter. The reserves have been protected by a system of fire lines and, in addition, firelines have been prepared within the reserves so that any interior fires can be localised and dealt with quickly."

"Very little damage was done by forest fires during the year; except, to a trial planting of Hoop Pine on the Herberton Water Reserve, when about 3,000 young plants were totally destroyed. Forest fires are the principal agents in checking the natural regeneration of hardwoods, but where areas have natural protection from fires the natural regeneration is heavy and widespread. Reference to photo enclosed showing young Bloodwood regeneration will demonstrate the results which may be expected with immunity from fire. Fire protection on any scale is impracticable at present, however, and requires constant patrol to be thoroughly effective. The above remarks on fire destruction refer equally to regeneration of Cypress Pine (*Callitris arenosa*), Ironwood (*Erythrophloeum Labouchei*), and Ebony (*Maba humilis*). The increase in each case is checked by the annual fires following spring."

Deputy Forester Singleton (Dalby).—

"Owing to the very low rainfall for the year the growth of grass was practically nil, thus eliminating the danger of fires."

Deputy Forester Mocatta (Rockhampton).—

"Bush fires have been practically non-existent owing to the scarcity of pasturage."

Deputy Forester Weatherhead (Benarkin).—

"One outbreak only took place. The origin was probably the sparks from a locomotive. The railway here will always be a source of danger to the forests in a dry season."

Deputy Forester Epps (Fraser Island).—

"Owing to the past year being the wettest for the last seven years, serious fire outbreaks were practically nil."

"One started on McKenzie's T.C. 1315, and burnt about 5 acres without doing any damage to millable timber."

"One close to Area No. 9 looked serious, but was easily overcome; and another started on the Bunkhouse Sites, but was also quickly controlled."

"All these fires were caused by sparks from the local tramway engines, these being our greatest trouble in a dry season."

Nanango (Forest, Ranger Guymner).—

"Owing to the splendid rains damage by fires to the forest areas has been nil."

PARTICULARS OF FIRE PROTECTION PROJECTS.

Forest.	Work Done.	Cost.
		£ s d
Benarkin State Forest	Cleaning up existing lines and firebreaks	55 13 9
Benarkin State Forest	Fire-fighting	5 12 3
Brooloo State Forest	Construction, 1½ mile fire lines	18 11 0
Kilkivan State Forest	Construction, ½ mile fire line	14 2 2
R 355, Kilkivan.	Patrol work—Construction of 8 chains firebreak and 4 miles tracks	27 4 10
R 26, Kilkivan	Patrol work—Construction of 25 chains fire lines and 7 miles tracks	49 16 0
R 256, Imbil	80 chains fire lines cleared	19 17 8
Brooloo State Forest	Fire lines 70 chains 6 feet wide and 10 chains 4 feet wide cleared	9 4 8
Biggenden State Forest	Cross line 2 miles long cleared	68 19 9
R 700, Corella	15-16 miles fire lines reopened	50 14 4
R 256, Kandonga	Construction, 6 miles fire lines	10 13 11
R 502, Gympie	10 miles old timber roads cleared and 10 miles new roads 14 feet wide	107 9 5
R 235, Amamoor	Fire protection and patrol	16 15 8
Biggenden State Forest	Fire protection and patrol	15 2 10
R 700, Corella	Fire protection and patrol	167 18 6
R 256, Imbil	Fire protection and patrol	2 14 4
R 74, Nangur	Fire protection and patrol	1 7 5
Kilkivan State Forest	Fire protection and patrol	27 8 3
R 502, Gympie	Fire protection and patrol	46 6 1
Fraser Island State Forest	Construction, ½ mile double firebreak	21 5 10
Fraser Island State Forest	Construction, 13 chains firebreak, brushing, &c.	1 5 11
Fraser Island State Forest	General forest protection (fire)	14 6 10
Fraser Island State Forest	Construction, 90 chains double and 46 chains single fire line	76 11 5
Yandina State Forest	Construction, fire lines .. ..	.. ..
Bunya State Forest	Construction, fire lines .. ..	.. ..

Besides the fire-protection work scheduled above, fire lines were constructed to protect silvicultural projects on the various State Forests.

FOREST OFFENCES.

During the year the number of prosecutions instituted for breaches of the forest law were eight, and penalties amounting to a total sum of £50 were inflicted.

From fourteen seizures, the sum of £103 4s. 8d. was received as a result of sales of the material confiscated.

In a number of other cases warnings were issued.

RINGBARKING.

The question of indiscriminate ringbarking on grazing leases has exercised the attention of this Service during the year. Often these areas selected many years ago to carry fine stands of timber, and a great deal of valuable timber has been destroyed in the past. It is evident that the existing measures towards mitigating this abuse must be tightened.

FOREST SURVEY AND ENGINEERING.

Forest survey has as its object the classification of the timber lands of the State, the valuation of the timber crops thereon, the location of forest road systems, and the partition of State Forests into logging areas and compartments for convenience in management.

The work is the basis of the Forest Working Plan—a plan which is not a plan in the ordinary sense of the word, but a plan of campaign in which all the complex elements of twenty or a hundred years ahead are painstakingly laid down in ordered sequence, and the felling and reforestation operations for all those years prescribed and reduced to one effective forest harmony. It is the instrument by means of which the forester holds a forest in his hand from seedling to maturity. It ensures continuity of managerial policy, and for that reason in modern forestry legislation is made unalterable except by the Forest Authority.

Forest engineering has as its end the development of the machinery of logging and general lumbering, and is called to the forester's aid to produce so effective and economical an utilisation that silviculture in its turn becomes economically possible.

The first work has been proceeding for some years. At the beginning of the present Annual Report period the general structure was capped by the appointment to the Forest Service of a Forest Engineer, who after several months' preliminary investigation into Queensland logging conditions was despatched to the United States of America to make thorough study of methods in that country of modern power lumbering. It is a coincidence that at much about the same time the British Government in India despatched a number of engineering officers of the Indian Forest Service to the United States of America, similarly with a view to introducing into the Crown Forests of that Empire latter-day modes of forest exploitation.

The Queensland Forest Service representative, Mr. C. R. Paterson, B.E., Queensland, has nearly accomplished his task, and will shortly return with the valuable results of his close and enthusiastic study.

In the meantime the basic work of forest survey has been proceeding.

As a consequence of the Conference of Survey Officers of the Forest Service held in Brisbane in March, 1921, under the chairmanship of the late Lieut. R. Douglas, then Forest Topographer, forest surveys in Queensland are now divided into three classes:—

Class 1.—Exploratory or investigation surveys of vacant Crown lands.

Class 2.—Feature and assessment surveys of Timber Reserves and vacant Crown lands.

Class 3.—Valuation and organisation surveys of State Forests.

At the end of the financial year seven fully equipped forest survey camps were operating, mostly on Class 3 surveys, except in North Queensland, where forest surveys are being confined practically to feature and assessment work, preliminarily to the establishment of State Forests. Organisation surveys here are being deferred temporarily, as it is highly important that a rapid classification of the Northern lands be taken, owing to the probable demand for areas for alienation in the near future.

Approximately 820,646 acres of forest country were dealt with throughout the State. Of this area, 664,300 acres were Class 1, 97,100 acres Class 2, and 59,246 acres Class 3.

FOREST SURVEY.

PROJECTS, 1920-1921.

Class 1 Survey.

	Acres.
Crown land Chesterton, Babbiloora, Tom, Copland, and Simpson ..	120,000
Crown land Lolworth and Goldsborough (Torrens Creek) ..	387,000
Crown land Oswald's Track country (Dirran, Johnstone, and Battle Frere)	157,300
Total	664,300

Class 2 Survey.

		Acres.
R 251 and 244 (part), Timber Reserve	Ravenshoe, Ismailia, and Ongera	18,000
R 315 Timber Reserve	Mona Mona, Smithfield, and Dulanban	28,000
R 443	Mona Mona (Aboriginal Reserve)	2,900
R 6 (part)	Garioch .. ..	.. ..
Crown lands	Tinaroo	32,000
R 243, 274, Timber Reserve ..	Cambroon and Conondale (proceeding) .. ..	.. ..
R 200, Timber Reserve (part) ..	Palen	5,000
R 1173, Timber Reserve	Parker (Highlands)	2,200
R 246, Timber Reserve	Melcombe	4,000
	Total	92,100

Class 3 Survey.

		Acres.
R 67 (Northern part)	Balbarin	7,301
R 289	Cooyar	3,300
R 283	Colinton and Taromeo	16,000
R 290	Emu Vale	8,420
R 124 and 257	Glastonbury	10,475
R 393	Woondum	4,920
R 1	Fraser Island	6,000
R 135	Brooloo (Casey's Gully, 13 compartments)	1,350
R 256	Inabil (Branch Gully, 17 compartments)	1,480
	Total	59,246

BRISBANE.

In the Brisbane district, Deputy Forester L. S. Twine completed the survey of Reserve 289, Parish of Cooyar, and the camp was then moved to Reserve 253, Colinton, where a Class 3 Survey of the area to the north of the Brisbane Valley Branch Railway is still proceeding.

The total work done for the year is as follow :—

	Miles.	Chains.
Control lines (theodolite)	26	41
Compass and chain traverse	22	50
Tramway survey	3	46½
Levelling (angulation with theodolite)	14	74
Levels, Dumpey	4	56
Road survey	1	50½
Strip survey	58	6

Deputy Forester Twine reports that the survey of the main features and roads on that part of Reserve 283 north of the railway line is well in hand, and the area will soon be in readiness for estimating, fifteen compartments having been laid out on the ground.

A tramway survey of 3 miles 46½ chains from the mill to Benarkin has been carried out so as to give no bigger grade than 1 in 50, and this line can be carried into the scrub from the mill if required. Deputy Forester Twine reports favourably on this tramway, and considers it will ultimately pay to build and operate with motor tractor or light locomotive.

In the early part of the financial year Forest Overseer S. J. Higgins completed feature and assessment survey of Reserve 1173, Parish of Parker (Highlands), the camp then being shifted to Reserve 200, Parish of Palen, where a Class 2 survey was made, together with Timber Reserve R 390, Parish of Telemon. The adjoining Timber Reserve to the west (R 346, Parish of Melcombe) was also feature surveyed and assessed, an area of approximately 4,000 acres being dealt with.

Forest Overseer Higgins was then transferred to the Gympie district, where he is at present engaged on a rough Class 2 Survey of Reserve 274, Parishes of Conondale and Cambroon. Details of operations are as follows :—

	Miles.	Chains.
Reserve 200, Parish of Palen—		
Compass and chain traverse	8	60
Strip survey	23	20
Reserve 346, Parish of Melcombe—		
strip survey	41	43
Reserve 274, Parishes of Cambroon and Conondale—		
Compass and chain traverse	6	20

GYMPIE.

In the Gympie district, Survey Camp No. 3, under Deputy Forester J. R. Dawson, completed an intense feature and contour survey, also timber estimate of Reserves 124 and 257, Parish of Glastonbury, by the 1st March, 1921. An area of 10,475 acres were dealt with, comprising nineteen logging areas, which were again subdivided into compartments. Altogether 48 miles of theodolite survey and 86 miles of compass traverse were run, and Mary's Creek road was surveyed, graded, and estimates taken out for all earthworks for a total length of 135 chains. In addition, roads were designed through private lands for resumption purposes to give access to timber.

In March the camp was shifted to Reserve 393, Woondum, and up to the end of June 4,920 acres had been cut up into 5 logging areas. Fifty six miles of instrument traverse were completed and marked up, and 4 miles of level and staff work done.

Deputy Forester Dawson has also reported on Portions 1683, 1354, 1 D. and Crown land, Parish of Neerdie (area 3,105 acres), with a view to resumption by the Forest Service. On the 9th September he visited Imbil and took out sections of Roadway Nos. 2 and 5, Brooloo State Forest, and on 1st November proceeded to Corella and reported on the proposed mill site and railway aiding; also ran trial lines for grades with a horse tramway in view.

Apart from the survey work, Deputy Forester Dawson has carried out work in connection with the administration of the Gympie district.

During the year Survey Foreman B. Kruger, assisted by Cadet Forester Kemp, surveyed thirteen compartments (area 1,350 acres) on the catchment of Casey's Gully (Brooloo State Forest), and up to date about 15 miles of roads have been constructed on this reserve.

Survey Foreman Kruger also designed seventeen compartments on the catchment of Branch Gully (Reserve 256, Parish of Imbil), totalling approximately 1,480 acres.

FRASER ISLAND.

A feature and contour survey has been carried out by Deputy Forester Merrotsy and Survey Foreman Markwell on an area of about 6,000 acres of State Forest R. 3, Fraser Island. The area dealt with comprises that part of reserve drained by Woongulbar Creek, and it also has been assessed and divided into nine logging areas, which have been again subdivided into compartments of approximately 100 acres.

A theodolite and chain survey of two routes for a road or tramway to Ungowa—one being 5½ miles and the other 5 miles—has been completed after a thorough reconnaissance of the country.

BUNDABERG.

The Forest Survey Camp at Many Peaks in charge of Forest Factor N. D. Allom has been operating on the balance of Reserve 95, Minerva, and the northern section of Reserve 67, Parish of Bulburin.

Logging areas representing a total of 7,301 acres were completed on the latter reserve, and the total work for the year is as follows:—

	Miles.	Chains.
Theodolite and chain	4	17
Old Boundary		57
strip Survey	39	20

Fifteen and a-half miles of road traverse were completed, 7½ miles of which being the main road from Bullyan to Reserve 67, Bulburin, and the remaining 8 miles a proposed new road from the Dalgair track where it crosses the Dawes Range to the main portion of the scrub on Reserve 95, Minerva. In addition 10½ miles of buggy and pack-horse tracks were cleared and formed.

Wet weather was responsible for a loss of fifty-two working days, and the Forest Factor reports that strip assessment surveys crossed, in his opinion, some of the roughest country in the Bundaberg district.

ROCKHAMPTON, EMERALD, AND CLERMONT.

Practically no survey work was done during the financial year in the Rockhampton, Emerald, and Clermont districts, operations being confined to field inspection of the following State Forests and Timber Reserves:—

- Timber Reserve 1 (Clyde and Moorlands).
- Timber Reserve 27 (Parish of Curtis).
- State Forests 68 and 120 (Shotover and Mimosa).
- State Forest 60 (Rundle).

ATHERTON.

Two Survey Camps operated in North Queensland during the year. Camp No. 2, under the charge of Deputy Forester G.H. Curry, commenced operations about the middle of October.

Camp No. 1, under Foreman J. H. Bradshaw, was engaged on feature and assessment of vacant Crown lands and Timber Reserves (R 251 and 244) in the Parishes of Ongera, Ravenshoe, and Ismalia, in the Country of Cardwell, and some exploratory work on adjoining areas to the south and west.

The Tully work was completed in early December, and the camp was moved to Mareeba to carry out survey and assessment of forfeited portions and vacant Crown land to the east and south-east of Mareeba, the object of this survey being to determine stocks and future potentialities of this country with regard to regeneration of Cypress Pine and Hardwoods, it being generally recognised that a shortage of railway timbers is now imminent through the naturally poor stands of hardwood in North Queensland.

Subsequent work done by this Camp included feature and assessment surveys in the Parishes of Tinaroo, Dinden, Mount Molloy, Garioch, and other parishes between Mount Molloy and Port Douglas.

With the exception of Tinaroo, work in all parishes lay in dense scrub generally cycloned badly, or in rough and broken gorges. The Tinaroo survey gave very disappointing results, and revealed the fact that the area is very deficient in hardwoods of all classes.

The following are the operations of this Camp :--

TULLY SURVEY.		Miles.	
Compass and chain	.. .. .	26	
Compass and step	.. .. .	40	
Exploratory inspection, about 25 miles walked with compass and estimator.			
MAREEBA SURVEY.		Miles.	Chains
Compass and chain		8½	0
TINAROO SURVEY.			
Compass and chain	9		78
Compass and step	3		0
GARIOCH SURVEY, R 6.			
Compass and chain	.. .. .	5	40
Compass and step	.. .. .	2	0

CAMP No. 2.

This Camp was engaged from the date of its inception (October) to the end of the year on feature surreys in Parishes of Mona Mona, Dulanban, Smithfield, and Garioch, and the result should decide the permanent reservation of a large area as a State Forest for Kauri Pine, Hickory, Silkwood, Bally Gum, Oaks, some secondaries, and any exotics which may thrive there.

In the Parish of Dulanban the area under survey practically encloses Reserve 443, known as the Mona Mona Mission, the south, west, and north boundaries being run with theodolite, giving an area of approximately 3,900 acres. The country to the west of the Mission carries large stands *Agathis Palmerstoni*, *Albizia toona*, *Flindersia Iffiana*, and *Blepharocarya involucrigera*. The whole of the eastern side of this large belt of scrub has been traversed and the area estimated. The camp is now engaged in traversing the coastal side of the Macalister Range, and this traverse will be continued until the Parish of Smithfield is met, as this will complete the survey of the proposed reserve along the Macalister Range.

The second part of No. 2 Camp is engaged on the traverse of Hartley's Creek and the trial survey of the proposed alternative route to the coast, as this will determine the easiest and cheapest method of handling timber in the Parish of Smithfield and parts of adjoining parishes. Camp No. 2, has produced some splendid results in spite of adverse conditions. In the first place it was working practically the whole of the time in severely cycloned jungle, and for the last half-year the abnormal wet season made camp life unpleasant and work impossible for long periods. At the close of the year, the camp was carrying out operations on the coastal side of the Range. The moving of the camp was carried out by rail to Cairns, thence by launch "Townsville" to Hartley's Creek, a landing being made in squally weather, which resulted in the loss of stores and gear. Since then bad weather has seriously interfered with survey work.

OPERATIONS.

		Miles.	chains.
Theodolite and chain	.. .. .	27	00
Compass and chain	.. .. .	46	10
Compass and step	.. .. .	1.5	0

In addition, Deputy Forester Curry has inspected and reported on the Jordan Creek and Oswald's Track country in the Parishes of Dirran, Johnstone, and Bartle Frere, to formulate proposals for dealing with timber already matured, and to take stock of advance growth, &c.; and it was decided that the land be opened for settlement without objection by Forestry.

Approximately 387,000 acres of hardwood country to the north of Torrens Creek, situated in the Parishes of Lolworth and Goldsborough (Charters Towers district,) were also inspected and a report furnished.

WARWICK.

The end of the financial year shows a completed survey by Deputy Forester Saunders' Camp of two-thirds of Reserve 399, Parish of Emu Vale, comprising 8,420 acres of extremely rugged country, which, owing to conformation difficulties, have been subdivided into fifteen separate logging areas varying from 210 to 1,925 acres.

In addition to the Emu Vale survey, a connection was run by Deputy Forester Saunders from his traverse of Emu Creek to Mr. Surveyor White's Station 1 on the Main Range, this being urgently required by the Survey Office, which desired to have the relative positions of Portions 44v, 1734, 1784, and 1561 determined.

An additional area of 120,000 acres in the Babbilooora, Chesterton, and Eddystone Holdings (Charleville district) suitable for timber reservation have been located by Timber Contracts Officer W. J. Gorman, then Assistant Forester. This area adjoins the 320,000 acres defined in last year's Annual Report. Forest Overseer C. Smith assisted in and completed Mr. Gorman's operations owing to his recall to Brisbane to control railway timber operations.

On 15th September, 1920, this timber-cruising camp was removed to the Inglewood district, where it was unplayed in laying-out, Brush Creek Proposed State Forest (Parishes of Tandan, Bracker, and Beebo) into compartments, approximately 43 miles of strip survey being run.

FOREST ORGANISATION.

State Forests, like now selections, do not become fully i&r&-bearing until money has been expended upon them in such capital improvements as are necessary to enable them to be worked economically and systematically.

Before timber can be extracted to the best advantage roads must be opened up into the forests, and a large proportion of this year's Forest Service expenditure—to wit, £9,566—has been devoted to this purpose. The saving in cost of timber haulage on the roads so constructed has been sufficient to more than pay interest and redemption charges on the capital represented.

Similarly, grass and water must be provided for the use of the teams engaged in logging the bush. The sum of £720 has been expended on the Brooloo State Forest in the establishment of grazing paddocks. Of this amount, £428 5s. 5d. was spent during the financial year just ended.

During the same period the rental receipts amounted to £227 3s. 6d., so that the whole cost of establishment should be redeemed in three or four years.

The gear's expenditure in this direction amounted to £3,370 5s. 7d.

The building of housing on the State Forests for the resident staffs was continued. The amount invested was £3,661, which returns in rentals an interest of 7½ per cent.

Something has been done towards making the State's forest assets profit-bearing. Much more, however, remains to be done, and much capital must be invested before the State Forests attain to their highest financial productivity. Apart from the central task of growing new forest crops, in place of those removed and sold, the harvesting and marketing arrangements of the Forest Service have yet to be perfected.

On Fraser Island for years, for instance, the timber trade has been hampered by incidental difficulties which it is possible and profitable to overcome. The scanty natural herbage of these sand lands is not sufficient for the proper maintenance of the logging teams, and the creation of artificial pasture would be a contribution to economy in operation. The dependence upon the tides to afford entry to the winding creeks which offer wharfage to the Rat-bottomed timber barges, constituting the link between the island and the mainland, is a further restriction of efficiency. The adoption of Ungowa as the natural deep-water port of the southern half of the island would permit of the construction of key roads into the timber belts, along which would pass to market, without congestion or delay, the products of the Fraser Island forests, including the present unsaleable Turpentine and Bush Box, of which abundant supplies exist. The possibilities in this direction were explored during the year, end surveys and plans were made. Road and firebreak making operations on the island were brought into conformity with this general idea, so that ultimately there may be brought to fruition the direct consignment of Fraser Island timber on ocean-going steamers calling in at the future Ungowa Wharf.

The following is a schedule showing broadly the projects undertaken in the various districts:—

Forestry District.	Class of Project.	No. of Projects Undertaken.	Cost.
			£ s. d.
Gympie	Grass and water provision	17	1,665 15 6
Dalby	Ditto ditto	10	1,481 6 2
Fraser Island	Ditto ditto	6	842 17 2
Brisbane	Ditto ditto	2	86 14 10
Benarkin	Ditto ditto	3	724 1 6
Gympie	Subsidies to shires for roads	1	-212 0 0
Benarkin	Ditto ditto	1	64 16 0
Gympie	Construction of forest roads	41	6,875 5 7
Benarkin	Ditto ditto	6	404 5 11
Fraser Island	Ditto ditto	6	2,232 12 1
Dalby	Ditto ditto	1	46 14 4
Brisbane	Ditto ditto	1	5 17 4
Gympie	Forest station establishment	3	108 1 11
Brisbane	Ditto ditto	2	113 15 10
Fraser Island	Ditto ditto	4	84 10 10
Gympie	Ditto ditto	3	1,303 11 6
Dalby	Ditto ditto	3	323 1 1
Fraser Island	Ditto ditto	14	770 15 10
Benarkin	Ditto ditto	5	967 3 3
Total .. .. .	.. .. .	129	£18,303 6 7

FOREST PRODUCTS BUREAU.

The duty of this bureau is to introduce into commercial circulation as quickly as may be the wide range of secondary woods and minor forest products, hitherto unused, in which the Queensland forestal areas abound.

The beginning of the present financial year virtually marks the definite establishment of this bureau as a functioning organ of the Forest Service. It has developed three branches—& that of Wood Technology, second that represented by the Forest Products Showrooms, a liaison branch linking up with the State Forests, the Sawmills and the Timber yards, for the commercial distribution of the products with which the bureau as a whole is concerned, and thirdly, a branch yet unformed dealing with the industrial chemistry of forest products.

Progress Plan of Part of the BROOLOO STATE FOREST

Scale - 20 Chains to an Inch.

The acreage of the whole Forest on which operations are being carried out is 41,600.

The acreage shown on this plan is 5,500.

Operations commenced 1917.

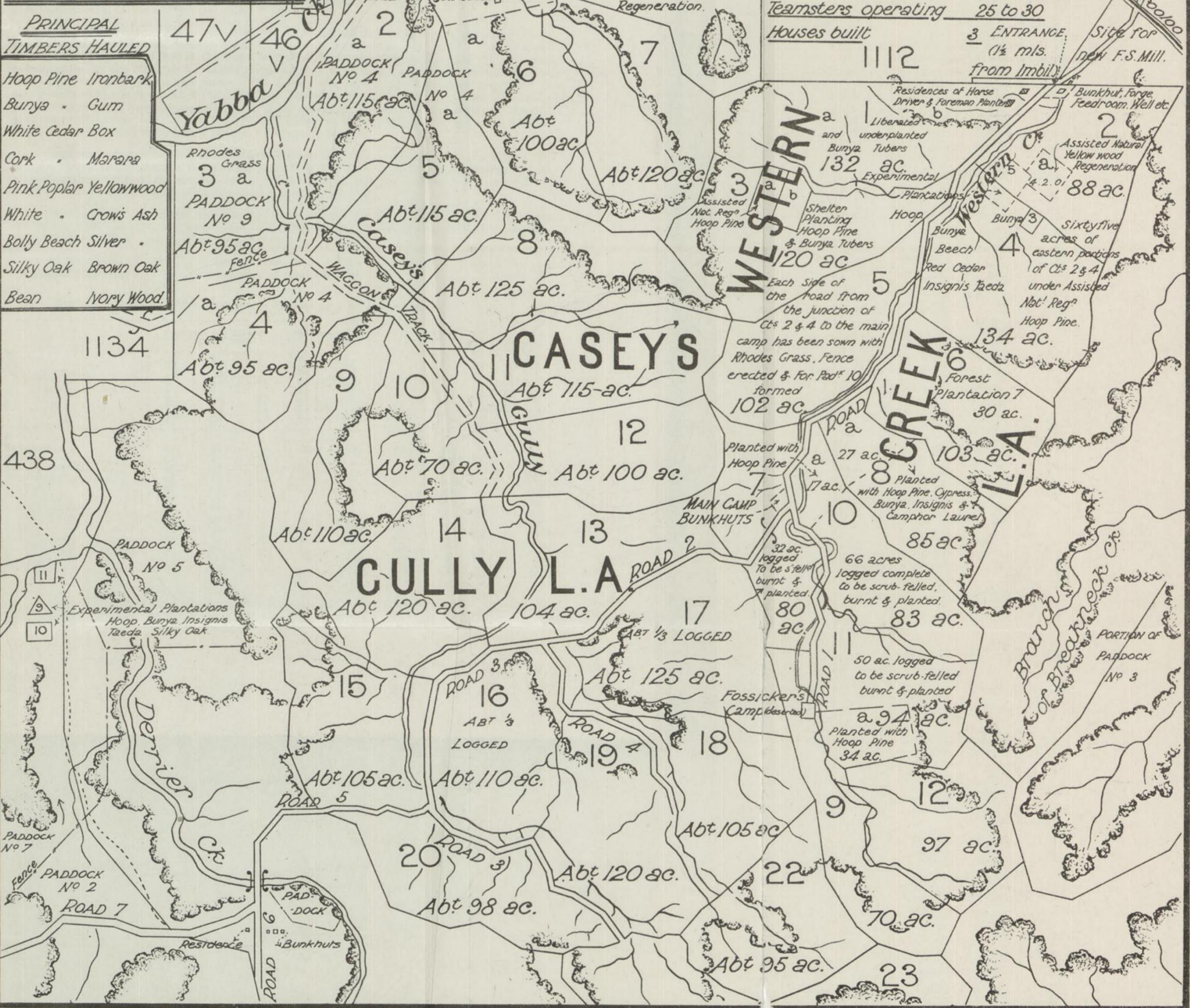
Revenue 1-7-20 to 30-6-21 £31,000.

PRINCIPAL TIMBERS HAULED

- Hoop Pine Ironbark
- Bunya Gum
- White Cedar Box
- Cork Marara
- Pink Poplar Yellowwood
- White Crow's Ash
- Bolly Beach Silver
- Silky Oak Brown Oak
- Bean Ivory Wood

WORKS SUMMARY.

Roads constructed	15 Miles
Offices erected	1
Bunkhouses built	2
Bunkhuts built	14
Nurseries established	1
Pumping Stations	1
Plantations	17
Assisted Nat. Regen Areas	300 ac. +
Grazing Pads formed	11 (Area 2300 ac)
Teamsters operating	25 to 30
Houses built	3
ENTRANCE	1 1/2 mls. from Imbil



1134

438

Paddock No 7

Paddock No 2

ROAD 7

Residence

Bunkhuts

ROAD 6

Paddock No 5

Experimental Plantations

Hoop, Bunya, Insignis

Taeda, Silky Oak

Paddock No 4

ROAD 5

Abt 110 ac.

Abt 105 ac.

Abt 110 ac.

Abt 105 ac.

Abt 120 ac.

Abt 98 ac.

Abt 70 ac.

Abt 115 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

Abt 125 ac.

Abt 115 ac.

Abt 120 ac.

Abt 125 ac.

Abt 115 ac.

Abt 100 ac.

WOOD TECHNOLOGY.

The first branch, that, of Wood Technology, is in the hands of Mr. B. F. Kruger, and is being developed under the personal guidance of the Director of Forests. It has to do with the identification and classification of wood, and offers facilities to the timber trade and the timber-loving public for the determination of unknown timber. Its principal work during the past year has been the arranging and grouping of the native woods into trade series, suitable for effective marketing. An indexing arrangement has been developed to permit of the classification of woods, and this index has furnished the basis for the work of the branch. During the ensuing year it is hoped that the index may be developed to the point of enabling a ready isolation of the species from which the wood is derived. In such a case, a very great step forward will have been made.

FOREST PRODUCTS SHOWROOM.

The Forest Products Showrooms, under the extraordinarily enthusiastic management of Mr. W. E. Moore, has become not merely a commercial but also a popular institution. It houses a permanent exhibition of the woods and minor products of the forests of Queensland—a display which from small beginnings is achieving substantial dimensions. Located in the temporary branch offices of the Forest Service in Adelaide street, accommodation at this date is being made available for it at the general headquarters of the Forest Service in the Executive Buildings, Brisbane.

A great deal of public interest has been evinced in the display, and a number of distinguished visitors—amongst whom were Lord Noar of Raith, then Governor-General of the Commonwealth, and His Excellency the Governor of Queensland, Sir Matthew Nathan, K.C.M.G.—have expressed their appreciation of the educational value of the exhibit.

The Forest Products Showrooms were responsible for the display of wood and wood products at the Royal National Association's Exhibition held at Brisbane in July, 1920. This occasion was marked by the visit of H.R.H. the Prince of Wales, who inspected the exhibit, and was presented subsequently by the Minister for Lands (Hon. J. H. Coyne) with a gold-mounted walking stick made from venerated Queensland woods. The display was viewed also by a large proportion of the record crowd which attended the Exhibition, considerable public interest was aroused, and a resultant stimulus of inquiries regarding some of the previously unknown woods displayed. During the year exhibits were also made at Gympie and Imbil Annual Agricultural Shows, and a window display made by kind permission of Messrs. McWhirters, Limited.

The work of the Forest Products Showrooms included the despatch of no less than 1,300 samples of Queensland timbers to many parts of the world, the collection and assembling of data respecting these timbers, the manufacture of articles of woodyware from previously unused species, and the testing out of all kinds of native woods for various purposes.

Arrangements were made with the University of Queensland to supply samples of timbers for testing as to their physical properties. A number of samples have been so furnished by this Service, but the results have not yet been received.

Further tests of Queensland timbers were made by the Commonwealth Naval Dockyard for shipbuilding purposes. Complete schedule of results is given below:—

RESULTS OF TESTS OF NORTH QUEENSLAND TIMBERS AS A SUBSTITUTE FOR LIGNUM VITÆ.

TIMBER.	FRICTIONAL TEST (FIFTEEN MINUTES' RUN).			WEARING TEST (THREE HOURS' RUN).			SWELLING TESTS.		
	Temperature at start.	Temperature after fifteen minutes.	Difference in temperature.	Thickness of block 1 square inch of wearing surface.	Thickness of same block after three hours' run.	Difference.	Thickness before immersion.	Thickness after fourteen days' immersion.	Difference of amount of swell.
Roseapple	62	74	12	.924	.921	.003	.494	.538	.044
Marara	62	81	19	..	..	..	.498	.528	.030
Lignum Vitæ (Q.)	62	87	25	..	..	..	.5	.522	.022
Hardwood (Bally Gum)	62	76	14	.966	.95	.016	.5	.526	.026
Ironwood	62	77	15	..	..	..	.495	.53	.045
Water Gum	62	77	15	..	..	..	.490	.471	.045
Queensland Box	62	79	17	..	..	..	.5	.694	.194
Ghittoe	71	106	35	.908	.893	.015	.5	.518	.018
Penda	74	99	25	.986	.968	.018	.5	.6245	.0245
Sour Hardwood	73	93	20	.9365	.94	.0235	.503	.516	.013
Johnstone River Hardwood	76	90	14	.954	.947	.007	.503	.514	.011
Geijera Muelleri	74.5	85.5	11	.92	.915	.005	.49	.51	.02
Lignum Vitæ (Gen.)	70	78	8	.966	.965	.001	.449	.451	.002

It will be noted that the timbers which approach most nearly to the imported *Lignum vitæ* are Greenheart (*Geijera Muelleri*) and Johnstone River Hardwood (*Backhousia Bancroftii*).

A number of secondary woods of possible suitability for butter-box construction were handed to the Southern Queensland Co-operative Dairy Company early in the year. The Secretary now reports upon them as follows:—

“The only timbers we deemed suitable were—

Milky	Pine	Very	good
Candlenut			Good
Carrabeau			Good

“The hardwood timbers were too heavy and other timbers too brittle. Kurrajong would not hold nails; other &c it seemed a suitable timber.”

INDUSTRIAL CHEMISTRY OF FOREST PRODUCTS.

The appointment to the Forest Service of an Industrial Chemist, was endorsed by the Public Service Commissioner during the year, but the post has not yet been filled. The scope of such an office was indicated in an address by the Director of Forests during the year on “The Timber Farm and its Products,” and in an article under the same title published recently.

Further inquiries have been made into the position regarding grass-tree gum supplies, and useful information has been acquired. Kauri gum also furnished ground for investigations which are being pursued.

The gum of *Blepharocarya involucrigera* is also under investigation on account of suspected poisonous properties.

A quantity of gum of *Ailanthus imberbiflora* was received during the year from Mackay; a test of this product resulted as follows:—

water	.. .. .	7 per cent.	Beta resin	55 per cent.
Essential oil	.. .. .	10 per cent.	Impurities.	4 per cent.
Alpha resin	24 p e r	cent.		

This gum has strong purgative and anthelmintic properties.

Barks of *Eucalyptus exserta* and an acacia from the Rockhampton district were tested for tannin content during the year, but neither proved satisfactory.

A sample of bark of Brigalow (*Acacia harpophylla*) was sent to a Melbourne firm to be tried for tanning purposes.

Bark of *Cupania anacardioides* was collected and forwarded for testing for its saponaceous properties.

Mr. T. Maclean, an employee of the Forest Service on Fraser Island, and an enthusiastic amateur chemist, conducted a large number of preliminary experiments, producing, among other things, a red dye substance from the fruit of *Hæmodorum tenuifolium*, which was examined by the Agricultural Chemist, Department of Agriculture and Stock, and reported on as follows:—

“The sample was too small for a full report to be made on same. Solutions of 2 per cent., 5 per cent., and 10 per cent. of the extract dyes wool a blood red, the weaker solutions being somewhat faint. Though fairly fast to light the dye was not at all fast to washing; in wool mordanted with potassium bichromate, the same solutions gave grey to black which were fast to washing and light.”

Mr. Maclean was successful also in producing wood-pulp of good quality from the wood of *Schizomeria ovata*, and was responsible for bringing to light the pulping possibilities of the wood of the common She-oak, which abounds in &ern Australia.

Wood of the Queensland Southern Silky Oak (*Grevillea robusta*) was despatched to the Forest Products Laboratory at Perth for testing for the same purpose.

The Forest Products Laboratory found the Queensland Silky Oak to be the best material of those examined for pulping, the range so examined including Karri and Jarrah from Western Australia, Mountain Ash from Victoria, and Mountain Gum, Spotted Gum, and Blackbutt from New South Wales.

The report of the Laboratory summed up in favour of Silky Oak in the following words:—

1. Silky Oak (*Grevillea robusta*) is very easily pulped by the soda process.
2. The pulp is light in colour, and fairly easily bleached. It may be classed as “easy bleaching.”
3. It is long-fibred enough to make a very good paper without the admixture of longer fibred pulps—i.e., it does not need blending like the eucalypt pulps do.
4. For the reasons stated it is the best pulpwood so far examined.

Other species, material of which was forwarded to the Laboratory for investigation, are Cypress Pine (*Callitris glauca*), Brown Oak (*Tarrietia argyrodendron*), Wild Camphor Laurel, Black She-oak (*Casuarina suberosa*), *Sterculia discolor*, Scrub Box (*Tristania conferta*), *Angophora subvelutina*, and *Schizomeria ovata*.

Part II.—Trading Operations.

THE TIMBER MARKET.

THE RISE AND FALL OF TIMBER PRICES.

The factors which underlie the rise and fall of timber prices are little understood, and there is an occasional disposition on the part of those unfamiliar with the situation to suspect sinister influences. The factors, however, are universal and are not subject to local control. The issue is decided by world parity. It is not possible to create a local vacuum.

The whole world is engaged in the buying and selling of wood. Forests are being wiped out daily. Only one-sixth of the prodigious pineries of the United States of America remain virgin. The most precious woods are passing into extinction and lesser woods are making their appearance. In Queensland itself, the timber alongside the railway lines is being swallowed up by the sawmills, and further back it is being destroyed because the costs of marketing exceed the market price. Supplies everywhere are dwindling, and the original forests are being steadily circumscribed and eroded. Of the twenty-two principal countries of the world, only five now have a surplus for export, and in these the timber supply is measurable. The distance to rail is lengthening; the costs of transport and milling have doubled and trebled. As artificial plantations of trees take the place of Nature's gifts, the factor of cost of production and the compound interest upon the cost of production must be added to the price of the new crops. For wood there is no such thing as a price level. There is only a price incline, and no human agency can avert the penalty we have thus to pay for the forest spoliation of the past. Normality can only be reached by conservation.

In the meantime the upward trend is subject to passing modifications. The diversion of the wood-yield to war purposes accelerated the rise in price; the wholesale cashing of the gift forests of American lumber companies and the enormous post-war wage reductions in American and Canadian sawmills are non-depressing the general upward movement.

This situation has reacted upon the Australian timber market. During the past year many millions of feet of cheapened lumber were placed upon Australian wharves from abroad. At the same time a cessation of demand was brought about by world-wide financial timidity, and the consequential high congestion resulted in a temporary collapse of timber-trading operations throughout Australia. Many mills have closed down, amongst them those acquired in Queensland by the War Service Homes Commission; one of which it is said had worked for thirty years without a stop. In common with the wool and mining industries, the timber industry found itself in the slough of a universal financial break.

The Forest Service has not escaped either the slough or the peak of prices. Relying as it does upon the sale of its products at public auction, it is entirely at the mercy of the sea of supply and demand. At the end of 1920 it found itself at the crest of the price wave. At the end of the Annual Report period it was descending towards the trough of the price depression.

Brisbane prices for sawn timber and for logs are determined by Melbourne offerings, which, in their turn, are decided by the import competition of the United States of America, Canada, the Baltic, Japan, Borneo, and other places. Selling sawn timber at par as they do, Queensland sawmillers are able to offer par values for logs, and in the course of ordinary competition this is done.

Log supplies in Queensland come from both private and Governmental forests. Contrary to general opinion, the Forest Service does not enjoy a monopoly. Last year, of 203,000,000 super. ft. of logs delivered to the log market, private sources, which are more accessible than the State's forests, furnished 155,000,000 super. ft., or 76.4 per cent. of the yield.

Private sellers secured the current market prices for their logs. The Forest Service, however, found itself in the plight that it was expected to justify its commercial existence by selling to similar advantage and at the same time looked to to force down the price of timber on behalf of the buying public. It compromised by offering its logs for voluntary purchase at auction at an upset of 2s. 6d. per 100 super. ft. below prevailing prices, and by selling its sawn timber supplies at 2½ per cent. to 5 per cent. below merchants' lists, with substantial additional concessions for Workers' Dwellings. In doing so it was successful in satisfying nobody, and the only persons who secured any advantage were the sawmillers who were fortunate enough to purchase logs without competition.

The Forest Service at this date is charged with responsibility for the high price of timber in 1920.

The charge is an idle one. Assume that all financial considerations were set aside, that all preconceived notions of trade were reversed, and that the only duty imposed upon the Forest Service was to force down timber prices, it would become necessary to accept the lowest bid for logs rather than the highest, or to press upon the purchaser a refund of his purchase money. Private log suppliers forthwith would conserve their own resources and operate in the cheapened Government stocks. An army of commission agents would spring into existence and thrive upon the margin thus created between artificial and natural values. These things are already within the experience of the Forest Service. They are to be seen in North Queensland at the moment, and in South Queensland several years ago it became notorious that private timber lands were being conserved whilst their owners engaged in exhausting Crown forests set apart for perpetual supply.

The proposal to use the forest assets of the State for market-breaking purposes is unsound, and the experiment could only end in both financial and silvical disaster. The sole beneficiaries would be sawmillers and middlemen.

There is no royal road to low prices. World supply and demand overwhelm all theories to the contrary. In the meantime timber prices are falling of their own weight, and Forest Service upsets for logs are falling automatically with them in the face of falling demand.

The prevailing prices for sawn timber determine the value of logs in the open market. It is not true that the price of logs decides the value of the sawn product, although this may seem to be so. The price offered for logs merely determines the payable distance to which logging operations may extend. The lower the log price the shorter the radius of profitable haulage and the smaller the supply recoverable. High prices indicate a demand for increased supplies and a willingness to pay the costs of transport from the furthest distances.

In order to supply the annual needs in raw material of the timber industry of Queensland, a railside zone up to 20 miles in width must be drawn upon. The average distance of road haulage is probably 10 miles and of rail freighting 120 miles. The average cost of felling, hauling, loading, and training logs from this average distance, at the rates current in 1920, was about 13s. Gd. per 100 super. feet. To this sum must be added the purchase price of the standing tree, usually styled stumpage or royalty, and representing the cost of reproduction. It is safe to say that the basic all-round cost of delivered logs to Brisbane mills was 16s. per 100 super. ft. The market, however, offered only 12s. 6d. for knotty pine logs, or less than the average cost of production. On the other hand, it offered 40s. for Red Cedar and Maple. For almost every shilling between 12s. 6d. and 40s. there was a different wood, and this price scale reflected the natural demand and the place which each species occupied in public esteem. To depress the price of Maple and Cedar to the price of knotty pine would be to force the latter off the market and on to the waste heap. For first class pine logs the bids were up to 30s. in the mid-year and down to 22s. at the close. For Brown Oak and many of the secondary woods that fill the forests, only 8s. or 9s. was offered, or less than average cost. As the price of first class pine logs fall, its lesser associates drop out and nothing remains but to ringbark and burn them as unsaleable. Since, therefore, all the trees on an acre of State Forest cannot be disposed of at one all-round price, since only 300 super. ft. is picked out of 10,000 super. ft. available, there must be a range of price from lowest to highest, and the basis is the cost of production.

Hoop Pine is growing in public favour as did Cedar and Maple. Prices therefore rise, uses become more restricted, and lesser woods appear for the lesser purposes. First class Cypress Pine from Western Queensland can be offered in flooring sizes in Brisbane for 34s. 6d. per 100 super. ft., as against 48s. Gd. for Hoop Pine. Brown Oak can be purchased for 45s. The natural remedy for high timber prices is to resort to these cheaper wood—a further fulfilment of the central policy of forest conservation.

THE TIMBER MARKET OF 1920-1921.

The price-climax was reached towards the mid-financial year. On 20th October, 1920, the Price Fixing Commissioner arrested any further possibility of increase by proclaiming the then ruling prices as fixed prices under the Profiteering Prevention Act. Subsequently he carried out an exhaustive investigation of the timber market, and fixed new and lower prices, on the basis of a definite classification of sawn timber into three grades—viz., Joinery, Building, and Merchantable qualities.

This action determined the purchasable value of prime pine logs at 30s., Brisbane, and of low-grade logs at 15s. For special quality plywood logs the record price of 36s. had been obtained by private sellers: The Forest Service, however, in conformity with its policy of tagging behind the natural market, adopted upsets of 27s. 6d. and 12s. 6d., or 2s. Gd. per 100 super. ft. less than the par values at which sawmillers could afford to purchase pine logs when selling their manufactured goods at the prices fixed by the Prices Commissioner. In the case of hardwood logs the upsets were 1s. less than the current values.

Up till February, 1921, the demand for logs had exceeded the supply. Early in March, however, the demand ceased and the tables were turned. Thereafter supplies glutted the empty markets, prices fell, and logging teamsters were thrown out of work. By the end of June the price of pine logs had receded by several shillings per 100 super. feet, and was still falling. At that date the Forest Service upsets, which automatically rise and fall with the natural market movement, had receded to 24s. 6d. The course of the price curve from 1919 to 1921 is indicated by the following record of the periodical upsets adopted by the Forest Service as the Brisbane basis for its log sales:—

FOREST SERVICE LOG UPSETS AT BRISBANE.

Species.	Class.	June, 1919.	June, 1920.	September, 1920.	June, 1921.
		s. d.	s. d.	s. d.	s. d.
Hoop and Bunya Pine ..	60 inch plus ..	18 6	25 0	27 6	24 6
	48 inch-59 inch ..	16 6	20 6	25 0	21 0
	40 inch-47 inch ..	13 6	16 0	19 6	16 0
	Tops 60 inch plus and Logs minus 40 inch	9 6	12 0	12 6	12 0
Ironbark ..	Tops minus 60 inch	8 6	11 0	11 6	12 0
	72 inch plus ..	..	16 6	16 6	15 6
	60 inch-71 inch ..	14 0	15 3	15 3	14 3
	Minus 60 inch ..	12 6	13 0	13 0	12 6

The price of Maple logs remained firm throughout and withstood the general fall in value. At the close of the financial year Maple logs were being quoted still at 34s. and 36s., f.o.b., Cairns, with every prospect of further increase.

Prices for other cabinet woods, for Yellowwood, Crow's Ash, Silver Ash, and secondary woods, which had remained very firm during the first half of the year, eased off thereafter: Finally, demand ceased except for the highest quality woods. The call for constructional hardwoods for railway purposes died away altogether, and wining timbers no longer were in request.

As the price of timber rose, so also had harvesting and marketing costs. As the price of timber fell, however, the costs of production remained fixed at the maximum attained, by reason of the promulgation during the year of the Arbitration Court Award for Forestry Employees. This award prescribed that logging teamsters should be paid a haulage rate which would return them £12 10s. per working week.

The price payable to teamsters for hauling hardwood logs from the stump to the Forest Service Sawmill at Taromeo is now greater than the mill price of sawn lumber in the United States of America, where wages of mill employees were reduced arbitrarily from 22s. per day to 12s. as the answer of the American sawmilling industry to the slump in trade.

At the close of the financial year, sawn Oregon was being quoted at around 20s., c.i.f., at Australian ports.

In Melbourne the retail price of Oregon was 40s. as against 70s. twelve months before. Red Baltic flooring had fallen from 80s. to 62s., White Baltic from 78s. to 60s., and New Zealand Rimu from 70s. to 53s. American Redwood, the nearest competitor of Queensland pine for joinery finished the year at £5 per 100 super. ft., as against £6 at 30th June, 1920. Hoop Pine in wide boards remained firm at £5 per 100 super. ft. retailed in Melbourne, although shipments were leaving Brisbane at 50s., f.o.b. The Sydney retail price for Hoop Pine, 12 in. x 1 in. boards, actually increased from 63s. to 68s. at the end of the year, whilst Brisbane prices were falling from 67s. Gd. to 62s. Pd.

The position was that on its merits Queensland pine was obtaining new and higher rank amongst its competitors in the South.

In Brisbane, the Selling price of Queensland pine was actually below Australian par.

THE FOREST AND TIMBER INDUSTRIES.

THE YEAR'S OPERATIONS.

The wealth produced by the forest, and timber industries of Queensland for the year ending 30th June 1921; amounted to between three and four million pounds sterling. There were 233 saw-mills engaged actively in sawing logs, and in this branch of the forest industries alone there were directly employed 4,306 hands as against 643 employed in the butter factories of the State.

The Forest Service log contribution was as follows :-

- (a) 30.8 per cent. of the pine log cut as against 29 per cent. for 1919.
- (b) 10.7 per cent. of the hardwood log cut as against 8 per cent. for 1919.
- (c) 28 per cent. of the cedar log cut as against 13 per cent. for 1919.

During the first eight months of the year there was an activity in logging unprecedented in the history of the State. In the ninth month, the demand for logs ceased with an undreamt of suddenness. The intervention of the financial crisis had practically put an end to timber-falling for the rest of the year.

Despite the auspicious beginning, the year ended with a deficit of 10,000,000 super. ft. in the combined log cuts of the Forest Service and of private holders of alienated timber lands, a falling-off amounting to 4.69 of the output of 1919. Strange to say there was an increased supply of hardwood logs to the extent of 12,500,000 super. ft. (17.43 per cent.), but the reduction of the pine log yield by 21,500,000 super. ft. determined the deficit of the year. As a natural corollary the output of the sawmills of the State showed a falling-off of 15,000,000 super. ft. in the case of pine and an increase of half that quantity for hardwood.

The gross cut of logs of all species for the State as a whole, for each year from 1914 to date, is given in the following table :-

THE STATE'S LOG CUT, 1914 TO 1920.

	TOTAL LOG CUT (FROM CROWN AND PRIVATE LANDS).				
	1914.	1917.	1918.	1919.	1920.
	Superficial feet.	Superficial feet.	Superficial feet.	Superficial feet.	Superficial feet.
Softwoods	141,557,000	98,651,000	105,009,000	140,966,000	119,439,000
Hardwoods	110,679,000	68,059,000	71,855,000	71,782,000	84,162,000
Cedar	836,000	247,000	395,000	787,000	243,000
	253,072,000	166,957,000	177,259,000	213,535,000	203,844,000
Percentage ..	100 per cent.	66 per cent.	{ 70.4 per cent. 100 per cent.	84.3 per cent. 120.4 per cent.	80.5 per cent. 114.9 per cent.

The statistics relating to the sawmilling operations throughout the State for both Crown and private mills are recorded in the schedule below :-

THE STATE'S SAWMILL OUTPUT, 1915 TO 1920.

	1915.	1916.	1917.	1918.	1919.	1920.
Number of sawmills in operation ..	247	230	227	221	226	233
Number of hands employed ..	4,311	3,734	3,441	3,543	3,973	4,306
Value of machinery, plant, land, &c.	£568,458	567,356	545,184	562,531	617,633	732,522
Pine cut	{ Super. feet 89,726,215	{ Super. feet 75,231,339	{ Super. feet 70,465,436	{ Super. feet 75,006,691	{ Super. feet 100,690,008	{ Super. feet 85,313,246
	{ Value £769,164	{ Value 657,289	{ Value 641,117	{ Value 816,136	{ Value 1,265,128	{ Value 1,471,945
Cedar cut	{ Super. feet 433,536	{ Super. feet 290,738	{ Super. feet 197,783	{ Super. feet 310,057	{ Super. feet 629,485	{ Super. feet 194,126
	{ Value £11,085	{ Value 6,343	{ Value 3,893	{ Value 7,442	{ Value 13,160	{ Value 5,153
Hardwood and other timbers cut	{ Super. feet 51,700,162	{ Super. feet 46,328,581	{ Super. feet 40,929,378	{ Super. feet 40,113,166	{ Super. feet 43,089,337	{ Super. feet 50,497,185
	{ Value £531,981	{ Value 491,903	{ Value 435,427	{ Value 512,670	{ Value 606,632	{ Value 857,503
Planing, moulding, &c.	£49,682	35,748	107,279	119,800	105,580	81,974

In addition to the log timber sawn up by the Queensland kills there were exported to the Southern States large quantities of cabinet-wood logs from North Queensland, including about 6,000,000 super. ft. of big-girth Maple. The export of Hoop and Pine logs was regulated by the Forest Service under the authority of a proclamation acquiring for local use all such logs. The surplus available for export after satisfying local milling needs amounted to 3,996,387 super. ft.; of prime pine logs, and 248,781 super. ft. of pine tops. This was duly exported under authority of the Forest Service.

The export of timber overseas was inconsiderable, exclusive of Sandalwood; the value of such exports was only £2,592. There was imported into the State, however, timber to the value of £15,369, the Canadian "Importer" landing in Brisbane in March, 1921, the first shipment of dimension Oregon that had been placed on the local timber market for many years.

The logging operations in the State Forests yielded 46,000,000 super. ft. of log timber, equivalent to 91.4 per cent. of the previous year's production and 99.6 per cent. of the production of 1918; in short, a net falling-off for the year of 4,000,000 feet of logs. From the forests of the Atherton, Cairns, and Herbston districts, the Forest Service secured 1,133,175 super. ft. of Kauri Pine as against 339,161 super. ft. for the previous year, and 414,441 super. ft. of Maple as against 207,149 super. ft.

The business of the Forest Service in North Queensland should be—and undoubtedly in the future will be—on a scale of vastly greater magnitude. In this region there are probably 5,000,000 acre. of sub-tropical forest containing not less than 20,000,000 super. ft. of cabinet-woods, sufficient to supply Australia's needs in perpetuity and leave a margin for export to Europe and the United States of America. Unfortunately, however, a state of ruinous congestion exists in the timber trade of the North, and, despite the clamour from the South for supply, supply cannot be assured. Meanwhile prodigious waste ensues.

Large areas of valuable timber lands have been opened for selection in the past with the inducement, to the selector of the gift from the Crown of the timber values thereon. Huge quantities of cabinet-woods have been felled by these settlers and dumped on the unorganised market. The harbour and shipping facilities have proved inadequate, the supply of railway trucks is uncertain, and the roads are almost non-existent. An extraordinary margin between selling and buying values has been produced, and upon this margin is subsisting a veritable army of dealers in wood. The log teamster—holding, as he does, the key to the situation—has become a profiteer. The local officer of the Forest Service at Atherton reports that teamsters will never quote a hauling rate which will yield him less than £10 per day, and many clear well over £750 per annum.

It were futile for the Forest Service to operate in a wholesale fashion until present obstructions be overcome. District Forester J. M. Fraser, in his Annual Report, writes:—"The policy of confining sales at stump to areas about to be alienated has been pursued throughout the year, the only departures being in the case of damaged timber on reserves and railway timbers.

"Most of the timber sold at stump was purchased by thus possessed of means of hating it. Haulage costs kill the profit to the middleman when the timber is purchased at an equitable valuation. It is, however, the practice to denounce the Queensland Forest Service as charging extortionate 'royalty' and to demand per medium of the Press that the industry be saved from annihilation by the reduction of 'royalty' to a nominal figure. A progressive business man would probably inquire as to means of reducing costs, and an efficiency expert would demand a wholesale scrapping of existing handling appliances and a reduction of haulage costs. In many cases teamsters are so independent that they haul for high rates for a few days, then 'lay off' for a week or two, claiming that their annual earnings are not abnormal. With these the annual earnings are certainly not abnormal, through their own fault, and lack of ambition. Enough money to live on, with as little work as possible, is the height of their ambition. It is noteworthy that a teamster in the Yungaburra district made £700 in four months, the only deductions being £3 per week 'grass money' or agistment. It seems ridiculous that tractor men should demand the same rates for haulage when they can make a weekly delivery of about five times that of the bullock team, or at least three times that of the horse team."

The position in Southern Queensland is much more satisfactory than in the North, although here again the excessive alienation of hardwood areas in past years created the condition that these alienated lands in private ownership yielded eight times the hardwood production of the State-owned forests. From the latter the Forest Service sold in competition with the private output only 9,035,000 super. ft. of hardwood out of the total cut for the state of 84,000,000 super. ft. Of the Forest Service production, 41 per cent., or 3,758,203 super. ft., came from Fraser Island, whose contribution had been increased from the 1,744,932 super. ft. of the previous year owing to the operations of Messrs. McKenzie Ltd. This firm, with two mills working, disposed of 100,000 super. ft. of logs per week.

The production from the Cypress Pine forests of South-western Queensland was increased from 846,229 super. ft. in 1919-20 to 1,445,410 super. ft. in 1920-21.

The yield of Hoop and Bunya Pin logs from the Forest Service holdings amounted to 36,799,000 super. ft. as against 44,298,000 super. ft. for the year before. The vital importance to

the timber trade of the pine resources of the Gympie, Nanango, and Ipswich districts is revealed by the fact that, the State Forests of these districts yielded no less than 83 per cent. of the total Forest Service production of the State. The figures are :-

" HOOP AND BUNYA LOG PINE C M .

	1918.	1919.	1919-20.	1920-21
	Superficial feet.	Superficial feet.	Superficial feet.	Superficial feet.
Nanango District ..	11,447,000	10,907,156	10,841,881	13,385,725
Gympie	7,784,000	7,206,445	8,169,355	8,006,040
Ipswich	7,221,089	9,586,935	7,145,436	7,072,808

FOREST SERVICE LOG TRADING.

The most important contribution to the figures for the Gympie district was made probably by the Brooloo State Forest, which has been organised for direct delivery of logs from the forest to the consumer in manufactured or unmanufactured form. Here a main highway was built from the rail into the heart of the timber.

Having been constructed by returned soldiers it has earned the local cognomen of the "Dinkum Road." Its completion resulted in a reduction of log haulage charges which have gone far towards recouping the expenditure upon the road. Incidentally, the Forest Service Sawmill at the Imbil end of the road has been assured of a constant log supply. The Chief Forester, Mr. M. H. Simon, then District Forester for the Gympie district, writes :-

" Not for a day was the mill idle because of log shortage. During prior years the mill was closed for considerable periods owing to inadequate log supplies. Demands this year were filled promptly owing to the presence of a good road. The Gympie Forests Office earned the commendation of purchasers for prompt satisfaction of pine log orders under direct sales at Imbil. To the "Dinkum" and other roads constructed by the Queensland Forest Service the credit is in great part, due. Grass paddocks established on Brooloo State Forest last year have proved to be of great assistance as well as being an asset."

Mr. Merrotsy, Acting District Forester at Gympie, states :

" Successful timber haulage in this district is due to the policy of providing grass paddocks for the teamsters, and has been of material benefit to the Forest Service and the teamsters."

The timber supply position on this newly organised State Forest should be contrasted with the sorry muddle existing in North Queensland, where every selector is a factor in a timber trade whose operations have had the consequence of forcing Australian buyers to seek their cabinet-woods requirements in Borneo and Japan.

The direct handling of logs by the Forest Service from the forest to the city market is gradually replacing the old style sale at stump on the more important State Forests. The reduction in costs is readily apparent, as against the previous procedure of sale and resale to teamster, agent, and miller, the constant haggling and the repeated measurement and tallying. The average gain by the Forest Service was 2s. 6d. per 100 superf. ft.

In the Gympie district forty-four teams were employed in these operations; whilst in the Brisbane district nineteen were engaged, in all cases on the basis of the rate of £12 10s. per week prescribed by the Forestry Employees' Award. Of these teams, three were owned by the Forest Service, and handled under the day-labour system. Concerning these three, Forest Factor Povey writes :-

" Forest Service teams proved to be of great assistance during the year in hauling from areas on which it had been impossible to get contractors interested.

" Basing on Forest Service rates payable for haulage—

Team No. 1 (horse team) shows a net profit of £240 6s. 2d.

Team No. 2 (horse team) shows a net loss of £15 13s. 7d.

" This team has been hauling hardwood during the whole of the year, and has been credited only at rates offered to (and refused by) teamsters.

" Team No. 3 (bullock team) shows a net profit of £93 19s. 4d."

The following statements furnish the details of the Forest Service log cut from 1918 to date :-

FOREST SERVICE-TIMBER CUT.

	1918.	1919.	1919-20.	1920-21.
	Superficial feet.	Superficial feet.	Superficial feet.	Superficial feet.
Hoop and Bunya logs and tops	35,488,681	40,567,959	43,113,383	33,887,627
Kauri	1,438,610	663,308	339,111	1,333,175
Cypress	710,878	741,336	846,229	1,578,396
Bally Gum	46,444			
Beech	437,377			
Silky Oak	121,124	854,813	771,955	1,434,912
Putt's Pine	5,117			
Yellow-wood	50,748			
Other	438,388			
Total Softwoods	38,743,067	42,827,416	45,070,678	38,234,110
Red Cedar	172,373	107,298	159,209	66,664
Hardwoods	7,141,934	4,998,033	4,939,610	7,000,189
Grand Total	46,057,374	47,932,747	50,169,497	45,300,963

RAILWAY, MINING, AND MISCELLANEOUS.

	1913.	1919.	1919-20.	1920-21
Sleepers	116,723 pieces	253,720 pieces	181,316 pieces	469,379 pieces
Posts, rails, and palings	68,267 pieces	85,398 pieces	97,285 pieces	90,615 pieces
Piles, girders, corbels, and sills	101,214 l. ft.	228,509 l. ft.	434,559 l. ft.	95,982 l. ft.
Headstocks, transoms, and crossings				944,814 s. ft.
Telegraph poles and house blocks	92,289 l. ft.	112,151 l. ft.	126,116 l. ft.	215,864 l. ft.
Mining and miscellaneous	1,305,171 l. ft.	702,797 l. ft.	692,727 l. ft.	484,242 l. ft.
Miscellaneous				102,119 s. ft.
Fuel	50,921 tons	44,059 tons	49,333 tons	64,532 tons
Sandalwood	406 tons	498 tons	540 tons	388 tons
Mangrove	88 tons	18 tons	18 tons	54 tons
Guano	560 tons	139 tons	139 tons	
Foam bark	5 tons	4 tons		13 cwt.
Ebonywood				3 tons 15 cwt.
Sand and gravel		13 loads		37 loads
Hoop Pine gum		90 lb.		
Charcoal				1,222 bags

No less than 72 per cent. of the gross forest revenues of the Gympie district resulted from the direct log-trading operations of the Forest Service, which in this district yielded £27,112 out of the total income for the State from this source of £55,130.

The turnover of Hoop and Bunya Pine amounted to 6,103,320 super. ft., of which 1,450,199 super. ft. consisted of the knotty top logs.

Following are the particulars for Gympie and Brisbane districts :—

Timber.	Quantity.	Amount.
	Superficial Feet.	£ s. d.
Pine	2,890,281	30,104 17 11
Tops	871,452	3,301 15 11
Red Cedar	669	11 0 9
White Cedar	3,566	52 9 10
Pink Poplar	91,804	480 9 2
Silky Oak	9,329	80 15 8
Silky Elm	106,657	220 15 5
Yellowwood	87,150	646 8 6
Bumpy Ash	18,014	87 5 4
Beech	14,961	163 13 5
Crow's Ash	35,558	194 10 8
Bally Gum	7,863	42 13 5
Marara	28,429	74 18 0
White Bean	1,130	2 7 6
Red Bean	1,636	3 18 11
Ivorywood	841	4 17 7
Iron bark	24,347	102 3 10
Messmate	8,933	34 10 0
Spotted Gum	6,448	22 19 9
Secondary Woods (various)	22,286	50 2 9
Hardwood Poles (number)	477 (16,551 lin. ft.)	1,907 6 2

£2,570 0s. 10d. of the total amount was outstanding at the end of the year, but has since been paid.

A summary of the operations under direct sales in Brisbane district is as follows :—

	Quantity.	Receipts.
	Superficial Feet.	£ s. d.
Pine Logs	1,762,840	14,672 10 10
Pine Tops	578,747	
Hardwood	579,913	

In the Atherton Forestry District, the obstructions met with by the Forest Service were considerable. Not only were its operations seriously interfered with by shipping strikes and other hold-ups, but the truck supply was often short, and loading arrangements were tampered with. A winch, wire rope, cant hooks, and gear provided at Ravenshoe for the latter purpose suffered injury, the wire rope being neatly cut in two during a slack period, and part removed. The police were unable to recover it. Later a raft of logs was cut adrift, at Cairns and washed out to sea; but, as it turned out, few of the logs included were the property of the Forest Service.

The Forest Service succeeded in shipping to the South 78,125 super. ft. of Msple logs, and selling on ramps 120,000 super. ft. of this and other species.

TIMBER CONTRACTS OFFICE OPERATIONS.

This Office was constituted on 1st July, 1920, for the purpose of carrying on the business of manufacturing and supplying girders, sleepers, and other hardwood products comprised under the heading of Hewn, Split, and Pole Hardwood Supplies :-

It developed from the conception that, workers in this branch of the timber industry were actually resident forest workmen and that their operations as such could only be controlled effectively from the forester's point of view by making them employees of the Forest, Service.

Hitherto, the conversion of hardwood by h&d upon the State Forests by irresponsible contracting sleeper-getters, girder-getters, and others of the class, had been accompanied by a riotous waste of trees, by both axe and fire. The nominal money returns derived from the sale of the timber did not even approach compensation for the sylvical damage done: nor did the workmen themselves benefit, by the lack of organisation manifest, in their operations.

The Timber Contracts Officer, Mr. W. J. Gorman, discussing the status of the sleeper-getter at the time, in an official report, wrote as follows :-

"Sleeper-squaring is a skilled trade. It needs special knowledge, added to perfect physical fitness and strength for the development of a proficient squarer. Fully 59 per cent. of every one hundred learners are eliminated in the process. It is the hardest manual work in Australia. Few men can follow the calling for many years without developing into physical wrecks.

"Present working-day conditions in Queensland make it extremely doubtful if sufficient men can be attracted to the calling (it will need at least 400 skilled axemen) to supply the State's requirements of about 500,000 sleepers per annum.

"One-half that man power, and unskilled at that, with the aid of machinery, will turn out the same quantity of sawn sleepers at one-third less cost. Both the 16-inch and 24-inch classes can be cut in a face and operations confined to small cutting compartments which can be cut out quickly and then given over to regenerative measures."

The central purpose of the new Office was the systematic development of the hewn, split, and pole timber supply business as an integral part of 'the timber-farming operations of the State Forests. It provided, inter alia, for the creation of a permanent organisation of workmen on each reservation for the delivery and supply of orders in a manner not only businesslike but appropriate to the sylvical necessities of the area. Incidentally it converted sleeper-getting from a nomadic into a residential rural occupation.

These results have been realised in degree. Despite the fact that the first six months were months of survey and preparation, and notwithstanding the virtual collapse of business in the latter part of the Annual Report period owing to the birth of a financial crisis, the Office completed its first year's work with all its costs recouped.

The first contract undertaken was the very considerable one of supplying to the Queensland Department of Railways the whole of its annual requirements in hewn, split, and pole hardwood. The contract prices in this case afforded no possibility whatever of profit, the advantage having been secured by the Department, of Railways of obtaining its needs at bare cost of delivery, even the stumpage prices payable through the Timber Contracts Office to the ordinary forest, revenues being those ordinarily charged for timber at the furthest, limit of profitable haulage—viz., minimum rates only.

The Timber Contracts Office, however, was not destined to enjoy this contract for long, for in February, 1921, the Railway Department cancelled all the orders lodged, leaving on the hands of the Timber Contracts Office a quantity of the ordered timber.

The amount paid to the Timber Contracts Office by Railways for supplies received during the year, therefore, was only £4,715 17s. 6d. Of this amount, £4,274 11s. 11d. was paid to contractors, and £441 5s. 7d. to the District Forest Offices concerned in payment of the stumpage prices due at the minimum rates. Summary of timber supplied from both Crown and private lands is :-

Quantities.	Class of Timber.
56 lin. ft.	15-inch girders
156 lin. ft.	16-inch girders
5,155½ lin. ft.	17-inch girders
6,810½ lin. ft.	18-inch girders
778½ lin. ft.	17-inch corbels
41 lin. ft.	18-inch corbels
922 super. ft.	Headstocks
13,478 super. ft.	Transoms
2,095 super. ft.	Crossings
480 super. ft.	Capsills
3,747 lin. ft.	Piles
13' lin. ft.	Sills
6,004 pieces	Sleeper blocks
132 pieces	Squared sleepers
4,732 pieces	Hogbacked sleepers
234 pieces	Telegraph poles

Apart from the railway contract very little other business was transacted, although much was initiated, and should reach fruition during the ensuing financial year. These other transactions, however, totalled £1,769 8s. 9d. Of this amount £170 10s. 5d., or 10 per cent., accrued to the Timber Contracts Office as commission, and £184 19s. to the District Offices as stumpage prices for timber received and sold:

The profit and loss account and balance-sheet for the Office are presented at the end of this section of the report. They show that the Office is already self-supporting :—

BALANCE-SHEET.

CONTRACTS OFFICE.

<i>Liabilities.</i>		<i>£ s. d.</i>	<i>Assets.</i>		<i>£ s. d.</i>
Profit and Loss Account (<i>Dr. Balance</i>)		4,866 8 5	Railway timbers on hand	3,827 12 5	
Balance		0 2 9	E. L. Poles	88 12 1	
			F.S. Team (4)	285 7 11	
			Tents	11 12 7	
			Due from Railway Department on sales 1920-21, 755,072 sup ft., at 1s. per 100	377 10 9	
			Commission due from Railway Department on timber held in stock, 551,540 sup. ft., at 1s. per 100 sup. ft.	275 15 5	
		£4,866 11 2		£4,866 11 2	

PROFIT AND LOSS ACCOUNT.

		<i>£ s. d.</i>			<i>£ s. d.</i>
Sale of timber to Railway		4,715 17 6	Salaries and Expenses	1,030 1 8	
Private Contracts		1,680 16 8	Rent, Telephone, and Office Cleaning ..	85 6 8	
To Balance		4,866 8 5	Council Rates	12 19 9	
			Wheel Tax	7 17 6	
			Stores	0 3 0	
			"Courier"	1 6 0	
			Office Requisites	10 8 3	
			Gas Account	0 3 4	
			Railway Timbers (cutting and hauling)	4,274 11 11	
			Purchase Team	286 6 3	
			Stock Timbers (cutting, hauling, and stumpage)	3,827 12 5	
			Private Supplies (cutting, hauling, and stumpage)	1,413 18 11	
			Teamsters' Wages and Horse Feed ..	284 3 8	
			Repairs, F. S. Team	14 2 7	
			Railage, Horse-feed, &c.	14 0 8	
		£11,263 2 7		£11,263 2 7	

FOREST SERVICE SAWMILLS.

PRESENT POSITION.

On the 1st July, 1,920, all the then existing State Sawmills were merged into the Forest Service, which by acceptance at the same date of responsibility with regard to the Railway Department's future timber order, and also with regard to the State's log export trade, became the State's timber grower and provider from the forest nursery beds to the door of the consumer himself.

By consequence of the changed relationship, the sawmilling policy of the State assumed an altered form. Becoming integral parts of the Forest Service, the Sawmills and Timberyards were made subject to the general aims of forestry. It was approved, for instance, that the sawing policy should have as one of its objectives the utilisation of secondary woods not ordinarily saleable in log form. In this may the mills were to render to the community in the most economical shape the otherwise wasted assets of the State Forests, and by so doing contribute to the development of sylvicultural practice, having as its final end the perpetuation of the timber supplies and the industries dependent upon them.

The extensive rearrangements made during the year have produced an almost perfect co-ordination of these general aims with the basic duty of commercial success.

It was determined that the right place for Forest Service Sawmills was in the country rather than in the city, and, so far as practicable, upon the State Forests themselves. The hardwood mill in Brisbane was closed down. The timberyards, however, were maintained and extended, having in view that they were to serve us as the central distributing agency for the Forest Service mills in the country, and might be used also to serve other country mills privately-owned in the same way. A secondary woods section was added to link up to the Forest Products Showrooms which were charged with the duty of canvassing for sales of these timbers.

The country mills situated upon State Forests at Taromeo and Imbil; and at Silkwood in North Queensland, were brought within the Forest Service administrations for these districts, and placed upon a self-accounting basis; each selling its output to the central timberyards in Brisbane at a definite price per 100 super. ft. The costing system was brought into line with that in use in other branches of the Forest Service.

The payment of rebates on log sales by the Forest Service to the sawmills ceased immediately the mills were taken over, and the basis of sales thereafter was determined as the prevailing market price for logs, on which arrangement supplies were delivered at the mill dumps direct from the State Forests by the logging staff of the Queensland Forest Service administration.

The mill price lists were retied, and the selling prices of sawn timber fixed at from 2½ per cent. to 5 per cent. below merchants' lists. Added special concessions in the case of Workers' Dwellings were also given.

The net result of the year's operations was a clear profit of £4,348.

In view of the fact that the year was one of sheer reconstruction, this result is peculiarly satisfactory. The Supervisor of Sawmills (Mr. D. J. Lawton) in his report points out that "during the period under review the timber trade has changed from one of unparalleled prosperity to one which could scarcely be in a some plight."

The mill upon the Taromeo State Forest was closed down for some months owing to log shortage, and, in view of the depleted condition of the forest, was converted from pine sawing to hardwood milling before reopening. In this respect it succeeded to the position of the closed-down hardwood mill in Brisbane, than which it was much better located for profitable operating. The several checks upon its running, however, placed it at a complete disadvantage this year, and the full fruits of the alterations will only be realised in the forthcoming Annual Report period.

In the meantime, as a separate item of management, and allowing for reduced market value of stocks, it showed for the year a loss on operations of £1,069 0s. 9d. net. As, however, it disposed of its output to the Forest Service Timberyard in Brisbane at a price which permitted the latter to resell at a profit, the loss on the combined operation was wiped out. The General Store attached to the mill showed a net trading loss for the year of £138 11s. 1d. These matters will be attended to during the ensuing Annual Report period.

The mill at Imbil, unfortunately situated as it is in a low-lying area subject to inundation, and held up as it was on numerous occasions during the second half of the year from this cause, showed a remarkable improvement in operation under the new management of Mr. A. W. Kingston and the general supervision of the District Forester (Mr. M. H. Simon). Two employees were dispensed with at the outset and the output at the same time increased. The average percentage of waste over twelve months' running was 17.22 per cent. for pine and 29.49 per cent. in the case of the previously used scrubwoods, of which 201,262 super. ft. log measurement were milled.

This mill is to be removed during the forthcoming year to the State Forest, a mile away from the present site, efficiently re-equipped and rearranged and with a railway siding, so that the present cost leakages may be stopped and the operations of the mill co-ordinated with those upon the State Forests. At present 2,000,000 super. ft. of logs are being hauled an unnecessary mile over a bad road from the forest to the mill at a cost of about 9d. per 100 super. ft.; the sawn timber from the mill is costing an unnecessary 4d. per 100 super. ft. to cart another unnecessary half mile to the railway station at Imbil; wheel tax is being paid unnecessarily, whereas the Forest Service teams need not leave the State Forest; the mill cannot cut the highest-priced boards—the widest—although it is supplied with the highest-quality logs; and so on. Nevertheless, the mill last year made a net profit of £1,846 3s. 6d. on its own account as a separate investment. Incidentally, it justified the selling prices at which the Forest Service offered the pine log cut of the Brooloo State Forest to private buyers for tilling purposes.

The Silkwood Mill similarly was found to be badly located, half a mile distant from rail, obsolete, and not worth shifting. The freighting costs on the sawn timber from the mill to Brisbane are 14s. 3d. as against 10s. 3d. from Cairns to Brisbane. The log supplies however were cheaply obtained from private owners engaged in clearing, and this fact, together with effective management by the Manager (Mr. L. Bertini), enabled the mill to convert a potential loss. The net profit for the year was £67 18s. 6d. The mill will probably be closed down when present standing timber supplies in the immediate locality are exhausted.

Under the supervision of the Supervisor of Sawmills, a small mill was erected at the close of the year on the Injune Forest, 23 miles north of Injune Railway Station, the object being the furnishing to the Roma and Charleville districts of badly needed supplies of Cypress Pine for building purposes. The mill was established on the recommendation of the Deputy Forester for the district, Mr. George Singleton, under whose local administration it has been placed.

The Supervisor of Sawmills notes the fact that "as soon as this mill commenced operations, the principal local mill reduced the price of sawn timber by 3s. per 100 super. ft."

The Railway Department's Mill on the Blair Athol State Forest was purchased in the mid-year upon its being closed down so far as railway requirements were concerned. The intention was to make the mill serve both the needs of the forest and the district, by the cutting and sale of timber for the domestic needs of the locality. After purchase, a general reconstruction was undertaken by the Forest Service, having as its object the conversion of the mill to the dual purpose of saving both sleepers and general timber. This work had not been completed at the time of writing of this report.

The central timber-yards in Brisbane were placed under the management of Mr. Thomas, formerly Accountant. Mr. Thomas' management has been a businesslike and successful one. The accounts, with which are incorporated the accounts for the Brisbane hardwood mill, now closed down, shorn that a net profit was secured for the whole of £3,641 17s. id.

Separate profit and loss statements are offered this year for each of the several plants in operation, thus revealing the actual position of each with respect to the entire sawmills and timber-yards branches of the Forest Service.

The balance-sheet for the whole shows a net profit of £4,348 7s. 9d. for the year. It is attached hereto.

The Timber-yard Management reviewed it in the following words:—

"Prices have been greatly reduced upon large stocks of timber accumulated at high costs. In arriving at value of stocks, the quantities have been accurately estimated. The value of stock has been estimated upon a conservative basis to eliminate any possibility of undue inflation of values.

"In spite of trade depression, stocks do not show much actual increase in value upon last year's figures. Value shown of stock at 30th June, 1920, was less the amount received as rebate, viz., £6,000. The stock of timber on hand at present is not beyond normal. Our annual turnover is \$80,000. Stocks represent one-quarter of this amount, or three months' supply. Considering that pine timber takes six weeks to season the stock cannot be said to be excessive.

"Ample provision has been made for depreciation. The amount has been kept about £700 above actual requirements.

"Great care has been taken in the expenditure of Trust Account with a view to keeping the interest down to the lowest possible margin. By careful business methods we have entirely escaped the payment of interest, and by having our Trust Account always in credit it has produced £67 in revenue.

"On 1st July, 1919, a redemption fund was inaugurated by the State Sawmills. The Forest Service Sawmills have continued this policy. This fund now stands in credit £750. This sum has been transferred from Loan to Trust Account, and interest has therefore been payable upon this account, and a surplus of £67 remained after paying said interest.

"I desire to especially draw your attention to the exceedingly small sum which is represented by bad debts. The total amount of bad debts incurred is £150, which represents only $\frac{1}{2}$ d. in the El of our turnover. This speaks volumes for the efficiency and organisation of the accounting and selling departments of the mills.

"The new department inaugurated to deal with secondary timbers is now fairly well established. An amount of £280 has been spent in purchase of various cabinet and fancy woods. This branch being in its infancy has not yet shown marked results.

"Sales-Considering the depression existing in the timber trade during the past six months, it is very gratifying to report to you that our sales for 1920-21 have exceeded the sales for 1919-20, which was a boom year, by £6,000. This result was not achieved during the dull period by listlessly waiting for trade to come to the mills. The selling staff at Brisbane Mill have had to hustle to achieve this very creditable result.

"The fact must not be lost sight of that we employ no travellers. Contractors have learnt that the Forest Service Sawmills are to be depended upon to give prompt delivery and to supply a docent article.

"Business methods and strong organisation are breaking down part of the old prejudice against the sawmills.

"The percentage of salaries paid (administration and selling) compared with sales may be regarded with satisfaction. Same amounting to $2\frac{1}{2}$ per cent., or 6d. in the El."

FOREST SERVICE SAWMILLS.

TRADING ACCOUNT FOR YEAR ENDED 30TH JUNE, 1921.

	£	s.	d.		£	s.	d.
To Stock on hand, 1st July, 1920	16,538	5	3	By Sales	82,281	10	2
„ Purchases	52,957	12	9	„ Stock on hand, 30th June, 1921 ..	23,340	10	2
„ Wages	18,158	0	2				
„ Gross Profit	18,968	2	2				
	<u>£106,622</u>	0	4		<u>£106,622</u>	0	4

PROFIT AND LOSS ACCOUNT FOR YEAR ENDED 30TH JUNE, 1921.

	£	s.	d.		£	s.	d.
To Audit Fees	80	0	0	By Gross Profit	18,968	2	2
„ Cartage	342	11	8	„ Discount	146	3	8
„ Discount	723	14	11	„ Interest	52	4	5
„ Fire-Insurance	630	10	2	„ Rents	329	16	3
„ Holidays	868	13	11				
„ Office Expenses	189	5	5				
„ Repairs and Maintenance	2,256	18	1				
„ Salaries	2,251	19	2				
„ Sick Pay	20	11	3				
„ Trade Expenses	1,712	13	3				
„ Travelling Expenses	91	2	2				
„ Workers' Compensation	616	16	0				
„ Bad Debts Reserve	200	0	0				
„ Discount Reserve	200	0	0				
„ Depreciation	2,617	15	8				
„ Balance carried down	6,693	14	10				
	<u>£19,496</u>	6	6		<u>£19,496</u>	6	6
„ Interest to Treasury	2,345	7	1	„ Balance brought down	6,693	14	10
Net Profit for Year	4,348	7	9				
	<u>£6,693</u>	14	10		<u>£6,693</u>	14	10

PROFIT AND LOSS ACCOUNT—ACCUMULATED.

	£	s.	d.		£	s.	d.
To Balance carried forward	9,151	18	0	By Balance, 30th June, 1920	4,803	10	3
				„ Net Profit for year ended 30th June, 1921	4,348	7	9
	<u>£9,151</u>	18	0		<u>£9,151</u>	18	0

Part III.--Administration.

FINANCIAL.

REVENUE.

The gross revenue from the forests of Queensland for seventeen years ending 30th June, 1921, was £1,002,293, of which £731,378 was transferred to Consolidated Revenue as the surplusage of the Department.

For the greater part of this period forestry practice did not exist, and reinvestment in forestry of forest revenues did not occur.

For this year just ended a surplus of revenue over expenditure of £45,872 was obtained.

Apart from operations of the Timber Contracts Office and the Sawmills and Timber-yards Branch which are dealt with elsewhere, and omitting consideration of the returns from forest agistment which at present are credited to the Department of Lands, the Forest Service realised last year from the sale of logs and other raw material the sum of £157,065. This constituted a record. The previous year's income amounted to \$121,152.

If we add to the log sales revenue of £157,065 the sawn timber sales income of the sawmills and timberyards of £82,808 and ~~£32,000~~ timber sales reimbursement of the Timber Contracts Office of £6,396, we find the gross receipts and turnover of the Forest Service for 1920.21 at £246,269, or £53,731 short of the anticipation made in the last Annual Report.

The failure to realise the estimated income of £300,000 is due, *inter alia*, to the virtual closing down of railway construction and maintenance throughout the State, and the consequential cessation of sales of hewn, split, and pole hardwood for that purpose.

For the coming year a reduced revenue must be forecasted: Owing to the general financial depression which exists throughout the Commonwealth and the accompanying tightening-up of the money market, the Forest Service is faced with lowered prices and a falling demand. The first six months of the ensuing year will show a serious drop in log sales revenue. An improvement may then be looked for, but the year's income from this source will probably not much exceed £100,000. A further sum of £90,000 may be expected from sales of sawn timber, and £15,000 from the operations of the Timber Contracts Office—a total of ~205,000 gross.

As far as the past year's log sales income is concerned, the pineries of Southern Queensland are accountable for \$142,000, or 87 per cent. of the total. The Central District produced £6,000, or 3.6 per cent. of the total, as against 6 per cent. of the previous period. The North Queensland forests realised £14,000, or 9.4 per cent.

By consequence of the acceptance of a contract to deliver Maple logs direct to the Victorian Railway Department, the Atherton district increased its revenue by £4,261. Substantial increases were recorded also for Bundaberg, Gympie, Maryborough, and Nanango districts. Decreased revenues resulted in the Rockhampton, Ipswich, and Herberton districts, respectively, of 21 per cent., 9 per cent., and 38 per cent.

EXPEND&E.

The expenditure of the Forest Service, apart from that of the Timber Contracts Office and Sawmills and Timber-yards, amounted to £101,324, as against £59,539 for the year before. This represented 64.5 per cent. of the log sales revenue of the Department.

The increased loan from the Commonwealth for the employment in forestry work of returned soldiers accounted for £32,373 of the additional expenditure. Increased staff and travelling expenses required a further extra sum of £6,951. Finally the Industrial Awards of the year increased the basic weekly wage by 18s. 4d. per employee.

The following statement reviews the allocation of expenditures from 1918 to date. It will be noted that there has been a steady decline in the percentage of overhead costs from 45 per cent. in 1918 to 20.5 per cent. in 1920-21:—

Liquid assets have accumulated from the last two years' operations to the value of £22,000. These include buildings, tools, live-stock, teams, machinery, &c., in addition to which still greater values are represented in roads constructed, and paddocks and wells provided upon the forests.

The housing is rent-producing at from 7½ per cent. to 10 per cent. per annum on capital cost. Four complete logging teams are working, each of which is paying its way. The cost of pumping machinery is being saved in reduced labour charges, paddocks and wells are profit-producing from agistment fees, whilst roads are paying for their construction by reducing the cost of haulage.

The expenditures of the Forest Service, generally speaking, are in the nature of investments.

The gross expenditure upon all branches of the Department amounted to \$189,465; of this sum 2101,324 was Departmental expenditure, £78,262 represented sawmilling and timber-yard costs, and £9,869 Timber Contracts Office accounts.

	1918-20.	Percentage of Total.	1920-21. From Revenue.	1920-21. From Repatriation Loan.	1920-21. Total.	Percentage of Total.
OVERHEAD EXPENSES—	£		£	£	£	
Salaries	11,165	..	13,645	1,396	..	..
Travelling allowances and incidentals	4,850	..	7,789	..	..	..
	16,015	28.0	21,434	1,396	..	22.5
CAPITAL IMPROVEMENTS—						
Forest organisation, silviculture, &c.	27,992	..	9,332	50,742	..	..
Roads to Crown timber areas	727	..	1,739	..	..	..
Repurchase of timber lands	147	..	9,223	..	..	..
Forest school and laboratory.	782	..	750	..	..	..
	29,648	49.0	14,043	50,742	..	64.0
HARVESTING AND MARKETING—						
Trading	13,876	23.0	13,709	..	..	..
Lumbering (Hewn, split, and pole timber)	..	..	13,709	..	13,709	13.5
	59,539	100.0	49,186	52,138	101,324	100.

Assets in the shape of buildings, tools, line stock, teams, machinery, &c., but excluding paddocks and wells, are held to the extent of £22,000.

ADMINISTRATIVE MATTERS.

DEATHS.

The Forest Service on 13th May, 1921, suffered grievous loss by the untimely death from old war-wounds of Lieutenant Reginald Clive Slater Douglas, aged 25 years, Forest Topographer, and pioneer of new forest map-making standards.

Official tribute is here payable to the fineness of his work ; his colleagues were intimately aware of the fineness of his character.

The Forest Service was equally unfortunate in the death of Mr. William Brewer, clerk, Fraser Island, who passed away in Brisbane after a short illness contracted whilst on duty on Fraser Island.

DISTINGUISHED VISITORS.

The Forest Service was honoured by the presence, at its 1920 exhibition of forest products, of His Royal Highness the Prince of Wales ; and again of Lord Novar of Raith, then Governor-General of the Commonwealth.

It was the privilege of the Director of Forests in May last to escort his Excellency the Governor of Queensland, Sir Matthew Nathan, K.C.M.G., on the occasion of his inspection of the forestry operations in progress at Imbil and Fraser Island.

ORGANISATION OF PERSONNEL.

At the beginning of the Annual Report period, the organisation of the personnel of the Forest Service was so far behind its business development that responsible administrative officials were in receipt of less than the basic wage for unskilled labour, and official designations failed generally to correspond to official services rendered.

The proposals of the Director of Forests for the reorganisation of his Department were submitted in 1919. On 1st March, 1921, the *Government Gazette* of the State announced the consequential changes in the personnel of the Forest Service, following upon inspections by officials of the Public Service Commissioner's Department.

Messrs. A. R. Mulholland (Cadet) and R. L. Taylor (*Forest Guard*) resigned from the Service.

PRESENT PERSONNEL STRENGTH.

At the 30th June, 1921, the number of persons employed by the Forest Service throughout the State was 400.

The wages staff represented 79 per cent. of this number ; the overhead and general administrative strength, the balance. The steady decline in proportion of overhead staff from 68 per cent. to 21 per cent. will be noted.

As against 400 employees at the end of the Annual Report period there were 239 at the beginning. The difference is made up to a large extent by transfer to the Forest Service of the State Sawmills.

The following schedules show the development of the Forest Service personnel during the past four years.

	1917.	1918.	1919-1920.	1920-1921.
Administrative	Per cent. 11	Per cent. 8	Per cent. 11	Per cent. 8.5
Field Inspection	57	41	14	8.25
Wages Staff	32	51	75	51.25
Forest Service Sawmills .. ..	..	..	..	4.25
Other .. ..	..	..	..	27.75

DETAILS OF STAFFING AS AT 30TH JUNE, 1921.

TOTAL, 400.

Officers and Employees of the Forest Service.

Administrative—		Wages Staff—	
Director of Forests	1	Temporary Forest Factor	1
Chief Forester	1	Foremen	19
Timber Contracts Officer	1	Overseers	2
Forest Engineer	1	Sub-foremen	43
Secretary	1	Cooks	8
Officer in Charge Forest Products Showrooms	1	Carpenters	2
Sub-Accountant	1	Drivers	4
Draftsmen	2	Workmen	105
Clerks and Typists	23	Boys	2
Messengers	2		
	34		205
			—
			38
			128
Field Inspectors—		Forest Service Sawmills—	
District Forester	1	Supervisor	1
Deputy Forester, Grade I	2	Clerks, Salesman, Ledger-keeper, typists, and Accountants	13
Deputy Forester, Grade II	9	Managers	3
Deputy Forester, Grade III	1	Mill hands	108
Forest Factors, Grade I	6	Watchmen	2
Forest Factors, Grade II	2	Boy	1
Forest Factors, Grade III	3		
Forest Rangers	5		
Cadets	4		
	38		

Of the total staff of 400, 163 (or 41 per cent.) were returned soldiers.

OFFICE ARRANGEMENTS.

ACCOMMODATION.

Congestion of office accommodation and general disarray of office arrangements inevitably produced an administrative atmosphere for 1920-21 of irritation, overlapping, and delay. Elbow room being unavailable at Head Office, relief from overcrowding was sought by renting premises in Adelaide street. To this the greater part of the staff ultimately became transferred, but the relief provided by this arrangement brought with it concomitant difficulties of supervision which militated against the efficient and expeditious discharge of work, and provoked some unfortunate consequences. At the time of writing this report, housing accommodation for the whole administration had been provided under one roof in the Executive Buildings.

Not only in Brisbane were office conditions bad, but almost at every centre. At Rockhampton they were relieved by provision of a room for the Deputy Forester, and at Dalby a new office, suitable for present requirements, was provided. At Kilkivan an office was rented.

At Gympie, Bundaberg, and Atherton, office conditions were not righted at the end of the year, but in each of these centres, at the time of writing, satisfactory provision had been or was being made.

The question of providing a room for forestry purposes at Inglewood has been allowed to stand over for the present.

METHODS.

Office methods were generally overhauled during the year and improvements revealed by experience as desirable were made:

The full control of forest accountancy was assumed, and processes previously carried on by the Accounts Branch of the Department of Lands accordingly were transferred to the newly created Accounting Branch of the Forest Service. In the same way the district timber sales bookkeeping processes was taken over by the District Forestry Administrations from the Land Agents at Dalby, Brisbane, Ipswich, Nanango, Maryborough, and Atherton.

The policy of circularising information amongst the staff has been continued. The following are some of the subjects touched on :—

Planting Operations-Mixtures.	Forest Entomology.
Systematic Timber-getting—Railway Timbers.	Classification of Logs for Export.
Trade Nomenclature—Queensland Timbers.	Organisation of Contracts Office.
Coppice Felling.	Interstate Forestry Conference.
Red Cedar Twig Borer.	

The "Australian Forestry Journal" has also been circulated amongst the personnel, and a number of contributions, limited only by pressure of administrative duty, have been made to it.

The Journal was also sent to various outside bodies as a readable present & on of the case for forestry.

The Forest Service has to thank the public Press for its able advocacy of the forestry cause on many occasions. Its statements on matters of general forest interest undoubtedly have done much towards furthering interest in the forest welfare of the State.

At the Australia Day and Labour Day celebrations, forestry was brought before the public notice by means of displays provided by the Forest Service, and the exhibit at the National Exhibition contributed to the same end.

A semi-public address on "The Timber Farm and its Products" was given by the Director of Forests during the year.

INDUSTRIAL MATTERS.

FORESTRY EMPLOYEES' AWARD.

The Forestry Employees' Award was twice altered during the Report period on account of variations of the basic wage for the State.

The first alteration was made as from 1st July, 1920, by consent; the second as from 1st March in the latter case after the Court had heard evidence on behalf of the Australian Workers' Union and the Forest Service.

The wage variations are detailed as follows :—

Grade.	District.	WAGES.		
		Award (1-11-19).	Award (1-7-20).	Award (1-3-21).
		Per hour. £ s. d.	Per hour. £ s. d.	Per hour. £ s. d.
Probationers	Southern	0 1 6	0 1 9	0 1 11
	Central	0 1 7	0 1 10	Abolished
	Northern	0 1 8	0 1 11½	0 2 2
		Per week.	Per week.	Per week.
Forest Service Labourers	Southern	3 7 10	3 18 10	4 6 2
	Central	3 11 6	4 2 6	Abolished
	Northern	3 15 2	4 8 0	4 15 4
Forest Service Sub-Foremen	Southern	3 9 8 to 3 17 0	4 0 8 to 4 8 0	4 8 0 to 4 15 4
	Central	3 13 4 to 4 0 8	4 4 4 to 4 11 8	Abolished
	Northern	3 17 0 to 4 4 4	4 9 10 to 4 17 2	4 17 2 to 5 4 6
Overseers	Southern	3 13 4 to 4 2 6	4 2 6 to 5 2 8	4 9 10 to 5 10 0
	Central	3 17 0 to 4 6 4	4 6 2 to 5 6 4	Abolished
	Northern	4 0 8 to 4 10 0	4 11 8 to 5 11 10	4 19 0 to 5 19 2
Foremen	Southern	3 17 0 to 4 13 6	4 6 2 to 5 10 0	4 13 6 to 5 17 4
	Central	4 0 8 to 4 17 2	4 9 10 to 5 13 8	Abolished
	Northern	4 4 4 to 5 0 10	4 15 4 to 5 19 2	5 2 8 to 6 6 6
Forest Factors	Southern .. .. .	.. .. .	5 6 4 to 7 1 2	5 13 8 to 7 8 6
	Central .. .. .	.. .. .	5 10 0 to 7 4 10	Abolished
	Northern .. .. .	.. .. .	5 15 6 to 7 10 4	6 2 10 to 7 17 8
Hewers of girders, transoms, wal- ings, and headstocks	Southern .. .. .	.. .. .	.. .. .	4 19 0
	Central .. .. .	.. .. .	.. .. .	Abolished
	Northern .. .. .	.. .. .	.. .. .	5 8 2
Hewers of other squares or dressed timbers and cutters of piles	Southern .. .. .	.. .. .	.. .. .	4 13 6
	Central .. .. .	.. .. .	.. .. .	Abolished
	Northern .. .. .	.. .. .	.. .. .	5 2 8
Wellsinkers—over 15 ft. in depth..	Southern .. .. .	.. .. .	.. .. .	4 15 2
	Central .. .. .	.. .. .	.. .. .	Abolished
	Northern .. .. .	.. .. .	.. .. .	5 4 6

It will be seen that the increase in wages to Forestry workmen amounted during the report period to no less than 18s. 4d. per week, or 21 per cent. increase over the rates of 1920.

DISTRICTS.

The basic wage award of March, 1921. divided the State into two districts-Northern and Southern-and the Forestry Award, along with others referring previously to three districts, was altered accordingly. The boundary of the districts was fixed at 22 degrees south latitude.

LEAVE PRIVILEGES.

The Award in force prior to the year under review provided no privileges as regards leave ; but in the drafting of the Award from 1st July, 1920, the Forest Service agreed to the inclusion of a clause providing for one week's leave per annum after twelve months' service.

ADDITIONS.

As will be seen by the Schedule of Wages the latest Award provides for getters of squared or dressed timbers, piles, girders, transoms, bracings, walings, and headstocks, and for well-sinkers. This Award also fixes the rate for teamsters hauling timber at £12 10s. per working week.

In order to arrive at a fair basis for contract cutting rate for the various timbers, representatives of the Forest Service and the Australian Workers' Union met and laid down the quantities of the various classes of timber expected to be cut as a result of a fair week's work.

SAWMILLING AWARD, FOREST SERVICE MILLS.

The Arbitration Court Award covering employees in the Forest Service Sawmills also came up for revision during the year.

Two variations were made ; the first of these, made as from the 1st December, 1920, provided for the following main alterations:—

Wages.-Increase of 3s. 2d. per week. The casual labourers engaged in the industry received £4 2s. per week as against £3 18s. in the former Award.

Leave Privileges.—Sick leave was granted to a maximum extent of one week on full pay and one week on half pay. No such privileges were extended by the previous Award.

Weekly Wage.—This privilege was granted, no opposition being offered thereto by the Department. It applies only to the State Government Mills, however, the general Sawmilling Award being on an hourly basis. In his Annual Report the Supervisor of Sawmills says of this provision:—

“ The introduction of a weekly wage has provided the employees with more constant employment, and has not proved to be a burden to the enterprise.”

Second Variation.—Following on the basic wage finding, the Sawmill Award was again varied as from 1st March, 1921. Wages to all classes of employees in the Southern Division were increased by 4s. 2d. per week. This made a total increase on the salary of the mill labourer of 7s. 4d. during the Report period, or 9.3 per cent.

FORESTRY BILL.

Queensland remains the one State of the Commonwealth without a modern forest enactment. It is true that a strong advance has been made by the Forest Service during the last two or three years, but there has been no legislative consolidation of the position gained. A crop of trees takes more than half a century to mature, and the forest policy should be safe for that period at least. As there is an assured revenue, so there should be a settled income. The forester must have security of tenure for the estate which he is called upon to manage. The state owns ten or twelve million acres of timber land—an asset capitalisable at, say, £20,000,000. This asset calls for sustained expert management for the production in perpetuity of the raw material required for the maintenance of the important timber-wing and wood-working industries of Queensland. A Forestry Bill is necessary to set up a Crown forest estate of sufficient dimensions, to outline a continuous forest policy, to establish a forest authority armed with appropriate power of attorney, and to settle the amount of reinvestment of forest revenues in forestry operations.

AN ACKNOWLEDGMENT.

The Director of Forests has not been able during the year to acknowledge, as he would wish, his personal debts to the 400 members of his Department. But he is vividly aware of the unselfish energies which have been directed towards the ordered attainment of the year's results.

Forest service the world over means forest earnestness. I think it may be said that nowhere is this more powerfully exemplified than in the body of the Queensland Forest Service, and therein lies its strength.

The fact has not escaped the notice of distinguished visitors from other places.

Lord Novar, in saying farewell, said :-

‘I congratulate you particularly upon your staff.’

Professor Wilson wrote similarly :-

“The enthusiasm of your staff is delightful to witness.”

Captain S. A. White on the public platform referred to the officers of the Queensland Forest Service as “a magnificent body of men.”

This Annual Report document is a record of massed achievement. To its many contributors, the Director of Forests tenders his grateful thanks.



25th September, 1921.

Director of Forests.