PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS

HON. A. W. GRAY, *Minister.*

H. CATHCART, *Deputy Minister.* E. C. MANNING, *Chief Forester.*

REPORT

OF

THE FOREST BRANCH

FOR THE

YEAR ENDED DECEMBER 31ST

1936

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VICTORIA, B.C., February 24th, 1937.

To His Honour E. W. HAMBER,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

Herewith I beg respectfully to submit the Annual Report of the Forest Branch of the Department of Lands for the year 1936.

A. W. GRAY,
Minister of Lands.

The Hon. A. W. Gray,
Minister of Lands, Victoria, B.C.

SIR,—There is submitted herewith the Annual Report on activities of the Branch during the calendar year 1936.

E. C. MANNING,
Chief Forester.

REPORT OF THE FOREST BRANCH.

REVIEW OF INDUSTRY.

Economic conditions throughout Canada were distinctly better in 1936 than they have been during any year since the beginning of the depression. The year saw a large Dominion-wide increase in export trade over that of 1935. Trade agreements with the United States opened that market to some sixty Canadian commodities, and trade with the United Kingdom and other Empire countries expanded considerably. The national income from the forest and forest industries for the year 1936 is estimated to be about $250,000,000, as compared with a little less than $200,000,000 in 1935. British Columbia, and more especially the local lumber industry, contributed largely to this general improvement and shared in the improved conditions.

The year opened with general confidence in the prospects for increased business in all markets on the part of the industry in British Columbia. January and February, however, were disappointing. There was a decrease in orders from the United Kingdom, due partly to increased lumber prices. Rail trade to the Prairies and Eastern Canada was poor, largely because of severe weather conditions. Orders from Japan were not up to expectations and that country showed a preference for logs. Several weeks of bad weather in British Columbia with snow slowed up production. Coupled with all this, the United States quota of 250,000 M. feet of fir and hemlock from British Columbia promised to restrict the advantages gained from the tariff reduction which became effective at the first of the year. However, by the end of the first quarter conditions were on the mend, and the close of the year showed results rather better than earlier expectations.

Loggers' strikes in the early spring caused slight curtailment of log-output, but the disturbance was localized and of short duration. The disastrous strike on the United States water-fronts resulted in a disorganization of shipping and the loss of orders for west-coast species on this as well as on the American side of the boundary. The shortage of cargo-space in the latter part of the year materially curtailed overseas shipment of lumber.

The log-scale for the Province (reported in detail in pages following) amounted to more than 3,020,000 M. feet. Log-scale is perhaps the best single measure of industrial activity in forest products, and this scale is the third highest on record. It represents an increase of more than 14 per cent. over the scale of 1935 and is less than 10 per cent. under the record scale of 1929.

Most of the improvement in business is recorded in water-borne export of lumber. Canadian demand was disappointing and only 60 per cent. of the 250 million United States quota was shipped. Water-borne export exceeded 1,200 million board-feet, creating a new record and representing an increase of 41 per cent. over 1935. The most encouraging feature in this regard was the increase in Empire trade, which was in no way attributable to any outstanding event or unusual circumstances. Rather it was the result of the Empire trade agreements of 1932, consistent trade-extension promotion, and generally improved economic conditions. Apart from three very minor recessions, each month's export figures showed a consistent increase over all preceding months, from 67 million in January to an all-time record of more than 113 million in December. The monthly export for each of the months of September, October, and December exceeded 100 millions.

Lumber and log prices advanced encouragingly during the year, and if present prospects materialize the industry will be able to write off some of the losses of depression years. In this connection the difficult financial situation which the forest industries have weathered during the past few years is illustrated by a comparison of the total value of products during this favourable 1936 with previous years. For example, in 1926, with the nearest comparable scale and volume of business (log-scale 3 per cent. less), a year which might be characterized as " pre-depression normal," the estimated value of products was about $85,000,000, or an average of $29.06 per M. log-scale. The estimated value of production in 1936 is $72,010,000, or $23.84 per M. log-scale. There is still a considerable differential to be recovered before we return to

what may be described as normal, and there is some reasonable prospect that this may be accomplished in 1937.

One of the high lights of the year, so far as the export trade is concerned, was the visit to the Province of the British timber-trade representatives in August. These gentlemen represented the Timber Trade Federation of Great Britain, with the members of which the bulk of the timber trade of the United Kingdom is transacted. It is hoped, and we believe, that their visit laid the foundation for still further improvement in trade relationships.

During 1936 the pulp and paper industry enjoyed a remarkable recovery in volume of business, which was shared throughout Canada. Dominion-wide production of newsprint was about 16 per cent. greater than in 1935. In British Columbia a new record was established in the production of newsprint which represents about 90 per cent. of paper-manufacture in the Province. The end of the year saw all mills working at full capacity and unable to meet market demands. Indications for 1937 are brighter than they have been for years past. While price-improvement has lagged behind volume, there is now apparent a definite improvement in this direction.

The door business has shown further expansion with a gain of over one-half million doors in the export volume. Practically all material used in the manufacture of doors is now produced within the Province.

Other forest products have enjoyed a sustained market even if not to the same extent as the lumber and paper trades. Shingle production was slightly in excess of 1935, but total value shows a decline. Poles show an increase in production of more than 60 per cent. over 1935 scale. Corded materials and hewn ties are both down. These " minor products " are not a large factor in the forest industry total, but they assume a local importance, especially in the interior of the Province, out of all proportion to their relative scale. Much of the settlement of the Province has been made possible by the part-time employment available to farmers in the production of hewn ties, posts, and poles.

The new year 1937 opens with the brightest prospects of the past five or six years. In mid-January lumber orders are taxing the capacity of the mills, the paper market continues to be exceptional, and the camps are finding difficulty in supplying the demand for logs. There is every indication that the overseas demand will be sustained and the domestic market should improve considerably over last year.

The most disturbing factor is the unbalanced nature of our timber-cut in so far as species are concerned. More than 55 per cent. of the log-scale was Douglas fir, which species comprises approximately 25 per cent. of our visible supply. To bring about a more balanced cutting there should be no delay in developing markets for cedar and hemlock.

ORGANIZATION AND PERSONNEL.

Forest Branch personnel was increased from time to time with increasing business from 154 permanent employees in 1913 to a maximum of 252 in 1931. The Ranger staff, on which devolves practically all the field-work of administration, increased during the same period from 33 to 63. These, of course, are included in the total figures above. Acquisition of the 14,500,000 acres of former Dominion lands in the Railway Belt and Peace River Block in 1930 involved an increase in staff of 9, included in the 252 previously noted. Depression years led to successive reductions totalling 59, leaving a staff of 193 in 1935. There were 204 permanent employees in 1936, of whom 52 constituted the Ranger staff. Log-scale, which is a good single measure of business transacted, climbed back to more than 3,000 million in 1936 from a depression low of 1,611 million in 1932, when the Ranger staff numbered 54 and the total staff 210. While some increase has been provided for 1937, the Service is still understaffed on the basis of current activity.

Apart from the overload of work devolving on the whole personnel during the past year, one of the worst features of staff reduction and salary cuts of the past few years has been the loss of a number of promising young technical men. Five Foresters have resigned during the past few months, largely due to salary schedules quite out of keeping with their experience and service. It will take some years to replace them with men of equivalent experience and training. In the meantime, progress in forest research and other essential activities is seriously retarded.

Distribution of staff is shown in the accompanying table.

DISTRIBUTION OF FORCE, 1936.

Forest District.	Permanent.											Temporary.						Grand Total.
	Chief Forester, Asst. Chief Forester, and Foresters.	District Foresters and Assistant District Foresters.	Supervisors of Scalers and Assistants.	Scalers and Assistant Scalers.	Assistant Foresters and Junior Foresters.	Inspectors, Royalty, Mechanical, and Export.	Supervisors of Rangers and Fire Inspectors.	Rangers.	Draughtsmen.	Clerks, Stenographers, and Messengers.	Total, Permanent Force.	Assistant Rangers.	Patrolmen, Lookoutmen, and Dispatchers.	Launch Crews and Repairmen.	Cruisers, Compassmen, and Packers, etc.	Miscellaneous.	Total, Temporary Force.	
Vancouver	—	2	3	26	2	1	4	15	1	20	74	24	30	6	—	1	61	135
Prince Rupert	—	2	—	1	—	—	1	7	—	6	17	8	7	3	—	—	18	35
Fort George	—	2	—	—	—	—	—	7	—	5	14	8	10	—	—	—	18	32
Kamloops	—	2	—	—	2	—	1	13	1	7	26	19	22	—	—	1	42	68
Nelson	—	2	1	—	—	—	3	10	1	7	24	22	19	—	—	1	42	66
Victoria	5	—	—	—	8	2	—	—	6	28	49	—	—	2	32	1	35	84
Totals	5	10	4	27	12	3	9	52	9	73	204	81	88	11	32	4	216	420

THE MULTIPLE USE OF FOREST AREAS.

It is becoming increasingly apparent that we must value our forests not only as a source of our supplies of timber, but also for their many other uses—as food and shelter for our game and fur-bearing animals, as regulators of the water-flow of the streams in which we fish, and as attractions for the tourist and other recreationists who delight in the great outdoors. Our forest areas must be developed and protected from fire in the interests of these " multiple uses." Forest-management plans must recognize both the industrial and recreational uses of forest areas. By far-sighted planning we must make these various interests harmonize as much as possible, secure greater returns from our forest areas, and make them the greatest single drawing-card for our rapidly increasing tourist trade.

PROVINCIAL FORESTS.

Two new State Forests were established during the year. The *Nimpkish Forest,* on the northern part of Vancouver Island, covers 1,386 square miles with 10,891,500 M.B.M. standing timber, and the *Toba Forest,* on the Mainland Coast between Powell River and Bute Inlet, comprises 1,194 square miles with 2,199,800 M.B.M. standing timber. Both these Forests have been surveyed and mapped; details were included in last year's Annual Report.

Following the survey of the *Kettle Forest* during 1934 and 1935, this Forest was reduced considerably in size, from 2,426 square miles to 1,263 square miles, chiefly by eliminating large areas of unproductive land or land which has been so badly burned over, and its productive capacity so reduced, that it will remain indefinitely waste land for all practical forest purposes. With these valueless lands, some comparatively small productive blocks have unavoidably been eliminated because the fires have isolated them from the main body of the Kettle Forest. Later these may be administered as individual Forests; in some cases they would be suitable for community forests attached to various villages in the vicinity.

The Kettle Forest, within its new boundaries, could sustain an annual yield of 4,000,000 F.B.M. saw-timber from accessible areas. This could be increased to 11,700,000 F.B.M. and 50,000 cords of pulp-wood if and when the whole Forest becomes accessible. Present utilization is only 430,000 F.B.M. per annum, but there has been an average annual fire loss of 2,200,000 F.B.M. timber and 3,900 acres of immature stands. About half of the fires are caused by lightning. Financial considerations have made it impossible to carry out all the control measures that would be necessary for satisfactory results. The Kettle Forest contains:—

Area capable of producing Commercial Timber—

	Acres.	Acres.
Mature timber—		
Accessible	34,600	
Inaccessible	53,200	
		87,800
Immature timber—		
1– 20 years old	90,400	
21– 40 years old	41,800	
41– 60 years old	114,700	
61– 80 years old	38,500	
81–100 years old	44,500	
Over 100 years old	1,300	
Selectively logged	2,100	
		333,300
Not satisfactorily reforested—		
Burned	76,500	
Logged	500	
Deciduous bush	11,500	
Unprofitable conifers	52,900	
		141,400
Total sites of productive quality		562,500

Area incapable of producing Commercial Timber—

Grass land—		
Alpine range and wild hay	11,200	
Lowland pastures	1,300	
		12,500
Waste land—		
Barren or scrub-covered	229,100	
Swamp and water	4,100	
		233,200
Total non-productive sites		245,700
Total area of Kettle Forest		808,200

The Forest contains the following standing timber (over 11 inches D.B.H.) :—

Species.	Accessible.		Total Stand.	
	Alienated.	Total.	Alienated.	Total.
	M.B.M.	M.B.M.	M.B.M.	M.B.M.
Engelmann spruce	50	11,650	50	97,140
Western larch	6,200	68,540	6,500	86,590
Lodgepole pine	.....	3,430	.....	80,720
Douglas fir	4,680	53,120	4,810	68,860
Silver fir	.....	4,400	.....	16,410
Ponderosa pine	720	8,220	720	8,330
Western red cedar	.....	3,220	.....	6,990
White pine	.....	670	.....	1,830
Western hemlock	.....	890	.....	1,270
Totals	11,650	154,140	12,080	368,140

In addition, there are 243,400 cords of timber (over 7 inches D.B.H.) in stands suitable for pulp-wood only.

The survey of the watershed of the *Upper Arrow Lake*, made last year, was completed. Forest and topographic maps were made on scales of 2 miles to the inch and ½ mile to the inch. This area is recommended for reserve as a permanent Provincial Forest. The lake is surrounded by mountains of the Monashee and Selkirk Ranges up to nearly 11,000 feet in elevation, so that the Forest will unavoidably contain within its boundaries a large proportion of unproductive land but beautiful scenery. The productive areas themselves have an average site quality of 80 (spruce) and 70 (fir), and reforestation is much more successful than might be expected in an area which averages twenty-two forest fires, with 4,500 acres burned, a year. Over 70 per cent. of the fires reported are due to lightning. Of the area burned over, 90 per cent. has reforested satisfactorily; so has over 60 per cent. of the logged areas.

The proposed Forest could sustain an annual yield of 28,600,000 F.B.M. from accessible stands, and 39,000,000 if the whole Forest were to become accessible. The approximate average utilization during the last ten years has been 9,000,000 F.B.M. per annum, but there has been an additional average depletion by fire of 300 acres of immature and 340 acres of mature timber annually. Several small mills, now dismantled, have operated on the shores of Arrow Lake in the past. Two more permanent mills at Nakusp and two small portable mills at Revelstoke now obtain timber from this Forest. As the town of Nakusp depends to a considerable extent upon the forest, it would be an advantage for its industry to be supported by an accessible sustained yield from a regulated forest.

The Upper Arrow Forest contains:—

	Acres.	Acres.
Area capable of producing Commercial Timber—		
Mature timber—		
Accessible	98,400	
Inaccessible	80,900	
		179,300
Immature timber—		
1– 20 years old	31,300	
21– 40 years old	48,300	
41– 60 years old	40,000	
61– 80 years old	37,800	
81–100 years old	12,500	
Over 100 years old	400	
		170,300
Not satisfactorily reforested—		
Burned	9,400	
Logged	2,000	
Deciduous bush	4,000	
Unprofitable conifers	8,300	
		23,700
Total sites of productive quality		373,300
Area incapable of producing Commercial Timber—		
Barren, alpine, or scrub-covered		753,200
Swamp and water		66,900
Total non-productive sites		820,100
Total area of Forest		1,193,400

The timber is estimated as follows (over 11 inches D.B.H.) :—

Species.	Accessible.	Inaccessible.	Total.
	M.B.M.	M.B.M.	M.B.M.
Western hemlock	388,930	181,110	570,040
Red cedar	306,890	250,570	557,460
Engelmann spruce	119,910	335,350	455,260
Douglas fir	185,740	42,190	227,930
Silver fir	34,190	133,810	168,000
White pine	137,770	27,440	165,210
Western larch	75,410	12,470	87,880
Totals	1,248,840	982,940	2,231,780

Of the accessible timber 840,540 M.B.M. is on vacant Crown land, and of the inaccessible 842,653 M.B.M. is on vacant Crown land.

In addition, there are 205,800 lineal feet of cedar pole timber (190,000 accessible) and over 33,000 railway-ties could be cut from lodgepole pine, all accessible.

Maps, estimates, and preliminary management plans were also completed for the Coast area surveyed last year. This Coast Forest, from Knight Inlet to Wakeman Sound, is recommended for reserve as a permanent State Forest, taking the name of its chief inlet, *Kingcome Forest.* This Forest is in the hemlock-cedar region and should be regarded as a permanent source of supply for Coast pulp-mills first and lumber or shingles secondarily. It has an accessible sustained annual yield capacity of 13,200,000 F.B.M. of timber of a quality acceptable in existing markets, or 14,000,000 F.B.M. from the whole Forest if all the stands should become accessible. The average annual cut has been 22,000,000 F.B.M., but restriction of the cut is not recommended at present because it is reasonable to expect that smaller timber will be merchantable in future years. On a rotation of sixty years, the Forest could sustain an annual yield of 24,000,000 F.B.M. from accessible stands.

The fire risk is small; average annual precipitation is 79 inches; only 570 acres have been burned over during the last ten years. This was in a single fire, seven years ago. The chief hindrance to reforestation is the heavy growth of salal and other weeds which occupy the cut-over lands before conifer regeneration can succeed. This condition indicates that more thought for reforestation is required when logging plans are being made and in disposal of slash.

The Kingcome Forest contains:—

Area capable of producing Commercial Timber—

	Acres.	Acres.
Mature timber—		
Accessible	59,500	
Inaccessible	4,210	
		63,700
Immature timber—		
1–20 years old	3,800	
21–40 years old	2,000	
41–60 years old	400	
Over 60 years old	800	
		7,000
Not satisfactorily reforested—		
Logged	3,300	
Burned	100	
Deciduous bush	8,100	
Unprofitable conifers	200	
		11,700
Total sites of productive quality		82,400

Area incapable of producing Commercial Timber—	Acres.
Barren, alpine, or scrub-covered	361,200
Swamp and water	11,000
Total non-productive sites	372,200
Total area of Kingcome Forest	454,600

During the year the survey of the Coast Forests was continued; one party, working from the Surveys Division launch " B.C. Forester," examined the area surrounding Seymour, Belize, and tributary inlets; another made a survey of the logged and burned lands of the Esquimalt and Nanaimo Railway Land Grant on Vancouver Island. The latter survey was assisted by the taking of some 900 vertical aerial photographs from an altitude of 12,000 feet, which are being stereoscopically plotted. It is proposed to continue the survey of this Land Grant during the coming year, so that a complete map may be made with information as to the present condition of the Forest, and the result of past logging, in this most valuable forest region. In the Interior one party continued the survey of the Arrow Lakes, working on the watershed of the lower lake. Topographic and forest maps and estimates of all three projects are in course of preparation.

FOREST RESOURCES INVENTORY.

A complete report and account of the forest resources of the Province was completed and is available in a separate publication, illustrated with maps, diagrams, and photographs.

The Forest Atlas and estimates of the Prince Rupert Forest District were revised and brought up to date. Figures for this district were previously published in our Annual Report for 1931. The revised estimates are given below. A revision of the maps and estimates for the Vancouver District, including Vancouver Island, has been commenced.

PROVINCIAL FOREST INVENTORY.

Classification of Areas (in Acres) in Prince Rupert Forest District.

No. on Map.	Drainage-basin.	Productive Forest Sites.										Not Suitable for Forests.		Non-productive.				Total Area.
		Mature Timber.	Immature.					Not Satisfactorily Stocked.										
			1–20 Years.	21–40 Years.	41–60 Years.	61–80 Years.	81–100 Years.	Logged.	Logged and burned.	Burned.	Non-commercial Cover.	Open Range and Meadow.	Towns and Cultivation.	Barren.	Lowland Scrub.	Alpine Scrub.	Swamp and Water.	
	Coast.																	
1	Smith Sound-Rivers Inlet	194,400	2,200					8,000			1,200		100	466,100	161,500	245,200	11,900	1,090,600
2	Owikeno Lake	44,600	600					2,300			2,600			851,200	1,000	67,900	23,500	993,700
3	Burke and Dean Channels	198,000	8,800		3,000	2,700	3,900	12,600	1,300	3,500	10,800	11,200		1,715,600	90,000	552,100	33,900	2,647,400
4	Bella Coola River	55,900	4,300		35,400			900		400	9,500	27,500	2,200	631,500	9,800	461,100	38,200	1,276,700
5	Roscoe Inlet-Hunter Island	137,000	4,300					8,200		200				168,200	234,600	196,100	29,000	777,600
6	Roderick Island-Graham Reach	134,800						8,800				200		451,200	70,900	164,600	12,200	842,700
7	Princess Royal-Hawkesbury	158,700						8,400						319,900	142,400	289,800	50,500	969,700
8	Gardner Canal-Kitlope River	75,900	900					3,100		300	700			836,900	3,700	534,300	9,700	1,465,500
9	Grenville Channel-Banks Island	117,600	100	100		300		900						280,700	328,100	152,100	57,400	937,300
10	Douglas Channel-Kitimat Arm	187,700	2,200					2,000			500			703,700	12,500	388,700	21,300	1,318,600
11	Lower Skeena River	199,900	6,400	1,800	700			2,400	100	6,600	16,600		2,700	702,500	253,700	547,600	133,600	1,874,600
12	Work Channel-Khutzemateen	66,100						300						333,600	1,700	213,000	11,500	626,200
13	Lower Nass-Observatory Inlet	84,200						3,600	1,100		12,900		800	1,029,600	47,500	620,600	47,500	1,847,800
14	Graham Island, Q.C.I.	407,100	15,000	100	1,300		300	1,400		2,300		200	1,400	65,600	723,800	230,200	187,500	1,636,200
15	Moresby Island, Q.C.I.	369,700	8,100		2,900	1,400		11,800	100				300	65,300	30,800	321,600	21,500	833,500
	Total, Coast	2,431,600	52,900	2,000	43,300	4,400	4,200	74,700	2,600	13,300	54,800	39,100	7,500	8,621,600	2,112,000	4,984,900	689,200	19,138,100
	Interior.																	
16	Upper Nass River	833,500	20,600	21,400	42,400					72,800	111,600	34,500		1,195,900	581,500	984,300	279,100	4,177,600
17	Middle Skeena River	249,500	15,400	21,800	32,500	11,000	4,900			41,700	126,100	5,500	1,800	931,000	107,500	733,000	80,200	2,361,900
18	Upper Skeena River	474,200		1,700	13,000	4,800	46,700			45,200	153,100	52,400		1,979,100	29,800	986,400	207,000	3,993,400
19	Bulkley River East	529,100	156,900	90,300	112,200	141,200	79,400			353,600	318,000	17,900	13,700	175,600	176,900	351,300	203,900	2,720,000
20	Bulkley River West	216,000	3,900	32,500	60,000	158,200	36,600			99,400	263,000	19,100	4,400	505,400	184,900	485,900	93,500	2,162,800
21	Francois Lake-Endako River	255,800	10,100	24,400	34,700	220,800	3,100			192,600	205,900	20,900	23,800	9,700	102,200	127,400	122,200	1,353,600
22	Upper Nechako River	286,900	59,700	83,300	221,700	232,800				491,300	227,700	39,900	2,500	566,900	625,500	448,400	329,800	3,616,400
	Total, Interior	2,845,000	266,600	275,400	516,500	768,800	170,700			1,296,600	1,405,400	190,200	46,200	5,363,600	1,808,300	4,116,700	1,315,700	20,385,700
	District totals	5,276,600	319,500	277,400	559,800	773,200	174,900	74,700	2,600	1,309,900	1,460,200	229,300	53,700	13,985,200	3,920,300	9,101,600	2,004,900	39,523,800

Totals: Immature 106,800 Coast, 1,998,000 Interior; Not Satisfactorily Stocked, 145,400 Coast, 2,702,000 Interior; Productive Forest Sites, 2,683,800 Coast, 7,545,000 Interior.

The estimate of "open range" is not complete; only known areas have been mapped and included. There are also extensive areas of highland range now included in the "Barren" column.

PROVINCIAL FOREST INVENTORY—*Continued.*

Total Merchantable Timber in Prince Rupert Forest District.

No. on Map.	Drainage-basin.	Merchantable Acreage.	Thousand Board-feet, B.C. Log Scale.							
			F.	C.	H.	S.	B.	Pl.	Cy.	Total.
	Coast.									
1	Smith Sound-Rivers Inlet	194,400	200	1,329,600	535,300	387,100	436,800	.....	158,800	2,847,800
2	Owikeno Lake	44,600	250,900	182,900	374,700	141,200	113,400	.....	13,200	1,076,300
3	Burke and Dean Channels	198,000	422,000	604,500	658,600	402,600	349,100	22,800	2,000	2,461,600
4	Bella Coola	55,900	354,200	228,700	97,600	85,700	25,800	7,900	.....	799,900
5	Roscoe Inlet-Hunter Island	137,000	.....	582,700	307,300	219,800	214,900	3,800	18,600	1,347,100
6	Roderick Island-Graham Reach	134,800	.....	295,700	354,500	213,700	229,200	.....	21,200	1,114,300
7	Princess Royal-Hawkesbury	158,700	.....	254,700	328,700	177,100	239,200	.....	47,900	1,047,600
8	Gardner Canal-Kitlope River	75,900	8,500	97,500	264,600	138,200	153,600	.....	20,700	683,100
9	Grenville Channel-Banks Island	117,600	.....	125,200	172,700	110,600	92,400	300	25,200	526,400
10	Douglas Channel-Kitimat Arm	187,700	.....	337,700	1,240,600	368,400	893,700	.....	25,600	2,866,000
11	Lower Skeena River	199,900	.....	296,900	845,900	446,900	385,700	.....	2,700	1,978,100
12	Work Channel-Khutzeymateen	66,100	.....	37,800	201,600	183,400	147,200	.....	13,000	583,000
13	Lower Nass-Observatory	84,200	.....	25,800	329,400	144,600	69,900	.....	400	570,100
14	Graham Island, Q.C.I.	407,100	.....	1,512,200	2,037,000	1,954,700	.....	24,700	321,500	5,850,100
15	Moresby Island, Q.C.I.	369,700	.....	1,199,500	2,755,700	2,201,100	.....	.....	114,300	6,270,600
	Total, Coast	2,431,600	1,035,800	7,111,400	10,504,200	7,175,100	3,350,900	59,500	785,100	30,022,000
		.....	3%	24%	35%	24%	11%	.....	3%	100%
	Interior.									
16	Upper Nass River	833,500	.....	111,600	1,893,000	1,197,500	1,202,800	58,300	.....	4,463,200
17	Middle Skeena River	249,500	.....	436,600	1,196,100	424,600	505,300	60,800	.....	2,623,400
18	Upper Skeena River	474,200	.....	.....	1,630,200	1,145,100	1,566,100	254,300	.....	4,595,700
19	Bulkley River East	529,100	2,800	17,600	271,600	1,351,700	693,600	1,617,700	.....	3,955,000
20	Bulkley River West	216,000	.....	8,800	147,800	431,800	381,000	751,700	.....	1,721,100
21	Francois Lake-Endako River	255,800	44,800	.....	16,400	434,700	60,800	184,200	.....	740,900
22	Upper Nechako River	286,900	.....	3,800	75,800	270,900	215,300	111,700	.....	677,500
	Total, Interior	2,845,000	47,600	578,400	5,230,900	5,256,300	4,624,900	3,038,700	.....	18,776,800
		.....	.....	3%	28%	28%	25%	16%	.....	100%
	Vacant Crown lands	4,547,900	658,400	4,951,600	10,836,100	9,112,100	6,899,300	3,063,900	537,100	36,058,500
	Timber licences and leases	598,900	323,400	2,508,300	4,509,700	2,937,200	1,013,800	1,900	231,300	11,525,600
	Crown grants	129,800	101,600	229,900	389,300	382,100	62,700	32,400	16,700	1,214,700
	Totals	5,276,600	1,083,400	7,689,800	15,735,100	12,431,400	7,975,800	3,098,200	785,100	48,798,800
		.....	2%	16%	32%	26%	16%	6%	2%	100%

Abbreviations: F=Douglas fir; C=Red cedar; H=Western hemlock; S=Spruce; B=Silver fir (balsam); Pl=Lodgepole pine; Cy=Yellow cedar.

Included in the above figures of Interior drainages is the equivalent board-foot measure of 65,800,000 lodgepole-pine ties, after conversion at 32 board-feet to the tie. Also included are 34,600,000 lineal feet (Coast) and 10,900,000 lineal feet (Interior) of cedar suitable for poles, after conversion at 3 board-feet to the lineal foot. Also included in the Coast drainages is the equivalent board-foot measure of 8,000,000 lineal feet of hemlock suitable for piling, after conversion at 5 board-feet to the lineal foot. These special products have been cruised in some of the watersheds, but in others have been included in the board-foot cruises.

There is also roughly estimated to be 292,300 M.B.M. of black cottonwood, but estimates of this species are still unreliable. Further investigation of the cottonwood stands is needed, especially in the Skeena, Nass, and Nechako Valleys. This estimate is low.

PROVINCIAL FOREST INVENTORY—*Continued.*

Accessible Merchantable Timber in Prince Rupert Forest District.

No. on Map.	Drainage-basin.	Merchantable Acreage.	Thousand Board-feet, B.C. Log Scale.							Total.
			F.	C.	H.	S.	B.	Pl.	Cy.	
	Coast.									
1	Smith Sound-Rivers Inlet	118,600	200	927,300	346,300	268,400	282,300	.....	81,300	1,905,800
2	Owikeno Lake	25,000	132,200	103,500	239,500	100,700	77,200	.....	10,100	663,200
3	Burke and Dean Channels	95,900	295,200	296,300	383,800	254,900	193,700	.....	700	1,424,600
4	Bella Coola River	16,600	133,900	67,600	33,400	33,000	5,600	.....	.....	273,500
5	Roscoe Inlet-Hunter Island	71,800	.....	329,500	193,600	133,300	110,400	.....	10,300	777,100
6	Roderick Island-Graham Reach	62,600	.....	153,800	196,900	122,600	115,900	.....	10,100	599,300
7	Princess Royal-Hawkesbury	43,200	.....	141,100	168,900	103,100	133,100	.....	27,200	573,400
8	Gardner Canal-Kitlope River	28,700	8,200	68,800	123,400	82,100	101,300	.....	20,300	404,100
9	Grenville Channel-Banks Island	20,300	.....	52,100	81,600	60,600	50,000	.....	20,700	265,000
10	Douglas Channel-Kitimat Arm	110,400	.....	301,600	955,100	281,400	685,800	.....	25,600	2,249,500
11	Lower Skeena River	75,100	.....	124,800	318,500	204,900	93,000	.....	900	742,100
12	Work Channel-Khutzeymateen	35,700	.....	20,800	151,600	151,400	117,600	.....	5,100	446,500
13	Lower Nass-Observatory Inlet	26,800	.....	15,000	113,400	59,600	4,600	.....	400	193,000
14	Graham Island, Q.C.I.	266,700	.....	974,400	1,538,700	1,449,800	.....	.....	145,100	4,108,000
15	Moresby Island, Q.C.I.	252,200	.....	972,200	2,249,200	1,835,200	.....	.....	89,700	5,146,300
	Total, Coast	1,249,600	569,700	4,548,800	7,093,900	5,141,000	1,970,500	.....	447,500	19,771,400
		.....	3%	23%	36%	26%	10%	.....	2%	100%
	Interior.									
16	Upper Nass River*	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Middle Skeena River	88,300	.....	245,200	538,500	224,400	168,700	13,800	.....	1,190,600
18	Upper Skeena River*	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	Bulkley River East	128,700	.....	4,500	4,300	302,600	151,900	194,800	.....	658,100
20	Bulkley River West	156,500	.....	7,000	59,300	309,100	228,900	719,400	.....	1,323,700
21	Francois Lake-Endako River	156,200	44,800	.....	12,300	323,700	43,000	123,800	.....	547,600
22	Upper Nechako River*	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Total, Interior	529,700	44,800	256,700	614,400	1,159,800	592,500	1,051,800	.....	3,720,000
		.....	1%	7%	17%	31%	16%	28%	.....	100%
	Vacant Crown lands	1,195,100	334,700	2,488,100	3,456,900	3,294,200	1,698,900	1,032,700	230,600	12,536,100
	Timber licences and leases	487,200	208,900	2,124,900	3,940,200	2,683,500	823,800	.....	200,200	9,981,500
	Crown grants	97,000	70,900	192,500	311,200	323,100	40,300	19,100	16,700	973,800
	Totals	1,779,300	614,500	4,805,500	7,708,300	6,300,800	2,563,000	1,051,800	447,500	23,491,400
		.....	3%	20%	33%	27%	11%	4%	2%	100%

* Not accessible.

Abbreviations: F=Douglas fir; C=Red cedar; H=Western hemlock; S=Spruce; B=Silver fir (balsam); Pl=Lodgepole pine; Cy=Yellow cedar.

Included in the above figures of Interior drainages is the equivalent board-foot measure of 30,600,000 lodgepole-pine ties, after conversion at 32 board-feet to the tie. Also included are 21,000,000 lineal feet (Coast) and 6,400,000 lineal feet (Interior) of cedar suitable for poles, after conversion at 3 board-feet to the lineal foot. Also included in the Coast drainages is the equivalent board-foot measure of 5,200,000 lineal feet of hemlock suitable for piling, after conversion at 5 board-feet to the lineal foot. These special products have been cruised in some of the watersheds, but in others have been included in the board-foot cruises.

There is also roughly estimated to be 246,300 M.B.M. of black cottonwood, but estimates of this species are still unreliable. Further investigation of the cottonwood stands is needed, especially in the Skeena, Nass, and Nechako Valleys. This estimate is low.

PRINCE RUPERT FOREST DISTRICT.

Showing drainage-basins and merchantable timber. Solid green indicates over 20 M.B.M. per acre Coast, over 10 M.B.M. per acre Interior. Stippled green indicates merchantable timber averaging below these volumes per acre.

AREAS EXAMINED FOR MISCELLANEOUS PURPOSES OF THE "LAND ACT," 1936.

Forest District.	Applications for Crown Grants.		Applications for Grazing and Hay Leases.		Applications for Pre-emption Records.		Applications to Purchase.		Miscellaneous.	
	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.
Vancouver	----	-------	3	1,514	20	1,664	34	4,671	40	4,879
Prince Rupert	----	-------	4	516	9	1,066	11	965	10	648
Fort George	1	160	9	1,241	14	1,848	15	1,687	33	1,977
Kamloops	----	-------	68	11,734	44	5,662	43	4,162	57	6,538
Nelson	----	-------	2	306	----	-------	32	3,425	9	2,716
Totals	1	160	86	15,311	87	10,240	135	14,910	149	16,758

CLASSIFICATION OF AREAS EXAMINED IN 1936.

Forest District.	Total Area.	Agricultural Land.	Non-agricultural Land.	Merchantable Timber Land.	Estimate of Timber on Merchantable Timber Land.
	Acres.	Acres.	Acres.	Acres.	M.B.M.
Vancouver	12,728	1,988	10,740	------	-------
Prince Rupert	3,195	984	2,211	406	9,298
Fort George	6,913	3,104	3,809	230	7,769
Kamloops	28,096	2,399	25,697	90	945
Nelson	6,447	3,214	3,233	------	-------
Totals	57,379	11,689	45,690	726	18,012

FOREST RESEARCH.

In a previous report (1934) the rôle of research in forest administration was pointed out and the organization for research in British Columbia was briefly reviewed. Following the organization of the Research Division in 1927, considerable progress was made up to 1932, when the financial situation forced a halt. Since that date research activities have been directed solely to maintaining routine studies on the more important projects already in hand. The loss of junior members of the Research staff incident to retrenchment in 1932 has been previously commented on. Three additional experienced and valuable research Foresters have resigned within the past few months.

The year's work has consisted in maintaining Coast silvicultural studies, regeneration history-map studies, growth and yield studies, and the Green Timbers Nursery with a modest planting programme. Changes in the establishment of permanent sample plots, on which most of these studies are conducted, since last report on this work in 1934, are indicated below:—

	NUMBER OF PLOTS.			
	Abandoned.*	Studies completed.	Current.	
			1934.	1936.
Growth and yield	17	----	115	133
Planting and seeding	4	8	62	69
Silvicultural	21	51	82	39
Regeneration history	----	----	9	9

* Proved unsuitable, or flooded or burned or otherwise accidentally destroyed.

Improvements.—The Research Stations at Cowichan Lake and Aleza Lake and the Nursery at Green Timbers profited again by improvement-work undertaken by the camps of the Young Men's Forestry Training Plan. At Cowichan Lake a part of the lake-shore was cleared of

debris, the Station Road was improved and made safe against severe damage which had previously resulted from flooding at high water, the highway through the North Arm sector was cleared of roadside brush, a light plant was installed, a cabin built, and the water system improved. At Aleza Lake light and water systems were installed, foundations of buildings were renewed, and much trail and road work done. At Green Timbers a well dug in 1935 which furnishes an ample water-supply was completed and a water-distribution system installed, roads were improved, fire-guards cleared, and considerable work was done on the nursery area and on the plantations.

Growth and Yield.—Growth and yield studies were continued, nine new plots being established and twenty-one re-examined after the lapse of the usual five-year period. Eight plots previously established were found to have been destroyed by fire and careless logging. The establishment of these plots is indicated in the following table. Accurate information with regard to growth and yield is of basic importance. The minimum number of plots required to secure this information for those few types in which studies have been started has been tentatively fixed, and no time should be lost in establishing this minimum number in these more important types.

Permanent Plots—Growth and Yield Studies.

	Minimum required.	Total established up to	
		1935.	1936.
South Coast types—			
Alder	10	6	6
Douglas fir-hemlock	100	71	69
Mid-Coast types—			
Sitka spruce	50	1	1
Southern Interior types—			
Lodgepole pine	15	6	3
Yellow pine	25	7	8
Fir-larch	25	4	6
Central Interior types—			
Engelmann spruce	40	27	30
Lodgepole pine	15	10	10
Totals	280	132	133

History Studies.—The regeneration of logged lands on Vancouver Island and the adjacent Mainland constitutes the most urgent silvicultural problem facing the Province. The forests in this region, consisting mainly of Douglas fir, hemlock, and western red cedar, furnish about 80 per cent. of the timber cut in British Columbia. Most of the cut-over lands are useful only for forest purposes, and because of their accessibility and capacity for producing valuable timber-crops on short rotations, they should be the first areas in the Province to be placed under systematic forest-management.

In view of the foregoing, the Forest Service in 1928 undertook studies to determine the rate of natural regeneration following logging and the changes (by fire or otherwise) occurring after logging. Nine logged areas are under observation. These tracts comprise some 130,748 acres which, due to their diverse location, are typical of the conditions existing on most of the land which has been logged in the Douglas-fir type during the past fifteen years. Each of the areas consists of a patchwork of cuttings, burns, inaccessible and unmerchantable timber, and in some cases stands of merchantable timber not yet logged.

A complete history of each area from the start of logging has been assembled and permanent sample plots have been established in each for the study of regeneration.

The results of these studies on areas logged eight to eighteen years ago, on which all the usual conditions of logging, slash-burns, and subsequent burns are represented, indicate that about one-third (35 per cent.) of our logged lands are reproducing satisfactorily, while two-

thirds (65 per cent.) are understocked or barren. These results agree closely with conditions found by Forest Surveys throughout the south coastal areas.

While much investigative work remains to be done and much further data are needed on which to base final detailed conclusions, present findings indicate at least half of our cut-over areas in the Douglas-fir region are not restocking satisfactorily under the present system of logging, slash-disposal, and fire-protection. Slash-burning is often necessary to reduce the hazard and not as a silvicultural measure, but it kills whatever young growth is left standing after logging. Present-day logging methods often push back the boundary of marginal timber (which constitutes the source of seed-supply) too fast for wind-dissemination of seed over most of the area. The sole remaining hope for satisfactory reproduction is seed stored in the duff. "Douglas-fir seed not eaten by birds, insects, and rodents, *either germinates or decays* within a year after it falls, both under virgin timber and on open logged-off land,"* and much of what remains in the duff suffers the further hazard of being killed by the slash fires.

The areas of good reproduction that we find are generally the result of timber being left sufficiently near to seed in or where logging occurred during or immediately following a good seed-year; the slash fire preceded germination and was not too severe and subsequent fires were kept out. Under other circumstances valuable forest lands develop into the familiar barrens which cannot be restocked except by the expensive method of planting.

Reforestation.—The objective of 500,000 trees yearly from the Nursery at Green Timbers proposed in 1933 should have been attained in the spring of 1936. By reason of extreme weather conditions, however, and lack of water, a little less than 100,000 were available. With the assistance of the Young Men's Forestry Training Plan, an ample water-supply has now been provided at the Nursery and it is anticipated that no further heavy losses will be experienced on this score. Areas and trees planted to date are reported below:—

Location.	Previously Reported.		1936.		Total to Date.	
	Acres.	Trees.	Acres.	Trees.	Acres.	Trees.
Green Timbers	279	331,250	15.4 1.2* 1.2†	14,750 1,100	297	347,100
Thurlow Islands	545	234,500	.....	.....	545	234,500
Campbell River Forest	166	191,050	.....	.....	166	191,050
Sayward Forest	.....	.....	107	71,950	107	71,950
Miscellaneous	36	22,850	.....	.....	36	22,850
Totals	1,026	779,650	125	87,800	1,151	867,450

* Oak transplants. † Acorns.

LUMBER TRADE EXTENSION.

The forest industries in British Columbia, together with all they connote in private business, employment, and public revenue, are dependent in great degree on external trade. The latest available statistics (1934) indicate a local consumption of about 210 million feet of lumber per year derived within the Province. Export lumber shipments have averaged more than 760 million per year for the past ten years and exceeded 1,200 million in 1936. The development of foreign markets is one of the major problems facing forestry and the forest and wood-using industries of the Province.

Water-borne export of lumber, which accounts for by far the greater part of our export trade, reached a new record in 1936 and the prospects are that the volume of trade will be maintained in 1937. This in itself is gratifying and at the same time is likely to develop a sense of false security. Even a superficial analysis of export-trade records indicates the necessity for assiduous cultivation of markets secured if they are to be retained.

Immediately below is a statement of trade with our six best customers over the past ten years, showing in millions of feet the amounts taken by each. This table shows annual ship-

* L. A. Isaac, Pacific Northwest Forest Experiment Station: "Life of Douglas Fir Seed in the Forest Floor," Journal of Forestry, 1935.

ments at intervals of five years only, but reflects the general year-to-year trend with remarkable accuracy.

	1926.	1931.	1936.
United States and Atlantic Coast	400	208	160
Japan	177	138	33
United Kingdom	41	81	666
Australia	37	51	125
South Africa	18	13	61

Foreign trade is governed by a multitude of factors, many of which are beyond our control. This fact is merely an additional reason for exerting our best efforts along lines where our influence can make itself felt, such as catering to the special requirements, even the prejudice, of the customer and by personal contact. The visit last summer of representatives of the trade in the United Kingdom was mutually valuable. It is to be hoped that tours of this description can be repeated and extended to include other Empire and foreign trade connections.

The almost phenomenal increase in trade with the United Kingdom and South Africa has been due to a number of factors, but outstanding among them is the excellent work done in these fields by the Lumber Trade Commissioners jointly supported by a large section of the industry and the Provincial Government. During the year a special Commissioner was also appointed to Australia, where already results of his efforts are becoming evident. A preliminary survey of the West Indies market by Major L. R. Andrews in the latter part of the year indicates a promising field for expansion there.

One phase of this trade-promotion work emphasized last year will bear repetition. We must in future endeavour to familiarize importing countries with the excellent qualities of our cedar and hemlock. The amount of hemlock lumber cut and shipped is small in comparison with Douglas fir, and quite out of proportion with the ratio of these species in our timber stands. Failure to balance utilization in these species must inevitably react to the disadvantage of the whole industry. The increase in total cut of these species on the Lower Coast from 1935 to 1936 was 9 per cent. for hemlock, 13 per cent. for cedar, and 19 per cent. for fir. This is a most undesirable trend.

WATER-BORNE LUMBER TRADE (IN M.B.M.).

Destination.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	Ten-yr. Ave., 1927–36.
Australia	53,502	29,843	41,493	33,076	50,803	125,551	123,733	128,141	129,492	125,448	84,108
New Zealand	10,848	8,531	8,559	6,416	2,579	979	1,300	2,957	3,793	6,072	5,203
South America	2,169	10,304	2,449	1,775	1,354	141	3,642	1,620	4,017	6,328	3,380
China	9,179	16,902	43,323	55,224	53,854	53,342	130,596	108,128	91,232	102,743	66,452
Japan	191,597	219,361	192,412	150,870	138,852	60,032	60,657	80,279	43,080	33,123	117,026
United Kingdom and Continent	36,427	67,076	69,904	98,038	81,356	108,315	271,073	455,695	455,862	666,272	231,002
South Africa	18,563	13,626	15,889	17,686	13,120	5,665	18,213	25,276	28,350	61,133	21,752
India and Straits Settlements	3,567	411	244	241	370	544	917	431	3,415	1,897	1,204
United States and Atlantic Coast	392,074	384,108	351,527	259,094	207,586	79,683	29,528	28,735	62,013	159,904	195,425
Philippine and Hawaiian Islands	1,734	57	.....	123	.....	.....	.....	.....	.....	136	205
West Indies and Cuba	16,023	8,357	14,347	12,781	7,521	8,240	11,830	13,467	7,133	9,823	10,952
South Sea Islands	1,885	5,496	5,509	3,231	2,527	2,009	2,477	4,475	4,556	10,129	4,229
Mexico and Central America	.....	334	624	550	479	1,746	1,669	2,410	4,870	2,821	1,550
Egypt	2,650	1,150	4,744	.....	4,195	.....	.....	4,348	4,216	8,040	2,934
*Belgium	.....	.....	.....	.....	336	79	6,141	2,997	6,265	5,691	2,151
*Denmark	.....	.....	.....	.....	62	.....	.....	5	2	.....	7
*France	.....	.....	.....	.....	242	149	10	48	425	724	160
*Germany	.....	.....	.....	.....	154	120	127	105	846	746	210
*Holland	.....	.....	.....	.....	419	144	302	9	1,870	1,212	396
*Italy	.....	.....	.....	.....	302	129	351	330	1,869	335	332
*Norway and Sweden	.....	.....	.....	.....	18	.....	.....	5	8	24	6
Spain	.....	.....	.....	.....	.....	16	.....	.....	457	64	54
Foreign, unclassified	12	.....	50,494	73,195	.....	6	34	4	208	329	12,428
Totals	740,230	765,556	801,518	712,300	566,129	446,890	662,600	859,465	853,979	1,202,994	761,166

* Previously included with United Kingdom.

THE FOREST INDUSTRIES.

Estimated Value of Production, including Loading and Freight within the Province.

Product.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	Ten-year Average, 1927–36.
Lumber	$32,773,000	$16,738,000	$13,349.000	$15,457,000	$20,377,000	$24,094,000	$36,160,000	$29,792,100
Pulp and paper	16,520,000	13,508,000	11,156,000	10,852,000	12,373,000	12,414,000	14,950,000	14,143,300
Shingles	4,161,000	2,721,000	2,805,000	4,500,000	4,375,000	8,750,000	7,800,000	6,021,200
Boxes	2,287,000	1,315,000	1,100,000	1,313,000	1,632,000	1,720,000	1,629,000	1,764,100
Doors	.....	.....	.....	.....	.....	1,693,000	2,718,000	441,100
Piles, poles, and mine-props	4,726,000	2,453,000	772,000	450,000	487,000	810,000	1,434,000	2,534,600
Cordwood, fence-posts, and lagging	1,596,000	1,405,000	1,576,000	1,850,000	1,335,000	1,453,000	1,489,000	1,547,600
Ties, railway	1,253,000	1,044,000	502,000	250,000	485,000	764,000	623,000	1,035,000
Additional value contributed by the wood-using industry	2,387,000	1,350,000	1,014,000	1,200,000	1,320,000	1,300,000	1,350,000	1,632,100
Laths and other miscellaneous products	1,500,000	1,500,000	1,125,000	1,000,000	1,100,000	1,100,000	1,200,000	1,502,500
Logs exported	2,492,000	2,370,000	1,730,000	2,228,000	1,931,000	2,820,000	2,646,000	2,848,200
Pulp-wood exported	42,000	43,000	28,000	55,000	46,000	23,000	11,000	46,500
Totals	$69,737,000	$44,447,000	$35,157,000	$39,155,000	$45,461,000	$56,941,000	$72,010,000	$63,308,300

Paper (in Tons).

Product.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	Ten-year Average, 1927–36.
Newsprint	224,928	217,562	205,050	237,107	267,406	262,123	276,710	233,130
Other papers	20,446	17,709	24,051	23,492	26,777	33,287	41,443	23,640

In addition to the 303,400 tons of pulp manufactured into paper in the Province, 89,000 tons were shipped out of the Province during the year.

Species cut (in F.B.M.).

Forest District.	Fir.	Cedar.	Spruce.	Hemlock.	Balsam.	Yellow Pine.	White Pine.	Lodgepole Pine.	Larch.	Cotton-wood.	Miscel-laneous.	Totals.
Vancouver	1,496,948,634	496,076,734	28,731,457	418,896,809	70,200,198	.....	14,606,519	.....	.....	3,954,425	15,032,136	2,544,446,912
Prince Rupert	5,064,454	18,760,603	68,494,515	43,072,970	9,328,854	.....	.....	14,302,082	.....	599,659	1,348,702	160,971,839
Totals, Coast	1,502,013,088	514,837,337	97,225,972	461,969,779	79,529,052	.....	14,606,519	14,302,082	.....	4,554,084	16,380,838	2,705,418,751
Fort George	8,310,650	778,921	27,732,110	.....	33,901	.....	.....	11,497,109	.....	.....	5,338,355	53,691,046
Kamloops	51,465,269	20,283,242	3,947,323	80,532	3,804	28,072,975	1,610,338	179,315	726,571	203,369	16,848,744	123,421,482
Nelson	28,356,322	15,448,674	20,132,545	2,538,369	393,982	8,763,453	8,572,768	1,130,632	40,216,349	695,773	11,993,048	138,241,915
Totals, Interior	88,132,241	36,510,837	51,811,978	2,618,901	431,687	36,836,428	10,183,106	12,807,056	40,942,920	899,142	34,180,147	315,354,443
Grand totals, 1936	1,590,145,329	551,348,174	149,037,950	464,588,680	79,960,739	36,836,428	24,789,625	27,109,138	40,942,920	5,453,226	50,560,985	3,020,773,194
Grand totals, 1935	1,339,026,242	477,362,816	125,060,677	428,684,859	88,647,694	33,216,860	27,982,161	34,775,415	46,798,137	3,008,870	44,724,664	2,649,288,395
Grand totals, 1934	1,161,212,111	335,779,926	132,327,306	342,766,236	77,442,211	39,573,745	17,136,556	19,475,917	30,222,468	4,052,857	54,802,536	2,214,791,869
Grand totals, 1933	873,187,188	374,247,934	86,715,876	238,472,893	68,203,263	22,005,856	22,186,768	7,157,309	31,094,619	4,468,131	170,841,227	1,898,581,064
Grand totals, 1932	752,558,169	319,086,978	106,361,793	245,169,186	54,282,274	13,367,227	17,992,369	7,471,122	21,470,125	2,941,992	70,757,226	1,611,458,461
Grand totals, 1931	997,513,398	356,478,825	123,056,421	267,283,560	45,153,077	26,109,228	27,006,894	38,555,460	17,700,108	4,029,782	45,517,520	1,948,404,273
Grand totals, 1930	1,319,093,565	570,071,915	185,696,765	329,447,130	65,513,782	30,463,015	28,029,526	55,368,482	20,585,633	2,912,598	56,569,927	2,663,752,338
Ten-year average, 1927–36	1,270,949,800	512,558,300	152,142,300	337,128,400	68,945,700	30,057,000	24,509,000	40,608,800	29,988,600	3,873,800	70,612,800	2,541,374,500

Total Amount of Timber scaled in British Columbia during Years 1935–36 (in F.B.M.).

Forest District.	1935.	1936.	Gain.
Vancouver	2,214,696,624	2,544,446,912	329,750,288
Prince Rupert	154,702,645	160,971,839	6,269,194
Totals, Coast	2,369,399,269	2,705,418,751	336,019,482
Fort George	49,883,188	53,691,046	3,807,858
Kamloops	97,697,983	123,421,482	25,723,499
Nelson	132,307,955	138,241,915	5,933,960
Totals, Interior	279,889,126	315,354,443	35,465,317
Totals for Province	2,649,288,395	3,020,773,194	371,484,799

TOTAL SCALE SEGREGATED, SHOWING LAND STATUS (IN F.B.M.).

Forest District.	Timber Licences.	Timber Leases.	Hand-loggers' Licences.	Timber-sales.	Pre-emptions, S.R., and Miscellaneous.	Crown Grants.				Dominion Lands.	Totals.
						To 1887.	1887–1906.	1906–1914.	1914 to Date.		
Vancouver	704,550,349	654,627,954	.....	164,000,280	6,887,241	921,542,032	25,544,878	36,378,102	24,377,657	6,538,419	2,544,446,912
Prince Rupert	67,295,364	4,568,639	3,963,393	73,291,829	774,060	.....	780,841	3,600,027	3,815,091	2,882,595	160,971,839
Fort George	16,609,665	.....	.....	27,792,947	5,772,786	.....	52,240	669,557	2,790,326	3,525	53,691,046
Kamloops	17,004,320	.....	.....	59,296,440	8,358,240	10,815,941	4,405,735	10,307,237	12,111,587	1,121,982	123,421,482
Nelson	11,899,017	.....	.....	37,422,793	4,522,273	1,402,921	72,030,647	5,506,386	5,457,878	.....	138,241,915
Totals, 1936	817,358,715	659,196,593	3,963,393	361,804,289	26,314,600	933,760,894	102,814,341	56,461,309	48,552,539	10,546,521	3,020,773,194
Totals, 1935	749,516,819	549,472,826	5,324,156	269,381,544	28,073,266	817,442,350	109,307,343	71,557,217	40,560,673	8,652,201	2,649,288,395
Totals, 1934	607,248,479	401,366,932	7,084,960	247,602,363	29,349,240	707,095,539	103,412,413	55,048,755	37,247,321	19,335,867	2,214,791,869
Totals, 1933	506,071,513	329,648,907	8,366,034	160,558,274	25,327,310	692,183,179	116,367,136	25,297,282	27,923,268	6,838,161	1,898,581,064
Totals, 1932	399,082,165	390,494,128	5,303,122	198,277,128	24,259,207	440,264,407	70,534,985	28,558,367	37,982,900	16,702,052	1,611,458,461
Totals, 1931	283,982,547	386,584,819	4,938,797	238,645,632	35,381,654	647,262,567	165,875,691	41,867,865	31,120,290	112,744,411	1,948,404,273
Totals, 1930	474,717,322	420,727,159	5,413,150	321,230,000	25,830,560	888,519,895	226,834,133	69,744,896	44,489,545	186,245,678	2,663,752,338
Ten-year average, 1927–36	559,017,700	430,610,500	5,674,700	279,699,500	28,901,700	835,927,700	169,687,400	61,190,900	44,352,100	126,312,300	2,541,374,500

Timber from lands in the former Dominion Government Railway Belt which has passed over to the jurisdiction of this Province is included under the various land status headings shown above.

Only timber from Indian Reserves and other lands still under the jurisdiction of the Dominion Government is shown under the heading "Dominion Lands."

TIMBER SCALED IN BRITISH COLUMBIA IN 1936 (BY MONTHS AND DISTRICTS).

Month.		Vancouver.	Prince Rupert.	Fort George.	Kamloops.	Nelson.	Total, F.B.M.	Total Lineal Feet.	Total Cords.	Total Hewn Ties.
January	F.B.M.	160,867,511	1,049,147	348,213	3,994,416	5,660,848	171,920,135			
,,	lineal ft.	120,766	169,187	39,657	374,559	111,450		815,619		
,,	cords	7,464	68	1,107	3,962	3,056			15,657	
,,	hewn ties	836	178	158	589	11,232				12,993
February	F.B.M.	97,359,418	1,429,909	198,613	2,490,422	6,005,428	107,483,790			
,,	lineal ft.	245,109	101,910	4,065	48,326	132,224		531,634		
,,	cords	2,988	190	514	2,610	2,684			8,986	
,,	hewn ties	1,524	11	974	13,622	5,128				21,259
March	F.B.M.	201,327,396	359,473	424,201	1,845,255	4,413,905	208,370,230			
,,	lineal ft.	111,318	46,805	9,665	114,682	49,091		331,561		
,,	cords	6,687		1,396	3,363	3,043			14,489	
,,	hewn ties	1,335	15,651	46,422	27,497	13,242				104,147
April	F.B.M.	218,419,244	5,815,380	1,183,963	4,242,063	4,702,938	234,363,588			
,,	lineal ft.	205,054	82,410	16,948	76,059	149,822		530,293		
,,	cords	5,294	46	951	2,291	2,660			11,242	
,,	hewn ties	7,360	20,068	54,512	73,253	18,149				173,342
May	F.B.M.	231,329,325	8,403,902	1,063,771	6,548,782	9,198,646	256,544,426			
,,	lineal ft.	266,919	71,398	40,248	233,729	39,928		652,222		
,,	cords	11,373		363	885	1,315			13,936	
,,	hewn ties	5,048	27,274	57,975	63,200	18,555				172,052
June	F.B.M.	235,631,310	17,130,207	3,760,318	7,093,438	12,096,487	275,711,760			
,,	lineal ft.	197,260	113,731	61,205	242,358	307,355		921,909		
,,	cords	8,462	220	314	2,323	1,928			13,247	
,,	hewn ties	7,361	32,333	42,122	51,476	39,180				172,472
July	F.B.M.	155,983,673	19,262,274	4,400,341	8,517,530	13,641,969	201,805,787			
,,	lineal ft.	579,430	46,409	54,106	523,256	371,840		1,575,041		
,,	cords	10,567	584	1,249	1,882	2,173			16,455	
,,	hewn ties	10	36,832	78,907	51,756	42,179				209,684
August	F.B.M.	228,388,171	24,174,755	5,608,066	11,924,426	22,495,308	292,590,726			
,,	lineal ft.	631,028	100,401	74,972	680,221	127,243		1,613,865		
,,	cords	9,904	273	348	2,653	966			14,144	
,,	hewn ties	2,095	43,624	33,612	48,102	45,082				172,515
September	F.B.M.	214,445,189	22,618,035	9,278,847	7,746,130	9,773,705	263,861,906			
,,	lineal ft.	375,915	161,605	42,178	637,145	231,817		1,448,660		
,,	cords	9,409	550	976	2,758	2,242			15,935	
,,	hewn ties		25,853	6,706	30,763	49,369				112,691
October	F.B.M.	271,874,837	19,662,951	5,751,296	7,296,747	6,976,785	311,562,616			
,,	lineal ft.	502,364	79,614	64,220	803,716	323,091		1,773,005		
,,	cords	10,011	126	312	2,282	2,587			15,318	
,,	hewn ties	1,996	52,166	988	18,427	18,575				92,152
November	F.B.M.	228,118,499	13,393,814	761,747	7,109,225	4,986,915	254,370,200			
,,	lineal ft.	619,661	56,414	50,222	846,693	402,369		1,975,359		
,,	cords	6,365	207	1,085	4,749	4,038			16,444	
,,	hewn ties		21,347		13,659	10,443				45,449
December	F.B.M.	223,476,856	9,982,658	1,754,595	4,483,011	5,475,371	245,172,491			
,,	lineal ft.	214,937	308,154	88,059	1,305,075	183,580		2,099,805		
,,	cords	8,144	569	345	3,351	2,249			14,658	
,,	hewn ties		30,826	3,635	1,003	993				36,457
Totals for year	F.B.M.	2,467,221,429	143,282,505	34,533,971	73,291,445	105,428,305	2,823,757,655			
,,	lineal ft.	4,069,761	1,338,038	545,545	5,885,819	2,429,810		14,268,973		
,,	cords	96,668	2,833	8,960	33,109	28,941			170,511	
,,	hewn ties	27,565	306,163	326,011	393,347	272,127				1,325,213

Total scale in F.B.M.=3,020,773,194.

Logging Inspection.

Forest District.	Operations.				No. of Inspections.
	Timber-sales.	Hand-loggers' Licences.	Leases, Licences, Crown Grants, and Pre-emptions.	Totals.	
Vancouver	540	1	759	1,300	3,376
Prince Rupert	403	34	151	588	2,080
Fort George	315	.....	185	500	1,082
Kamloops	671	.....	471	1,142	2,636
Nelson	425	.....	317	742	1,964
Totals, 1936	2,354	35	1,883	4,272	11,138
Totals, 1935	2,074	59	1,660	3,793	10,081
Totals, 1934	1,603	87	1,546	3,236	9,486
Totals, 1933	1,237	67	1,425	2,729	8,121
Totals, 1932	1,124	37	1,316	2,477	7,273
Totals, 1931	1,562	92	1,675	3,329	8,969
Totals, 1930	1,932	100	1,862	3,894	8,859
Ten-year average, 1927–36	1,700	76	1,726	3,502	9,169

Trespasses.

Forest District.	No. of Cases.	Areas cut over (Acres).	Quantity cut.				No. of Resulting Seizures.	Amount.
			Feet B.M.	Lineal Feet.	Cords.	Ties.		
Vancouver	36	94	565,870	25,481	483	.....	4	$1,578.00
Prince Rupert	17	54	304,895	10,440	298	275	....	655.00
Fort George	28	58	150,846	2,668	299	778	1	331.00
Kamloops	48	197	678,855	28,573	383	346	5	1,675.00
Nelson	24	98	366,664	8,110	169	1,053	3	1,004.00
Totals, 1936	153	501	2,067,130	75,272	1,632	2,452	13	$5,243.00
Totals, 1935	121	555	3,043,486	50,965	1,283	14,078	3	$6,077.58
Totals, 1934	101	720	3,270,608	30,555	1,385	4,825	6	$5,401.05
Totals, 1933	70	155	1,578,108	41,689	1,413	3,807	2	$2,727.81
Totals, 1932	95	368	767,896	35,484	2,140	9,265	14	$3,490.84
Totals, 1931	84	397	1,579,465	118,704	1,048	12,425	2	$5,633.68
Totals, 1930	96	1,000	969,351	165,729	1,457	9,612	4	$7,534.01
Ten-year average, 1927–36	100	534	2,241,833	75,354	1,850	8,862	7	$6,842.00

PRE-EMPTION INSPECTIONS, 1936.

Pre-emption records examined by districts are:—

Vancouver	342
Prince Rupert	142
Fort George	646
Kamloops	870
Nelson	117
Total	2,117

AREAS CRUISED FOR TIMBER-SALES.

Forest District.	Number cruised.	Acreage.	Saw-timber (M.B.M.).	Poles and Piles (Lineal Ft.).	Shingle-bolts and Cordwood (Cords).	Railway-ties (No.).	Car Stakes and Posts (No.).
Vancouver	337	59,321	210,764	560,432	35,070	6,931	.....
Prince Rupert	257	39,943	65,500	1,100,900	1,463	316,042	18,200
Fort George	212	34,619	34,131	592,148	16,895	304,707	4,200
Kamloops	385	65,674	97,859	5,092,115	77,414	352,457	.....
Nelson	224	52,478	56,148	1,189,450	17,764	103,609	40,800
Totals, 1936	1,415	252,035	464,402	8,535,045	148,606	1,083,746	63,200
Totals, 1935	1,319	238,952	398,884	5,674,908	114,753	1,164,454	74,700
Totals, 1934	1,331	223,391	356,264	2,856,619	80,101	1,235,766	73,766
Totals, 1933	942	169,831	186,418	1,620,112	95,233	549,976	174,861
Totals, 1932	875	144,769	202,421	1,759,905	68,414	488,655	69,900
Totals, 1931	818	145,214	297,825	2,629,054	62,680	664,413	142,400
Totals, 1930	943	197,065	526,261	10,345,822	26,431	731,640	620,100
Ten-year average, 1927–36	1,066	204,521	466,161	6,318,151	67,814	1,102,780	188,790

TIMBER-SALES AWARDED BY DISTRICTS, 1936.

Forest District.	No. of Sales.	Acreage.	Saw-timber (Ft. B.M.).	Poles and Piles (Lin. Ft.).	No. of Posts.	No. of Cords.	No. of Ties.	Estimated Revenue.
Vancouver	358	57,506	196,868,000	730,345	6,600	34,301	5,805	$515,101.06
Prince Rupert	229	41,413	46,952,000	1,145,900	24,800	8,659	196,399	124,340.65
Prince George	175	29,195	12,830,000	233,042	22,100	5,726	233,042	52,028.45
Kamloops	428	69,455	43,825,000	3,974,030	134,150	56,364	306,671	219,425.07
Nelson	253	55,055	58,329,000	2,249,225	47,950	17,929	81,264	171,898.64
Totals, 1936	1,443	252,624	358,804,000	8,332,542	235,600	122,979	823,181	$1,082,793.87
Totals, 1935	1,357	231,958	260,831,000	5,408,377	308,825	101,966	1,200,582	$762,427.04
Totals, 1934	1,324	219,969	250,629,000	2,721,540	316,910	67,902	894,970	$705,038.99
Totals, 1933	948	190,794	145,696,000	2,490,244	295,905	76,777	432,513	$450,559.16
Totals, 1932	836	134,868	181,470,000	1,746,616	161,600	54,154	423,676	$450,528.10
Totals, 1931	842	148,523	217,474,000	2,272,082	173,300	41,032	606,160	$624,596.27
Totals, 1930	866	162,043	199,485,000	9,963,164	398,150	19,997	494,202	$689,481.29
Ten-year average, 1927–36	1,044	201,003	444,322,000	5,616,134	388,046	57,879	975,825	$1,068,447.70

Average Sale Price by Species.

Sawn Timber.	Figures for 1936.		Figures for 1935.		Ten-year Average, 1927–36.	
	Board-feet.	Price per M.	Board-feet.	Price per M.	Board-feet.	Price per M.
Douglas fir	156,240,000	$1.16	92,369,000	$0.96	756,615.000	$1.32
Cedar	47,561,000	1.02	29,644,000	.93	325,553,000	1.34
Spruce	35,963,000	1.21	37,566,000	1.20	825,073,000	1.41
Hemlock	59,818,000	.65	46,318,000	.70	441,416,000	.79
Balsam	11,557,000	.69	12,083,000	.76	176,325,000	.78
White pine	14,231,000	1.57	8,705,000	1.60	59,780,000	2.04
Western soft pine	19,598,000	1.42	15,166,000	1.33	132,157,000	1.43
Tamarac	9,083,000	.68	2,355,000	.77	47,718,000	1.02
Other species	4,753,000	.75	16,625,000	.86	71,319,000	.90
Totals	358,804,000	$1.12	260,831,000	$0.97	2,835,935,000	$1.24

Timber cut from Timber-sales during 1936.

Districts.	Feet B.M.	Lineal Feet.	Cords.	Ties.	Posts.
Vancouver	149,959,636	521,658	22,446.09	5,094	1,584
Prince Rupert	59,201,914	811,384	1,254.50	277,126	23,643
Prince George	14,442,066	305,323	4,487.75	205,479	10,653
Kamloops	35,248,818	2,624,069	16,573.71	241,234	97,480
Nelson	27,148,999	979,224	18,000.77	84,831	21,270
Totals, 1936	286,001,433	5,241,658	62,762.82	813,764	154,630
Totals, 1935	193,788,636	3,540,576	38,438.36	851,342	149,959
Totals, 1934	199,895,549	1,694,470	36,209.24	503,266	84,312
Totals, 1933	122,275,912	1,337,497	35,840.62	212,824	164,586
Totals, 1932	165,666,929	1,583,955	30,646.62	258,284	79,885
Totals, 1931	177,172,765	5,697,152	15,499.20	662,120	255,545
Totals, 1930	227,019,617	11,960,055	17,176.17	1,341,426	388,749
Ten-year average, 1927–36	205,525,604	5,306,214	31,313.44	927,251	207,207

Saw and Shingle Mills of the Province.

Forest District.	Operating.				Shut Down.			
	Sawmills.		Shingle-mills.		Sawmills.		Shingle-mills.	
	No.	Estimated Daily Capacity, M.B.M.	No.	Estimated Daily Capacity, Shingles, M.	No.	Estimated Daily Capacity, M.B.M.	No.	Estimated Daily Capacity, Shingles, M.
Vancouver	159	8,365	70	8,529	40	625	6	273
Prince Rupert	40	517	4	60	21	411	2	22
Fort George	48	568	----	-------	13	171	----	-------
Kamloops	87	790	5	130	38	216	----	-------
Nelson	76	1,161	7	140	10	276	2	20
Totals, 1936	410	11,401	86	8,859	122	1,699	10	315
Totals, 1935	384	9,822	93	8,492	96	1,962	16	1,231
Totals, 1934	349	9,152	82	7,311	129	2,999	13	1,228
Totals, 1933	295	8,715	78	7,325	134	3,632	22	1,652
Totals, 1932	293	7,641	45	6,813	139	4,621	13	1,470
Totals, 1931	334	10,167	46	7,470	158	4,109	19	1,871
Totals, 1930	301	11,020	43	7,164	141	3,204	17	1,695
Ten-year average, 1927–36	340	10,390	64	8,163	124	2,943	16	1,663

Export of Logs (in F.B.M.).

Species.	Grade No. 1.	Grade No. 2.	Grade No. 3.	Ungraded.	Totals.
Fir	3,402,643	91,205,757	34,430,832	----------	129,039,232
Cedar	615,917	10,947,847	9,589,643	----------	21,153,407
Spruce	10,007	4,031,731	2,012,118	----------	6,053,856
Cottonwood	----------	822,007	3,028,769	----------	3,850,776
Hemlock	----------	----------	----------	52,587,545	52,587,545
Balsam	----------	----------	----------	3,442,520	3,442,520
White pine	----------	----------	----------	1,457,733	1,457,733
Larch	----------	----------	----------	26,000	26,000
Miscellaneous	----------	----------	----------	1,217,766	1,217,766
Totals, 1936	4,028,567	107,007,342	49,061,362	58,731,564	218,828,835
Totals, 1935	8,766,098	129,029,692	56,979,194	40,516,782	235,291,766
Totals, 1934	10,489,155	89,831,736	43,416,151	28,998,709	172,735,751
Totals, 1933	16,941,207	119,089,573	59,215,094	13,694,960	208,940,834
Totals, 1932	18,572,020	87,223,114	44,380,166	15,589,383	165,764,683
Totals, 1931	12,886,187	106,331,594	51,909,961	49,048,420	220,176,162
Totals, 1930	11,571,481	86,502,990	40,147,841	34,696,715	172,919,027
Ten-year average, 1927–36	15,337,908	111,004,035	50,469,183	35,707,088	212,518,214

SHIPMENTS OF POLES, PILING, MINE-PROPS, FENCE-POSTS, RAILWAY-TIES, ETC.

Forest District.		Quantity Exported.	Approximate Value, F.O.B.	Where marketed.		
				United States.	Canada.	Orient.
Vancouver—						
Poles and piling	lineal ft.	2,575,468	$257,546	2,509,598	1,118	64,752
Pulp-wood	cords	2,374	11,280	2,374	.....	.....
Car-stakes	cords	21	280	21	.....	.....
Cordwood	cords	8	30	8	.....	.....
Prince Rupert—						
Poles and piling	lineal ft.	1,170,724	87,780	723,932	446,792	.....
Fence-posts	No.	50,774	4,485	.....	50,774	.....
Railway-ties	No.	183,985	86,670	.....	183,985	.....
Fort George—						
Poles and piling	lineal ft.	215,865	17,270	67,955	147,910	.....
Fence-posts	cords	95	570	.....	95	.....
Railway-ties	No.	189,507	87,974	.....	189,507	.....
Mine-props	cords	144	1,152	.....	144	.....
Kamloops—						
Poles and piling	lineal ft.	4,877,314	585,277	4,303,990	573,324	.....
Fence-posts	cords	832	7,072	.....	832	.....
Railway-ties	No.	187,978	83,590	.....	187,978	.....
Mine-timbers	lineal ft.	11,849	548	.....	11,849	.....
Mine-props	cords	12	132	.....	12	.....
Nelson—						
Poles and piling	lineal ft.	2,193,562	218,079	1,935,194	258,368	.....
Fence-posts	cords	4,689	37,512	686	4,003	.....
Mine-props	cords	5,910	47,280	.....	5,910	.....
Railway-ties	No.	242,114	121,057	2,259	239,855	.....
Total value, 1936		.....	$1,655,584	.....	.....	.....
Total value, 1935		.....	$1,156,249	.....	.....	.....

TIMBER-MARKING.

TIMBER-MARKS ISSUED FOR THE YEARS 1934, 1935, AND 1936.

	1934.	1935.	1936.
Old Crown grants	238	217	267
Crown grants, 1887–1906	74	72	85
Crown grants 1906–1914	96	82	102
Section 53A, "Forest Act"	303	286	285
Stumpage reservations	61	82	73
Pre-emptions under sections 28 and 29, "Land Act"	9	6	5
Timber berths	18	14	17
Indian reserves	13	16	13
Timber-sales	1,324	1,348	1,443
Hand-loggers	13	8	11
Special marks	1	3	5
Pulp leases	1	.....	2
Pulp licences	3	7	2
Totals	2,154	2,141	2,310
Transfers and changes of marks	204	221	264

Draughting Office, Forest Branch.

Month.	Number of Tracings made.					Blue-prints from Reference Maps.
	Timber-sales.	Timber-marks.	Examination Sketches.	Miscel-laneous.	Totals.	
January	11	115	27	53	206	15
February	22	118	28	24	192	4
March	27	109	37	14	187	----
April	18	119	25	58	220	15
May	19	96	34	32	181	1
June	12	117	30	38	197	8
July	25	88	18	31	162	2
August	17	55	24	19	115	3
September	21	57	15	23	116	15
October	20	66	25	39	150	3
November	17	54	20	14	105	10
December	24	86	24	32	166	13
Totals	233	1,080	307	377	1,997	89

Crown-granted Timber Lands.

	Area of Private Timber Lands (Acres).	Average Value per Acre.
1920	867,921	11.62
1921	845,111	10.33
1922	887,980	11.99
1923	883,344	11.62
1924	654,668	15.22
1925	654,016	40.61
1926	688,372	39.77
1927	690,438	39.01
1928	671,131	38.62
1929	644,011	38.41
1930	629,156	44.74
1931	602,086	43.77
1934	557,481	37.25
1935	535,918	37.13
1936	515,924	36.61

The extent and value of timber land in the various assessment districts are shown by the following table:—

Assessment District.	Acreage, 1936.	Increase or Decrease in Acreage over 1935.	Average Value per Acre.	Change in Value per Acre since 1935.
Alberni	71,805	— 4,500	60.85	— 1.26
Comox	93,927	— 7,466	42.82	+ 1.16
Cowichan	58,585	— 3,010	63.22	— 1.70
Fort Steele	31,674	— 1,947	9.28	— 0.22
Galiano Island	328	*	14.99	— 0.01
Golden	14,354	— 429	6.32	— 2.87
Kettle River	9,019	— 220	5.84	*
Nanaimo	74,241	— 953	46.99	— 2.54
Nelson	4,179	*	6.14	+ 0.01
Prince George	12,351	*	18.85	*
Prince Rupert	22,841	— 80	17.79	— 0.73
Revelstoke	37,345	*	14.03	*
Slocan	58,944	*	7.31	*
Vancouver	1,210	— 200	58.55	—33.32
Victoria	25,121	— 1,189	35.38	— 0.68
Totals	515,924	—19,994	36.06	— 1.07

* No change.

FOREST FINANCE.

Gross forest revenue reached a peak at a little more than $4,000,000 in 1927. From that year there was a steady fall to a little less than half that sum at just over $2,000,000 in 1933. Since 1933 there has been a steady improvement to a total of $3,435,503 for the year 1936. This figure represents an increase of $535,000 over last year, practically all of which is attributable to stumpage and royalty. Over the same period administration costs were reduced from more than $500,000 (does not include protection) to $343,000 in the fiscal year 1934–35, which was increased only $10,000, less than 2 per cent. of increase in revenue, in the fiscal year 1935–36.

The Scaling Fund, under the influence of improved business conditions, has made a remarkable recovery from insolvency, chronic over a period of ten years, to a credit balance which has warranted a small decrease in scaling fees. The statement herewith is the most satisfactory the Scaling Fund has been able to publish since 1923.

By exercising the most rigid economy, coupled with fortunate weather conditions, the Forest Protection Fund deficit has been reduced from a high of $651,962 in April, 1931, to $111,565 at December 31st, 1936. With reduced income, this was accomplished only at the expense of protection measures. Forest protection depends to so great an extent on weather conditions that we can only note the improved state of the fund without attempting to forecast what it may be a year hence.

FOREST REVENUE.

	12 Months to Dec. 31, 1936.	12 Months to Dec. 31, 1935.	12 Months to Dec. 31, 1934.	12 Months to Dec. 31, 1933.	12 Months to Dec. 31, 1932.	12 Months to Dec. 31, 1931.	Ten-year Average, 1927–36.
Timber-licence rentals	$610,421.32	$496,386.11	$548,816.73	$331,948.95	$478,458.93	$721,931.98	$688,269.00
Timber-licence transfer fees	2,165.00	1,540.00	1,645.00	480.00	930.00	1,330.00	1,833.00
Timber-licence penalty fees	50,414.15	19,858.46	69,302.21	16,004.43	11,687.62	20,632.72	29,968.00
Hand-loggers' licence fees	875.00	1,075.00	1,300.00	1,975.00	2,000.00	950.00	1,373.00
Timber-lease rentals	66,625.92	68,132.18	63,212.79	57,859.54	70,025.38	78,202.93	73,069.00
Timber-lease penalty fees	422.06	1,071.58	1,565.97	1,265.18	848.88	944.24	824.00
Timber-sale rentals	20,454.84	17,684.57	21,281.83	14,061.93	12,009.29	11,675.17	23,551.00
Timber-sale stumpage	398,868.56	319,424.91	289,709.62	244,225.17	279,034.76	454,391.36	429,788.00
Timber-sale cruising	8,155.05	6,846.88	5,706.12	3,650.69	3,359.20	5,722.83	7,573.00
Timber-sale advertising	1,137.90	935.60	771.30	561.25	569.30	771.55	1,128.00
Timber royalty and tax	1,912,268.61	1,581,225.07	1,155,862.37	963,511.71	1,046,070.65	1,218,363.02	1,462,276.00
Scaling fees (not Scaling Fund)	321.23	312.76	334.71	225.73	374.42	911.07	802.00
Scaling expenses (not Scaling Fund)	105.11	128.89	116.05	28.80	20.30	24.94	103.00
Trespass penalties	5,526.01	7,478.91	5,924.39	3,399.67	2,535.16	3,686.89	6,208.00
Scalers' examination fees	290.00	250.00	25.00	20.00	40.00	175.00	174.00
Exchange	282.03	123.01	123.80	350.47	305.02	171.23	428.00
Seizure expenses	2,020.17	237.74	260.50	1,299.13	1,057.39	1,367.72	1,209.00
General miscellaneous	3,183.23	3,830.19	2,745.57	3,051.42	4,265.74	4,495.07	3,668.00
Timber-berth rentals and bonus	26,123.68	25,688.94	31,631.46	30,281.53	33,601.49	33,295.42	*30,104.00
Interest on timber-berth rentals and bonus	539.40	316.50	1,065.42	576.41	597.54	688.97	*631.00
Transfer fees on rentals and bonus	80.32	55.48	199.40	28.37	270.00	63.84	*116.00
Royalty interest	3,194.28	150.16	45.06	49.90	489.34	1,136.04	*844.00
	$3,113,473.87	$2,552,752.94	$2,201,645.30	$1,674,855.28	$1,948,550.41	$2,560,931.99	$2,760,259.00
Grazing fees and interest	11,768.52	14,522.41	11,411.56	11,759.13	13,409.37	15,411.46	13,052.00
Taxation from Crown-grant timber lands	310,260.60	333,128.08	308,283.15	320,150.96	368,699.00	397,523.73	364,913.00
Total revenue from forest sources	$3,435,502.99	$2,900,403.43	$2,521,340.01	$2,006,765.37	$2,330,658.78	$2,973,867.18	$3,138,224.00

* Six years.

REVENUE FROM LOGGING OPERATIONS, 1936.

(Amounts charged.)

Forest District.	Royalty and Tax.	Penalty.	Seizure Expenses.	Govt. Scale.		Scaling Fund.		Stumpage.	Total.
				Scaling Expenses.	Scaling Fees.	Scaling Expenses.	Scaling Fees.		
Vancouver	$1,562,520.46	$1,054.38	$847.50	$45.67	$275.76	$25,116.81	$131,200.58	$176,638.23	$1,897,699.39
Prince Rupert	128,079.57	720.78	5.00	17.50	61.27	346.50	8,505.72	101,391.40	239,127.74
Fort George	44,227.96	460.76	16.29	.....	.....	.....	.....	36,245.97	80,950.98
Kamloops	88,033.22	1,952.26	41.20	5.20	.....	.....	.....	87,514.10	177,545.98
Nelson	87,607.57	17.55	38.47	12.50	.....	.....	.....	44,396.19	132,072.28
Totals	$1,910,468.78	$4,205.73	$948.46	$80.87	$337.03	$25,463.31	$139,706.30	$446,185.89	$2,527,394.37
Totals, 1935	$1,605,321.91	$5,940.50	$213.94	$58.76	$231.87	$21,314.46	$124,425.21	$337,359.58	$2,094,866.23
Totals, 1934	$1,237,968.70	$7,382.38	$251.70	$106.36	$183.89	$17,436.57	$99,563.66	$324,116.42	$1,687,009.68
Totals, 1933	$918,663.03	$2,866.76	$197.93	$112.94	$200.66	$13,570.34	$82,212.92	$219,497.38	$1,237,321.96
Totals, 1932	$1,046,588.92	$3,983.03	$368.73	$56.66	$225.73	$13,368.44	$71,596.21	$307,371.82	$1,443,559.54
Totals, 1931	$1,140,282.78	$4,950.55	$994.87	$42.20	$1,092.07	$16,444.18	$82,078.03	$425,978.06	$1,672,862.74
Totals, 1930	$1,460,367.16	$6,799.66	$1,601.76	$140.57	$1,265.33	$21,644.46	$106,553.34	$638,023.79	$2,236,396.07
Ten-year average, 1927–36	$1,473,373.00	$6,853.00	$902.00	$110.00	$798.00	$18,881.00	$106,277.00	$467,699.00	$2,074,993.00

FOREST DEVELOPMENT PROJECTS.

Independent of the Young Men's Forestry Training Plan, which was designed to take care of young men between the ages of 18 and 25 with at least five years' residence in the Province, Forest Development Projects were undertaken early in December to provide work for single, homeless men registered for relief, many of whom were transients within the Province.

Accommodation has been provided in twenty-one camps on the Lower Mainland and Vancouver Island for approximately 1,400 men.

THE YOUNG MEN'S FORESTRY TRAINING PLAN.

The Young Men's Forestry Training Plan, inaugurated as an experiment during the summer of 1935, again proved itself a real factor in the development and protection of our forest resources during the summer of 1936.

In addition to the work accomplished, the programme proved itself a valuable training-ground for many young British Columbians. During this second year of the programme it was possible to incorporate more forestry lectures and recreational features into each camp. First-aid courses were given in two of the experiment-station camps by competent instructors in co-operation with the St. John Ambulance Association. Forty men secured their first-aid certificates, of whom nineteen qualified for industrial certificates. Moving pictures were taken of a number of the projects and the varying types of work being undertaken is well portrayed by them.

There are prospects that this plan for youth-training in forest-work will be adopted throughout Canada, patterned on lines developed here in British Columbia.

Approximately 100 Ranger Assistants were again employed, and as most of them had had previous experience they proved a real asset to the general organization of the Forest Service. Crews of approximately fifty men each were employed at the three Forest Experiment Stations of Green Timbers, Cowichan Lake, and Aleza Lake. Very necessary development-work was again accomplished at these stations. Twenty forest development and protection crews were employed throughout the Province, each crew comprising from ten to sixteen men. These crews accomplished varied types of work, including the construction and maintenance of many

miles of pack-horse trail and telephone-lines; construction of several cabins, lookouts, and bridges; the reduction and elimination of slash-hazard from strategic points; truck-trail or road construction to areas at present accessible only by pack-horse; and a new feature of the programme—the improvement and development of Elk Falls Park. The favourable comment directed towards recreational development-work warrants consideration of an increased programme in this respect.

Of the 500 men employed, approximately 25 per cent. of them secured employment in various industries during the season, either through their own efforts or through those of Forest Service officers. A number have successfully passed their Assistant Ranger examinations. A few have been influenced by their experience on these projects to continue their education with a view to securing a university degree in forestry.

A second year's experience in this type of work serves to confirm earlier impressions regarding the value of this programme. The great social value in the rehabilitation of the men is particularly apparent. The splendid co-operation received from the officials of the Labour Department did much to promote the success of the plan.

FOREST EXPENDITURE, FISCAL YEAR, 1935–36.

Forest District.	Salaries.	Temporary Assistance.	Expenses.	Total.
Vancouver	$46,794.32	.....	$30,605.50	$77,399.82
Prince Rupert	20,036.84	.....	12,338.39	32,375.23
Fort George	17,184.12	.....	4,130.89	21,315.01
Kamloops	28,948.76	.....	12,605.90	41,554.66
Nelson	26,625.47	.....	12,662.73	39,288.20
Victoria	63,823.05	.....	13,906.94	77,729.99
Totals	$203,412.56	.....	$86,250.35	$289,662.91
Lumber-trade extension				50,000.00
Canadian Forestry Association				2,000.00
Reconnaissance, research, reforestation, etc.				8,389.78
Grazing range improvements				3,818.10
Forest Protection Fund*				300,000.00
Forest Reserve Account*				43,927.21
Grand total				$697,798.00

* Amounts granted by Government to special funds detailed elsewhere.

SCALING FUND.

Balance, April 1st, 1935 (deficit)	$17,092.67
Expenditure, fiscal year 1935–36	120,307.65
	$137,400.32
Charges, fiscal year 1935–36	152,586.30
Balance, March 31st, 1936 (credit)	$15,185.98
Balance, April 1st, 1936 (credit)	$15,185.98
Expenditure, 9 months, April–December, 1936	103,188.56
	$88,002.58
Charges, 9 months, April–December, 1936	138,142.55
Balance, being excess of charges over expenditure	$50,139.97

FOREST RESERVE ACCOUNT.

Balance brought forward, April 1st, 1935	$8,924.28
Amount received from Treasury, April 1st, 1935 (under subsection (2), section 30A)	43,927.21
Moneys received under subsection (4), section 30A	----------
	$52,851.49
Expenditure, fiscal year 1935–36	43,167.93
Balance (credit), March 31st, 1936	$9,683.56
Amount received from Treasury, April 1st, 1936 (under subsection (2), section 30A)	62,298.16
Moneys received under subsection (4), section 30A	----------
	$71,981.72
Expenditure, 9 months to December 31st, 1936	44,555.74
Balance (credit), December 31st, 1936	$27,425.98

FOREST PROTECTION FUND.

The following statement shows the standing of the Forest Protection Fund as at December 31st, 1936:—

Balance (deficit), April 1st, 1935		$272,738.09
Expenditure	$326,444.95	
Less refunds	5,118.31	
		321,326.64
		$594,064.73
Collections	$105,739.50	
Special levy	62.51	
Government contribution	300,000.00	
		405,802.01
Balance (deficit), March 31st, 1936		$188,262.72
Balance (deficit), April 1st, 1936		$188,262.72
Expenditure, 9 months, April–December, 1936	$239,608.29	
Less refunds	4,188.06	
		235,420.23
		$423,682.95
Collections, 9 months, April–December, 1936	$87,117.33	
Government contribution	225,000.00	
		312,117.33
Balance (deficit), December 31st, 1936		$111,565.62

ESTIMATED AND KNOWN COSTS OF FOREST PROTECTION TO OTHER AGENCIES, 1936.

Forest District.	Expenditures for				
	Tools and Equipment.	Improvements.	Patrol.	Fire-fighting.	Total.
Vancouver	$36,689.00	.....	$51,861.00	$12,420.00	$100,970.00
Prince Rupert	1,406.00	$125.00	717.00	3,326.00	5,574.00
Fort George	.....	.....	.....	1,006.00	1,006.00
Kamloops	66.00	.....	.....	3,492.00	3,558.00
Nelson	7,905.00	.....	2,203.00	14,407.00	24,515.00
Totals	$46,036.00	$125.00	$54,781.00	$34,651.00	$135,623.00
Totals, 1935	$35,560.00	$2,533.00	$73,042.00	$48,909.00	$160,044.00

EXPENDITURE FOR TWELVE MONTHS ENDED MARCH 31ST, 1936.

Districts.	Patrols and Fire Prevention.	Tools and Equipment.	Fires.	Improvements.	Total.
Vancouver	$79,398.96	$17,079.53	$18,831.80	$2,441.39	$117,751.68
Prince Rupert	15,373.75	4,354.23	375.08	740.79	20,843.85
Fort George	15,515.52	7,465.79	516.23	1,440.58	24,938.12
Kamloops	48,125.19	11,737.10	1,578.92	2,548.64	63,989.85
Nelson	54,301.97	17,987.94	3,606.21	1,063.22	76,959.34
Victoria	21,537.98	424.13	.....	.....	21,962.11
Totals	$234,253.37	$59,048.72	$24,908.24	$8,234.62	$326,444.95

Patrols and fire prevention	$234,253.37
Tools and equipment	59,048.72
Fire	24,908.24
Improvements	8,234.62
Total	$326,444.95

FOREST PROTECTION.

After four fire seasons of less than average fire occurrence and damage, the southern part of the Interior of the Province was once more the scene of high hazard. From Kamloops to Fernie, the months of July and August were deficient in rainfall, humidity was very low, lightning-storms frequent, and winds high. These factors in combination make up a "bad" fire season and their occurrence seems to be periodic. Past records and the study of tree-growth over many decades show that weather cycles are fairly regular and we may expect recurrence of series of bad fire-years.

The high hazard did not reach the central and northern part of the Province nor to the Coast. In these regions rainfall was generally plentiful and well distributed through the summer season. The table on fire occurrence by months illustrates clearly the seasonal nature and effect of the rainfall.

Having experienced four very favourable years, it was reasonable to anticipate that the turn of the cycle would soon result in high hazard and we may now look forward to an increase for some years.

For this reason it is highly important that the Forest Protection staff be brought back to the state of efficiency it had attained prior to the depression. Forest improvements and equipment, sadly neglected during the depression years, must be reinstated and built up to the needs of a bad fire-year; permanent, temporary, and ex-officio personnel must be increased, organized, and carefully trained.

Since reinstatement of the Forest Protection Fund in 1934, considerable savings have been made because of the favourable seasons and by practising economy to the point of danger. These savings were used in 1936 to replenish in part depleted stocks of tools and equipment. Further purchases are necessary to place the field staff in position to handle the inevitable bad years.

The second year of the Young Men's Forestry Training Plan has proved highly valuable to forest protection by opening up more trails and roads. The continuance of this plan is highly desirable from this standpoint alone because of the deplorable state of the forest-protection improvements.

Under the same plan, assistants were assigned to Forest Rangers. Some of these young men were employed for the second year and their previous experience was most valuable to the Rangers. As a result of that experience a few passed the examinations for Assistant Ranger and will, undoubtedly, develop into efficient forest officers.

In a forest province such as British Columbia, a large force of trained men will always be required to administer and protect this great asset. There is no better time to acquire the basic experience and training than in youth. The Province will be well repaid for the training given these young men in having available a ready supply of efficient personnel.

The crucial period in any forest fire is at the start. Many of our largest fires are the result of improper action in the early stages through lack of training and experience on the part of foremen and fire-fighters. There is great need for small, well-trained crews of fire-fighters ready, like city brigades, for instant dispatch and action on small fires. Prompt suppression of one fire that otherwise would become large would amply repay the cost of maintaining several such crews, regardless of work they might do on improvements.

The use of crews under the Young Men's Forestry Training Plan for initial fire action would accomplish the purposes of training, useful occupation, great reduction in damage by fire, and development of numbers of expert fire-fighters in the community.

Communication is of utmost importance in forest protection. Prompt reports of incipient fires must be received and the fighting of fires is greatly facilitated by good communication with the base of supply.

Within recent years, great advances in the use of radio have been made in the United States. Their success in the forests has led to experiments in British Columbia that show great promise. Further work will be done with the confident expectation that cheap systems of communication can be developed. Already, lookout stations have been operated successfully by radio. If reliable sets can be developed, the economy is apparent, for the cost of one or two miles of telephone-line will buy a complete two-way radio unit.

The results of reductions in staff and neglect of improvements subsequent to 1931 have been very apparent in 1936. In the Nelson District, 73 per cent. of the area burned over and 88 per cent. of the total damage was attributable to only four fires that occurred in areas formerly covered by the organization. It is safe to say that had there been available the organization and improvements in force prior to 1932, a large part of this heavy damage might have been averted.

Throughout the Kamloops District large areas of lodgepole-pine forests have been killed by bark-beetles. The dead trees have become tinder-dry and ultimately blow down, forming impenetrable jungles of highly inflammable material. Unfortunately, the areas so affected comprise, in large part, the summer grazing range for cattle. This dead timber has become so great a deterrent to stock grazing that many fires are deliberately set in order to open up the range. Actual timber values at stake are low, but the problem of protection of private property, such as hay-fields and stacks, buildings, fences, and cattle, becomes of prime importance.

This problem will be with us for many years to come and innocent parties will undoubtedly suffer. Some degree of protection must be furnished the threatened ranchers.

This again raises the point that the Forest Protection Fund, which is not designed to furnish protection to property other than forests, is called upon for expenditures for the protection of other forms of private property. Such expenditures reduce, by the exact amount involved, the funds available for protection of the forest resources of the Province.

Fire-control, involving the three divisions of prevention, detection, and suppression, is one of the most complicated and difficult branches of the foresters' science. For economic reasons it has not been possible heretofore to develop research facilities and personnel, but a start was made in 1936. One graduate Forester was assigned to fire-control research, the results of whose studies into the causes, behaviour, influencing factors, and means of suppression of fires will undoubtedly be of great benefit.

The tabulations of fire causes continue to show the general public, especially those using the forests for recreation, to be the starting agency for most of the fires. In 1936, campers, travellers, and smokers caused 37 per cent. of the outbreaks, while the ten-year average for the same causes is 36 per cent.

These fires are, of course, preventable. During the year, emphasis was placed on the detailed analysis of particular human agencies, localities, and possible means of teaching care with fire. The greater the localization of public relations effort the better the effect will be, and so newspaper articles and public addresses of local appeal were prepared, motion pictures shown, and personal contact made by the fieldmen. A start was made in preparation of motion pictures with local as well as general application, showing the disastrous effects of fires by definite causes. Such methods of visual education for particular localities with causes common to those localities should have valuable results in fire-prevention.

Expenditures in 1936 from the Forest Protection Fund were kept within our income, but at the cost of heavy damage to forest property. The increase in the fund voted by the Legislature for 1937 will help materially to increase efficiency, although the total available will still be less than adequate.

Detailed statistics of the fire season are given in the following pages.

Fire Occurrences by Months, 1936.

Forest District.	April.	May.	June.	July.	August.	Sept.	Oct.	Total.
Vancouver	13	48	20	41	163	27	.....	312
Prince Rupert	4	25	4	4	5	1	.....	43
Fort George	2	19	47	22	9	4	1	104
Kamloops	7	65	71	152	142	13	3	453
Nelson	8	131	78	190	162	44	22	635
Totals	34	288	220	409	481	89	26	1,547
Ten-year average, 1927–36	73	203	195	436	562	163	14	.....

Number and Causes of Fires in Province, 1936.

Forest District.	Lightning.	Campers.	Railways Operating.	Smokers.	Brush-burning (not Railway-clearing).	Road and Power- and Telephone-line Construction.	Industrial Operations.	Incendiarism.	Miscellaneous (Known Causes).	Unknown Causes.	Total.	Per Cent. of Total Fires in Province.
Vancouver	31	52	28	103	17	....	22	37	18	4	312	20.17
Prince Rupert	6	10	1	3	18	1	....	1	2	1	43	2.78
Fort George	44	14	2	9	18	1	3	2	3	8	104	6.72
Kamloops	162	85	16	70	9	2	3	9	87	10	453	29.28
Nelson	281	95	34	136	16	2	1	25	42	3	635	41.05
Totals	524	256	81	321	78	6	29	74	152	26	1,547	.....
Per cent.	33.88	16.55	5.24	20.75	5.05	0.38	1.87	4.78	9.82	1.68	.....	100.00
Ten-year average, 1927–36	447	287	165	298	132	16	45	129	99	25	.....	.....

Damage to Property other than Forests, 1936.

Forest District.	Forest Products in Process of Manufacture.	Buildings.	Railway and Logging Equipment.	Miscellaneous.	Total.	Per Cent. of Total.
Vancouver	$2,096.00	$300.00	$4,487.00	$242.00	$7,125.00	10.76
Prince Rupert	.....	15,130.00	25,000.00	43.00	40,173.00	60.69
Fort George	18.00	460.00	.....	2,260.00	2,738.00	4.14
Kamloops	247.00	260.00	.....	1,994.00	2,501.00	3.78
Nelson	5,012.00	1,255.00	5,500.00	1,885.00	13,652.00	20.63
Totals	$7,373.00	$17,405.00	$34,987.00	$6,424.00	$66,189.00	100.00
Ten-year average, 1927-36	$61,271.00	$35,253.00	$56,718.00	$12,483.00	$135,727.00	.....

Number and Causes of Forest Fires for the Last Ten Years.

Causes.	1936.	1935.	1934.	1933.	1932.	1931.	1930.	1929.	1928.	1927.	Total.
Lightning	524	173	320	285	336	475	892	638	322	512	4,477
Campers	256	217	312	234	230	470	344	358	274	182	2,877
Railways operating	81	65	103	77	156	295	149	267	282	185	1,660
Railways under construction	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	9
Smokers	321	289	415	197	197	435	294	387	294	163	2,992
Brush-burning (not railway-clearing)	78	127	117	77	108	243	171	167	149	78	1,315
Road and power- and telephone-line construction	6	11	10	7	18	44	29	22	13	7	167
Industrial operations	29	45	41	32	17	57	39	65	80	50	455
Incendiarism	74	72	65	65	127	355	262	139	103	36	1,298
Miscellaneous (known causes)	152	97	188	90	64	96	68	100	84	52	991
Unknown causes	26	15	19	18	13	48	23	36	41	19	258
Totals	1,547	1,111	1,590	1,082	1,266	2,518	2,271	2,188	1,642	1,284	16,499

Fires classified by Place of Origin and Cost of Fire-fighting, 1936.

Forest District.	Total Fires.	Originated on vacant Crown Land and Lands paying F.P. Tax.	Originated on Lands not paying F.P. Tax.	Extinguished without Cost.			Cost Money to extinguish.								Total Forest Service Costs in fighting Fire.		Average Cost per Fire.
				Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in Province.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in Province.	Cost less than $100.	Cost $100 to $1,000.	Cost $1,000 to $5,000.	Cost $5,000 to $10,000.	Cost over $10,000.	Dollars.	Per Cent. of Total spent in fighting Fires in Province.	Dollars.
Vancouver	312	96	216	199	63.78	12.87	113	36.22	7.30	92	19	2	.....	.....	12,584.31	9.66	40.33
Prince Rupert	43	7	36	29	67.44	1.87	14	32.56	0.90	13	1	.....	.....	.....	431.14	0.33	10.02
Fort George	104	59	45	64	61.54	4.14	40	38.46	2.58	35	5	.....	.....	.....	2,911.18	2.23	27.99
Kamloops	453	307	146	309	68.21	19.98	144	31.79	9.30	119	23	2	.....	.....	13,391.11	10.28	29.56
Nelson	635	576	59	350	55.12	22.63	285	44.88	18.43	208	55	18	3	1	100,973.66	77.50	159.00
Totals	1,547	1,045	502	951	.....	61.48	596	.....	38.52	467	103	22	3	1	130,291.40*	100.00	84.22
Per cent.	100.00	67.54	32.46	61.48	.....	.....	38.52	.....	.....	78.36	17.29	3.69	0.50	0.16	.....	.....	.....
Ten-year average, 1927–36	1,649	945	704	835	.....	.....	814	.....	.....	606	162	38	4	3	182,970.00	.....	.....

Cost to other parties (247 cost fires), $34,651; cost to Forest Branch (596 cost fires), $130,291.40.

* Cost correct to date. Subject to later revision.

Detailed final costs are published one year in arrears in the table of "Expenditure by Districts" in each annual report.

Fires classified by Size and Damage, 1936.

Forest District.	Total Fires.		Under ¼ Acre.			¼ to 10 Acres.			Over 10 Acres in Extent.			Damage.		
	Number.	Per Cent. of Total Fires in Province.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Under $100.	Between $100 and $1,000.	Over $1,000.
Vancouver	312	20.17	159	50.96	20.20	119	38.14	25.32	34	10.90	11.73	300	10	2
Prince Rupert	43	2.78	16	37.21	2.03	13	30.23	2.77	14	32.56	4.83	38	4	1
Fort George	104	6.72	49	47.12	6.22	29	27.88	6.17	26	25.00	8.96	94	5	5
Kamloops	453	29.28	174	38.41	22.12	145	32.01	30.85	134	29.58	46.20	402	37	14
Nelson	635	41.05	389	61.26	49.43	164	25.83	34.89	82	12.91	28.28	592	25	18
Totals	1,547	100.00	787	.....	100.00	470	.....	100.00	290	.....	100.00	1,426	81	40
Per cent.	100.00	.....	50.87	.....	.....	30.38	.....	.....	18.75	.....	.....	92.18	5.24	2.58
Ten-year average, 1927–36	1,649	.....	721	.....	.....	565	.....	.....	362	.....	.....	1,493	108	58

Causes, Cost, and Damage, 1936.

Causes.	No.	Per Cent.	Cost.	Per Cent.	Damage.	Per Cent.
Lightning	524	33.88	$64,164.04	49.25	$1,046,017.91	88.98
Campers	256	16.55	27,514.24	21.12	44,615.91	3.80
Railways operating	81	5.24	477.97	0.36	1,323.12	0.12
Smokers	321	20.75	21,678.70	16.64	14,330.44	1.22
Brush-burning (not railway-clearing)	78	5.05	874.32	0.67	10,531.75	0.89
Road, power, telephone, and telegraph	6	0.38	2.61	.....	120.25	.....
Industrial operations	29	1.87	2,611.39	2.00	8,965.59	0.76
Incendiarism	74	4.78	7,561.23	5.80	27,273.38	2.32
Miscellaneous (known causes)	152	9.82	3,795.35	2.92	20,911.53	1.78
Unknown causes	26	1.68	1,611.55	1.24	1,572.60	0.13
Totals	1,547	100.00	$130,291.40	100.00	$1,175,662.48	100.00

Prosecutions for Fire Trespass, 1936.

Forest District.	Information laid.	Contravention of Section 96 of "Forest Act."	Contravention of Section 114 of "Forest Act."	Contravention of Section 100 of "Forest Act."	Burning without Permit.	Section 515, Criminal Code.	Failing to report Fire.	Fines.		Served sentence in Gaol.	Suspended Sentence.	Cases dismissed.	Cases pending.	Cases withdrawn.
								No.	Amount.					
Vancouver	7	1	2	3	.....	.....	1	4	$125.00	.....	2	.....	.....	1
Prince Rupert	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort George	2	.....	.....	.....	2	.....	.....	1	25.00	1	.....	.....	.....	.....
Kamloops	3	.....	.....	.....	2	1	.....	2	50.00	1	.....	.....	.....	.....
Nelson	6	1	2	.....	3	.....	.....	2	50.00	2	1	.....	1	.....
Totals	18	2	4	3	7	1	1	9	$250.00	4	3	.....	1	1
Ten-year average, 1927–36	23	.....	.....	.....	.....	.....	.....	14	$395.00	3	3	2	.....	.....

DAMAGE CAUSED BY FOREST FIRES, 1936.

Forest District.	Merchantable Timber destroyed or damaged.				Valuable Reproduction.		Cut-over Land, Unmerchantable Timber, Old Burn, not restocking.		Grazing Range.		Area Slash burned.	Grand Totals.					
	Area.	Quantity killed.	Quantity salvable.	Net Stumpage Loss.	Area.	Estimated Present Damage.	Area.	Estimated Damage.	Area.	Damage.	Area burned.	Area.		Quantity.		Damage.	
	Acres.	M. Ft. B.M.	M. Ft. B.M.	$	Acres.	$	Acres.	$	Acres.	$	Acres.	Acres.	Per Cent.	M. Ft. B.M.	Per Cent.	$	Per Cent.
Vancouver	877	4,270	1,998	2,013	445	2,011	8,829	427	31	1	1,340	11,522	2.64	4,270	0.43	4,452	0.41
Prince Rupert	60	147	80	215	224	218	12,207	456	1,018	51	6	13,515	3.09	147	0.01	940	0.08
Fort George	2,244	10,169	9,000	2,885	1,784	5,922	9,253	1,951	11	1	39	13,331	3.05	10,169	1.04	10,759	0.98
Kamloops	16,577	34,043	4,095	14,406	27,781	40,948	85,831	20,722	6,918	387	2,623	139,730	31.96	34,043	3.47	76,463	5.90
Nelson	83,669	932,808	23,814	909,520	35,111	103,278	138,763	4,051	198	10	1,304	259,045	59.26	932,808	95.05	1,016,859	92.63
Totals	103,427	981,437	38,987	929,039	65,345	152,377	254,883	27,607	8,176	450	5,312	437,143	100.00	981,437	100.00	1,109,473	100.00
Per cent.	23.66	100.00	4.42	83.75	14.95	13.73	58.30	2.48	1.87	0.04	1.22	100.00	.....	.....	.....	100.00	.....
Ten-year ave., 1927–36	70,924	331,151	53,907	326,462	101,215	302,686	243,345	64,661	21,598	1,058	18,860	455,944	.....	331,151	.....	694,958	.....

COMPARISON OF DAMAGE CAUSED BY FOREST FIRES IN LAST TEN YEARS.

	1936.	1935.	1934.	1933.	1932.	1931.	1930.	1929.	1928.	1927.	Total for 10 Years.
Total number of fires	1,547	1,111	1,590	1,082	1,266	2,518	2,271	2,188	1,642	1,284	16,499
Area burned (acres)	433,902	47,871	638,690	301,486	421,297	994,979	602,675	909,620	106,977	101,944	4,559,441
Standing timber destroyed or damaged (M. ft. B.M.)	932,808	26,113	817,125	123,815	269,317	210,173	390,978	272,024	24,069	86,176	3,152,598
Amount salvable (M. ft. B.M.)	23,814	14,359	179,358	21,926	15,057	41,808	25,216	107,049	9,060	44,834	482,481
Damage to forests	$1,109,473	$68,399	$888,607	$308,964	$514,664	$1,477,181	$1,408,183	$941,738	$103,001	$141,102	$6,961,312
Damage to other forms of property	$66,189	$221,144	$104,877	$146,758	$57,030	$326,305	$337,909	$226,919	$95,534	$74,606	$1,657,271
Total damage	$1,175,662	$289,543	$993,484	$455,722	$571,694	$1,803,486	$1,746,092	$1,168,657	$198,535	$215,708	$8,618,583

Burning Permits, 1936.

Forest District.	Clearing Agricultural Land.				Clearing Logging-slash.				Clearing Railway Right-of-way.				Clearing Public Roads.				Grand Totals.			
	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.
	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.
Vancouver	3,475	4,387	6	5	46	3,627	.....	1	14	5,371	2	.....	74	318	1	.....	3,609	13,703	9	6
Prince Rupert	859	1,894	4	.....	37	39	.....	.....	15	10	1	.....	26	70	1	.....	937	2,013	6	.....
Fort George	1,466	4,341	5	5	51	79	1	2	15	1	2	.....	32	74	.....	1	1,564	4,495	8	8
Kamloops	1,239	3,248	1	1	42	490	.....	.....	14	4	2	.....	14	24	2	.....	1,309	3,766	5	1
Nelson	1,762	2,303	11	5	.....	.....	.....	.....	30	10	5	2	7	82	5	.....	1,799	2,395	21	7
Total	8,801	16,173	27	16	176	4,235	1	3	88	5,396	12	2	153	568	9	1	9,218	26,372	49	22
Per cent	95.47	61.33	55.10	72.73	1.92	16.06	2.04	13.64	0.95	20.46	24.49	9.09	1.66	2.15	18.37	4.54	100.00	100.00	100.00	100.00
Ten-year ave., 1927–36	9,466	20,802	49	26	341	7,553	5	2	97	2,140	7	.....	204	1,804	8	1	10,109	32,301	69	30

GRAZING.

Range conditions varied somewhat with location during 1936. In the southern part of the Kamloops District the spring was late and cold, while in the Cariboo and the Nelson District warm weather with plenty of rain gave the forage a good start. However, the whole range stock country suffered from midsummer drought and lack of late fall rains. The summer timber range was in better condition than the open spring range.

As a result of hard winter conditions in 1935–36, the cattle went on the range in rather poor shape, resulting in a low calf-crop. Sheep bands suffered from the midsummer drought, which was so severe that even the high mountain ranges dried up.

The pioneer period is over. The development of the range cattle and sheep industry has reached a point where practically all the best available range is in full use. Further development will be dependent upon better range-management and the use of the few remaining areas of poorer quality or accessibility. Cattle and sheep men must look to more scientific live-stock and range management for profits rather than to greater numbers under old-fashioned range practices.

This range situation has been apparent for some time. It was plain that management must soon be instituted on Crown ranges, and so, in 1932, a definite programme of range reconnaissance was commenced. Since then a total area of over 1¾ million acres has been examined, its condition and capacity determined, and management and improvement plans outlined. As a result, definite plans of range-management over large areas are being followed in several instances, with resultant improvement of range and stock conditions.

In 1936 a total area of 244,000 acres was examined. This work will be continued until all the available range has been covered. Periodic re-examinations will be necessary as a check on the management and to appraise changing conditions.

Range-management plans can be carried out only through the co-operation of the stockmen. Stock Associations recognized under the " Grazing Act " are given much power in self-government on the range and the results are generally beneficial. Meetings are held regularly with all associations and range problems settled promptly. There are now twenty-two associations co-operating actively in range-management.

Research was continued on the Tranquille area by the Dominion Range Experiment Station. It will be some years before results will be finally available, but our officers are keeping in close touch with the work and will derive benefit as it proceeds.

The question of Indians grazing their stock on Crown range without permit has been given some attention. It has been found very difficult to have them conform to the " Grazing Act," largely because of their nomadic habits and irresponsible nature. Under encouragement by the Department of Indian Affairs, the Indians are developing large herds of cattle that encroach on Crown range. This important question must soon be settled in the interests of all parties concerned.

The campaign against foot-rot in sheep was continued in co-operation with the Department of Agriculture. The disease is becoming widespread and causing heavy losses. Efforts will be continued to control it.

Market Conditions.

Beef prices were no better in 1936 than in 1935 and in many cases were worse, top steers selling at 3½ to 4 cents per pound at best. The improvement that had been expected because of the reduction in the United States tariff did not materialize. The average return to the rancher is still not sufficient to meet expenses and ranch upkeep.

Lamb and wool prices were somewhat better than in 1935, spring lambs selling from $6.75 to $7.25 and the best grades of wool from 17 to 17½ cents per pound. This is about 5 cents better to the grower than in 1935. Stocks are low in the larger consuming markets and still higher wool prices are forecast for 1937.

Live Stock on Crown Ranges.

The number of live stock permitted on Crown ranges during the past four years was as follows:—

	Cattle and Horses.	Sheep.
1933	58,770	34,329
1934	69,960	36,569
1935	60,864	36,902
1936	77,137	46,084

Collection of grazing fees during the calendar year 1936 amounted to $11,043.75.

Range Improvements.

The closer utilization of the available range incident to increasing herds requires more improvements in the way of drift-fences and water development. This need will continue until all the available range is completely improved. The falling of insect-killed timber over vast areas of the Interior is reducing the available range and making other large areas inaccessible. This requires the clearing of many miles of trails and driveways to make the range accessible.

Once a big factor in range-improvement plans, the fencing of mud-holes is now in little demand. This is due to the series of wet years experienced recently. Water-holes and ponds have been filled up and swamps have become lakes again, so that cattle can get to drinking-water without being caught in the bogs.

The large bands of wild horses that once roamed and destroyed the ranges have been broken up and largely eliminated. There are always a few small bunches in existence to form a nucleus for larger destructive bands and constant attention will have to be devoted to this problem. In 1936 the wild-horse problem was handled through round-up rather than shooting.

During 1936 a larger programme of improvements was undertaken than in the previous year. In all, $4,455 was expended on range improvements, covering 85 miles of trails, 13 miles of drift-fences, 3 bridges, 8 holding-grounds, 5 water developments, 3 breeding-pastures, 1 cattle-guard, and 6 mud-holes.

PERSONNEL DIRECTORY.

Victoria Office.

E. C. Manning	Chief Forester.
C. D. Orchard	Assistant Chief Forester.
E. B. Prowd	Forester—Management.
G. P. Melrose	Forester—Protection.
F. D. Mulholland	Forester—Surveys.
C. D. Orchard	Forester (Acting)—Research.
N. F. Pite	Chief Accountant.
S. W. Barclay	Royalty Inspector.

District Foresters.

R. C. St. Clair	Vancouver.
A. E. Parlow	Prince Rupert.
E. E. Gregg	Prince George.
C. J. Haddon	Kamloops.
R. E. Allen	Nelson.

Supervisor of Scalers.

William Byers	Vancouver.

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