

MAINE STATE LEGISLATURE

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PUBLIC DOCUMENTS

OF THE

STATE OF MAINE

BEING THE

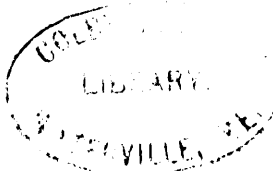
REPORTS

OF THE VARIOUS

PUBLIC OFFICERS, DEPARTMENTS
AND INSTITUTIONS

FOR THE YEAR 1920

VOLUME 1



12th AND 13th REPORTS
OF THE
FOREST COMMISSIONER
OF THE
STATE OF MAINE

1920

STATE OF MAINE

To His Excellency, Carl E. Milliken, Governor of Maine:

I herewith submit my report as Forest Commissioner for the years 1917, 1918, 1919 and 1920.

FORREST H. COLBY,
Forest Commissioner.

FORESTRY DEPARTMENT

Forest Commissioner, FORREST H. COLBY, Bingham, Maine

Deputy Forest Commissioner,

NEIL L. VIOLETTE, Augusta, Maine

Clerk and Stenographer, LILLIAN J. COLEMAN, Augusta, Maine

Bookkeeper,

HERBERT A. FOLSOM, Augusta, Maine

Director of Public Instruction in Forestry,

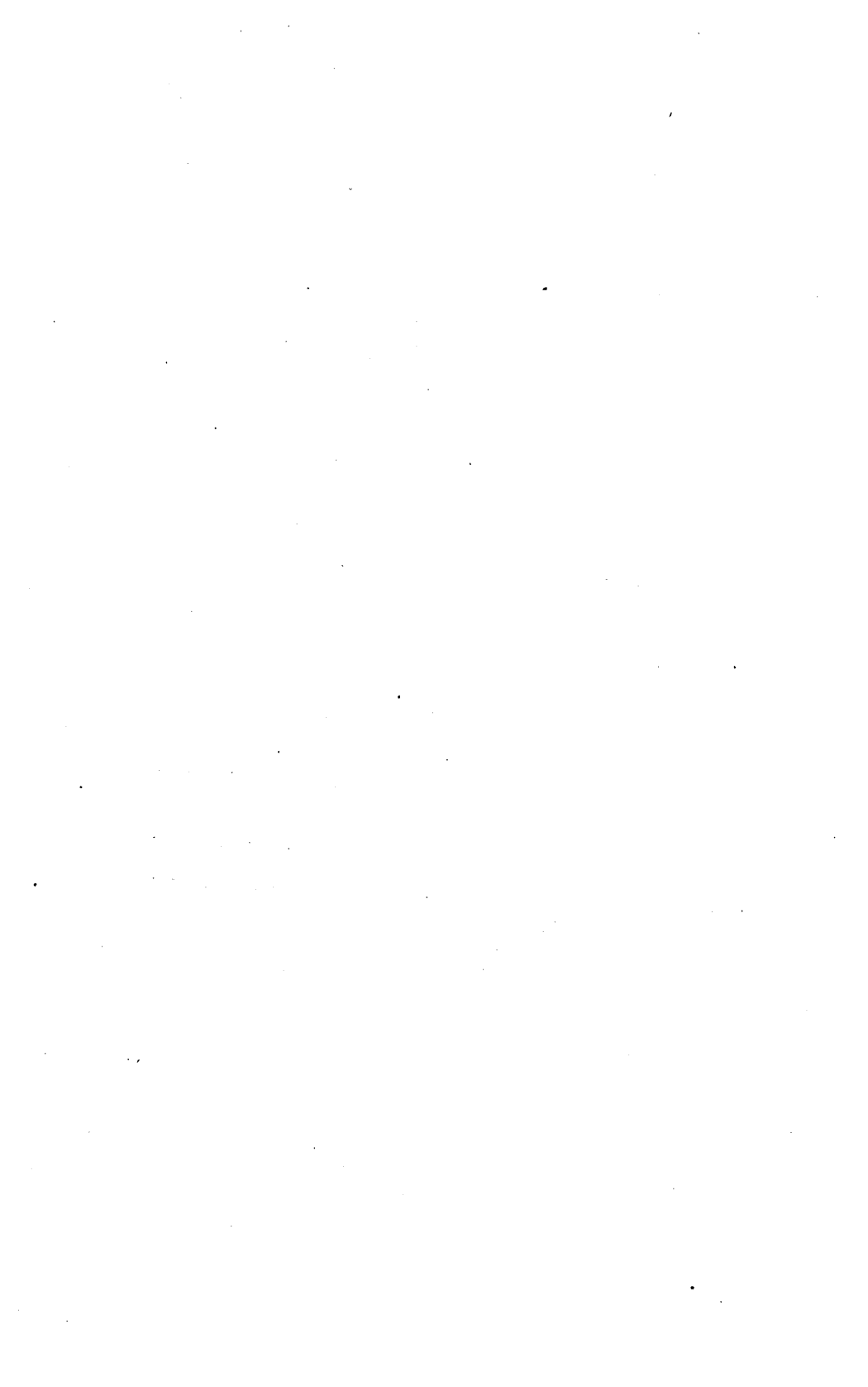
PROF. JOHN M. BRISCOE, Orono, Maine

Associate Professor of Forestry,

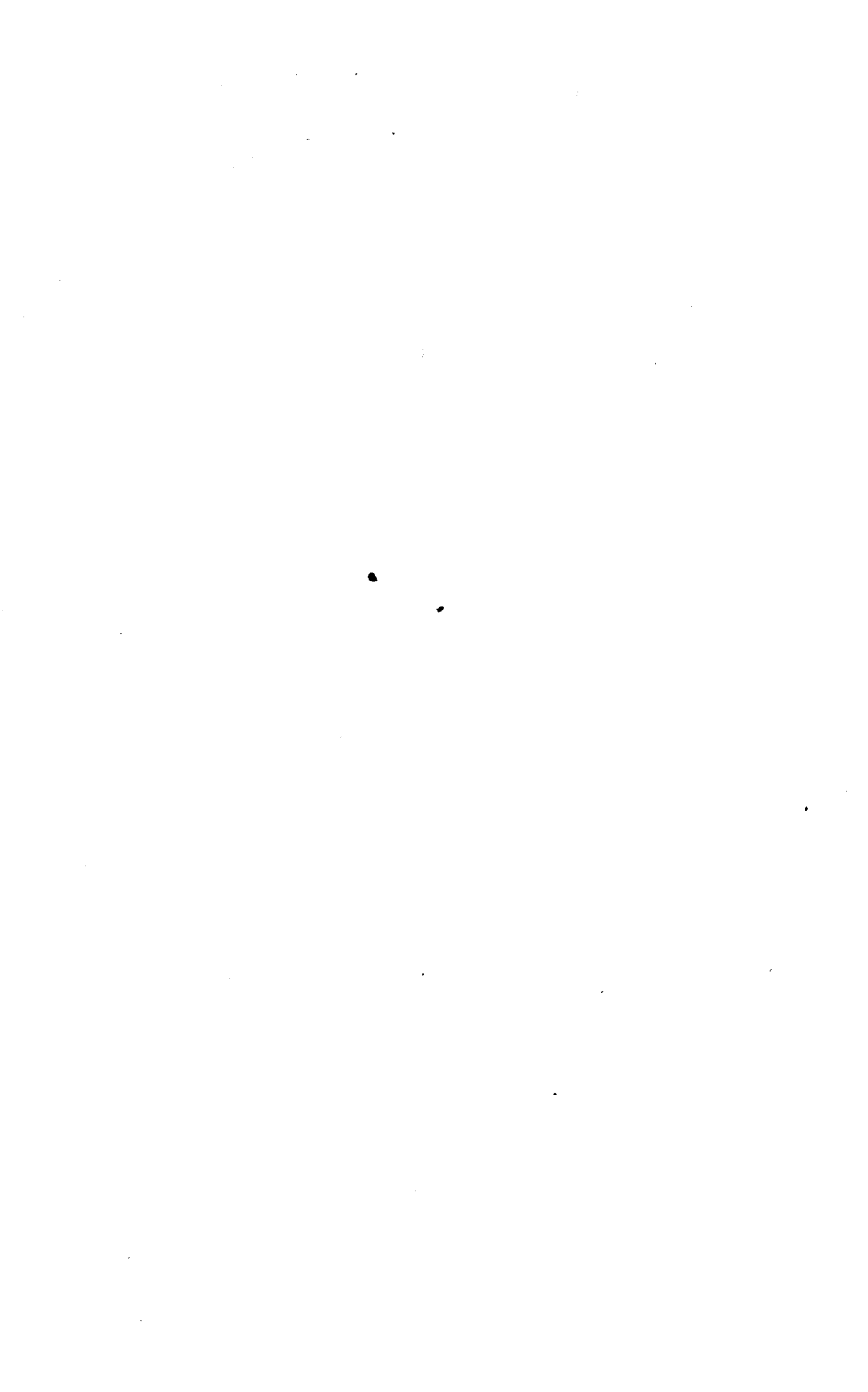
PROF. C. W. L. CHAPMAN, Orono, Maine

Inspector of Slash,

KENNETH F. LEE, Augusta, Maine



1917



MAINE FORESTRY DISTRICT

FINANCIAL STATEMENT

December 31, 1917.

RECEIPTS

Balance on hand, Jan. 1, 1917	\$27,556 85
1917 assessment	82,935 71
Interest on deposits	90 62
Miscellaneous income	248 09
Total receipts	\$110,831 27

EXPENDITURES

Expense of fire protection during season of 1917 (for detail see water shed expense)	\$77,627 92
Balance December 31, 1917	\$33,203 35

EXPENDITURES—MAINE FORESTRY DISTRICT

	St. John	Penobscot	Kennebec	Androscoggin	St. Croix Machias etc.	Total
Chief Wardens.....	\$6,883 35	\$4,946 11	\$3,052 88	\$315 32	\$832 41	\$16,030 07
Deputy Wardens.....	552 10	405 80	252 85	-	67 25	1,278 00
Lookout Expenses.....	4,219 26	6,934 80	10,394 71	2,290 28	3,749 33	27,588 38
Patrol Expenses.....	11,475 93	6,811 82	596 32	1,058 75	218 45	20,161 27
Fire Expenses.....	561 15	476 20	59 10	-	168 96	1,265 41
Tools and Supplies.....	1,683 28	2,836 50	2,782 78	225 49	1,208 70	8,736 75
Adm. Charges.....	426 09	426 01	426 95	440 48	436 29	2,155 82
Misc. Charges.....	79 80	93 02	79 80	79 79	79 81	412 22
	\$25,880 96	\$22,930 26	\$17,645 39	\$4,410 11	\$6,761 20	\$77,627 92

FEDERAL EXPENDITURES

Lookout Expenses.....	\$811 00	\$1,505 00	\$2,156 50	\$134.50	\$1,467 63	\$6,074 63
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LOOKOUT STATIONS OPERATED		Fires reported by same
*No. 1,	Lead Mt., Twp. 28, Hancock Co.,	2
No. 2,	Pleasant Pond Mt., Caratunk Pl.,	1
*No. 3,	Attean Mt., Attean Twp. Somerset Co.,	0
No. 4,	Tumbledown Mt., Twp. 5, R. 6, W. K. R.,	0
*No. 5,	Squaw Mt., Twp. 2, R. 6, E. K. R., Piscataquis Co.	0
No. 6,	Snow Mt., Twp. 2, R. 5, Franklin Co.,	0
*No. 7,	Mt. Bigelow, Bigelow Twp., Somerset Co.,	1
No. 8,	White Cap Mt., Twp. 7, R. 10, N. W. P., East Bowdoin College Twp.,	2
No. 9,	Spencer Mt., Middlesex Grant, Piscataquis Co.	5
No. 10,	Rocky Mt., So. part Twp. 18, R. 12, W. E. L. S.,	0
No. 11,	Pogey Mt., Twp. 4, R. 9, W. E. L. S.	2
No. 12,	Otter Lake Mt., Twp. 3, R. 4, W. E. L. S.	5
*No. 13,	Mt. Chase, Twp. 5, R. 6, W. E. L. S.	23
*No. 14,	Ragged Mt., Twp. A, R. 9, W. E. L. S.,	2
*No. 15,	Mt. Kineo, Moosehead Lake,	1
*No. 16,	Mt. Coburn, Twp. 3, R. 6, B. K. P., W. K. R.	1
*No. 17,	Wesley Mt., Wesley, Washington Co.,	0
No. 18,	Depot Mt., Twp. 14, R. 16, W. E. L. S.	6
No. 19,	Soper Mt., Twp. 8, R. 12, W. E. L. S.	0
No. 20,	Round Mt., Twp. 11, R. 8, W. E. L. S.	9
No. 21,	Aziscoos Mt., Lincoln Pl., Oxford Co	4
No. 22,	Mt. Katahdin, Twp. 3, R. 9, W. E. L. S.	0
*No. 23,	Bald Mt., Twp. 2, R. 3, E. K. R.	5
No. 24,	Kibbie Mt., Twp. 1, R. 6, W. B. K. P.,	0
No. 25,	Priestly Mt., Twp. 10, R. 13, W. E. L. S.	0
No. 26,	Boundary Bald Mt., Twp. 4, R. 3, N. B. K. P.	0
*No. 27,	Williams Mt., Twp. 2, R. 7, B. K. P., W. K. R.,	2
*No. 28,	West Kennebago Mt., Twp. 4, R. 4, W. B. K. P.	1
No. 29,	Lily Bay Mt., A. R. 14, W. E. L. S., Piscataquis Co.	1
No. 30,	Cobb Mt., Lee, Penobscot Co.,	0
No. 31,	Taylor Hill, Princeton, Washington Co.,	4
*No. 32,	Tug Mt., Twp. XXX, M. D., Washington Co.,	0
No. 33,	Beetle Mt., Twp. 7, R. 10, W. E. L. S.	0
No. 34,	Mattagamont Mt., T. 6, R. 8, W. E. L. S.	0
*No. 35,	Boarstone Mt., Elliottsville Pl.,	1

*Federal Stations.

LOOKOUT STATIONS OPERATED	Fires reported by same
*No. 36, Joe Mary Mt., A. R. 10, W. E. L. S.,	1
*No. 37, Cooper Mt., Cooper, Washington Co.,	6
*No. 38, Musquash Mt., Topsfield, Washington Co.	4
No. 39, Green Mt., Twp. 4, R. 18, W. E. L. S.,	0
No. 40, Mucalsea Mt., Twp. 2, R. 1, Franklin Co.,	3
No. 41, Saddleback Mt., Twp. 2, R. 1, Franklin Co.,	3
No. 42, Double Top Mt., Twp. 4, R. 10, W. E. L. S.,	2
No. 43, Nulhedus Mt., Twp. 5, R. 17, W. E. L. S.	1
†No. 44, Lawler Hill, Bendicta,	0
No. 45, Norway Bluff, Twp. 9, R. 9, W. E. L. S.	7
No. 46, No. 9 Mt., Twp. D, R. 2, W. E. L. S.,	0
*No. 47, Hedgehog Mt., Twp. 14, R. 6, W. E. L. S.,	3
*No. 48, Three Brooks Mt., Twp. 15, R. 6, W. E. L. S.	1
No. 49, Speckles Mt., Grafton, Oxford Co.,	1
No. 50, Spoon Mt., Twp. 8, R. 7, W. E. L. S.,	0
*No. 51, Mattamiscontis Mt., Twp. 3, R. 9, N. W. P.	2
*No. 52, Haystack Mt., Twp. 11, R. 4, W. E. L. S.,	0
*No. 53, Schoodic Mt., Twp. No. 9, Hancock Co.	0
No. 54, Hardwood Mt., Twp. 9, R. 18, Somerset Co.,	0
†No. 55, Almanac Mt., Lakeville Plantation,	0
No. 56, Allagash Mt., Twp. 7, R. 14, W. E. L. S.,	0
No. 57, Picked Mt., Lang Pl., Franklin Co.,	0
†No. 58, Flagstaff Mt., Flagstaff Plantation,	0

Total fires reported,

110

*Federal Stations.

†Not used.

FEDERAL LOOKOUT:

The Federal allotment was confined entirely to lookout stations as selected by the Chief of State Co-operation, as follows:

Stations	Number	Watchmen
Haystack Mt.	52	M. H. Friedman
Three Brooks Mt.,	48	J. M. Donahue
Hedgehog Mt.,	47	Herbert E. Brown
Mt. Chase,	13	Warren Darling
Joe Mary Mt.,	36	C. B. Wood
Coburn Mt.,	35	P. J. Walsh
Kineo Mt.,	15	Melville Blethen
Mattamiscontis Mt.,	51	John Stanchfield
Ragged Mt.,	14	George H. Monroe
Boarstone Mt.,	35	F. H. Small
Squaw Mt.,	5	F. P. Conley
Attean Mt.,	3	Allen Runnels
Williams Mt.,	27	Herbert Holden
Bald Mt.,	23	Richard Morris
Bigelow Mt.,	7	Lewis F. Marsh
West Kennebago Mt.,	28	Lancelot Cooper
Musquash Mt.,	38	Warren A. Bailey
Lead Mt.,	1	Hiram Corliss
Tug Mt.,	33	Paul Gardner
Wesley Mt.,	17	E. M. Hawkins
Cooper Mt.,	37	O. S. Sadler
Schoodic Mt.,	53	Howard Webb

In making appointments, it was the desire of this department and the Federal Department that the men employed last year on these mountains should be given the preference, and the only changes that have been made were occasioned by the men resigning or enlisting.

CO-OPERATION WITH THE STATE OF NEW HAMPSHIRE

In the State of Maine there are three lookout stations which overlook a large territory in New Hampshire, viz.: Aziscoos Mt. in Lincoln Plantation; West Kennebago in Township 4, Range 4, W. B. K. P., and Speckles Mt. in the town of Grafton. In New Hampshire five lookout stations overlook a large territory in this State, viz.: Black Mt., Carter Dome Mt., Kearsarge Mt., Shaw Mt. and Blue Job Mt. Early in the spring the following co-operation was entered into between this Department and the Forestry Department in New Hampshire.

The Watchmen in one State were furnished with a list of watchmen and wardens in the other State, with post office address and telephone connection. They were instructed to be on the lookout for fires across the State boundary and should a fire be discovered to get into communication with the watchmen and wardens in that territory.

In addition to this, two patrolmen were employed and paid jointly, patrolling the Little Magalloway River, the valley of Big Meadow and Hammond Brooks, which territory included land both in this State and in the State of New Hampshire.

RAILROADS

Every year the railroads of Maine have made just complaints in regard to owners leaving Slash within fifty feet of the right of way contrary to the Slash Law, and on account of these complaints this year it was thought wise to have a man investigate the situation as reported to this office by the railroads. In conjunction with the United States Forest Service, Mahlon E. Brann, of Vassalboro, was appointed Slash Inspector along the right of way of all the railroads in the State. This man travelled on the local trains and stopped wherever Slash happened to be found. He was instructed to look up the guilty ones; and if possible to have these men burn such Slash at once or set a date for burning. His reports are filed in the office of the Commissioner and it is notable that the majority of these cases have been taken care of.

As usual all the section foremen of the railroads, whose divisions were in the Maine Forestry District were commis-

sioned as patrolmen; Bangor & Aroostook Railroad having 22 men; Maine Central Railroad, 25 men; Canadian Pacific Railway, 28 men; and the Sandy River & Rangeley Lakes Railroad, 16 men. But as the season was exceptionally wet these men were not called upon to do any work.

SLASH

Early in the spring instructions were given to the Chief Wardens that special attention should be paid to the disposal of Slash alongside of all roads, according to the law. Besides taking the roads in their respective territories they were further instructed to cover the roads of the towns adjoining their territory outside of the Forestry District. According to their reports filed in this office this was attended to very carefully.

LETTERS TO THE CHIEF WARDENS PERTAINING TO THE SLASH LAW.

Dear Sir:

During the month of September I am very anxious that every Chief Fire Warden give particular attention to the enforcement of the Slash law. This means that you have to put in some time outside of your particular forestry district territory. What I mean is that you are to look after the enforcement of this law, not only in your own assigned territory, but that you will also look after it in the organized towns which are near your territory. Fearing that you may overlook your copy of the Slash law I am enclosing a copy with this letter.

Trusting that you will give this your careful attention, I am

Very truly yours,

FORREST H. COLBY,

Forest Commissioner.

Dear Sir:

In my travels over the State I have noticed that in many instances the Slash along the highway is being cut and piled back as required by the law, but not destroyed. To my mind this does not carry out the idea of the law but simply leaves a fire trap a little farther from the road. In your terri-

tory in regard to the Slash, I want you to caution Selectmen, Road Commissioners, County Commissioners, and lumber operators in particular about this. We will be glad to render you any assistance we can with this work.

Very truly yours,
FORREST H. COLBY,
Forest Commissioner.

LETTER TO THE ROAD COMMISSIONERS.

Dear Sir:

Not long ago we sent you a copy of the so-called Slash Law, and asked your co-operation in the strict enforcement of the same. In traveling over the State in the last six weeks, I find there is a great deal of Slash being left by the roadside. Of course in many instances the intention is to clean it up a little later, but in some cases it would appear to me that it has been neglected. In many places I find that the Slash has only been piled back the required fifty feet. In my mind this does not carry out the idea of the law, and it should be destroyed by burning at the proper time. The Public Utilities Commission tells us that in many of the towns, the Selectmen have been instructed to cut the bushes that are obstructing the view at railroad crossings. Of course this Slash should be taken care of as well as at the other places.

From the latter part of October until the first of December seems to be the right time to destroy the Slash. We trust that we may have your hearty co-operation along this line.

Very truly yours,
FORREST H. COLBY,
Forest Commissioner.

LETTER TO THE COUNTY COMMISSIONERS

Dear Sir:

Enclosed you will find a copy of the so-called Slash Law. In traveling over the State this summer, I have become convinced that the enforcement of this law is needed along the highways in the plantations and unorganized townships, more than in any other part of the State. I have also noticed that in some instances, in certain parts of the State, that the Slash

is being piled back fifty feet, and not being piled for burning, as it should be. This does not carry out the idea of the Law, as the Slash should be destroyed by burning at the proper time. From the middle of October to the first of December seems to be the right time to destroy the Slash.

The strict enforcement of this law will do a great deal toward the lessening of forest fires, and we hope that every County Commissioner in the State will co-operate with this department in the strict enforcement of this law.

Very truly yours,

FORREST H. COLBY,

Forest Commissioner.

Besides all these letters, 10,000 posters, stating the law in regard to the disposition of Slash alongside all the roads, were distributed in the Maine Forestry District.

Especial mention should be made here of the disposal of Slash in Township 6, Range 7, W. E. L. S. This was considered by the Chief Warden of that section a very dangerous fire trap and so it was decided to dispose of same. The Eastern Land Company, the owner of the township, and Henry Barker, the operator, were approached and they were willing to pay their proportional part of the expense in disposing of same. John E. Mitchell, Chief Warden of that section, was instructed to attend to this matter. The Slash was piled and burned at an expense of \$356.60, which we think was money well expended.

FOREST FIRES

Not since the creation of the Maine Forestry District has the State been so free from forest fires as has been the case in 1917, and never has such a small amount of money been expended in actually fighting fires as has been the case during the past summer. The sum of \$1,265.41 was all that was needed outside of the sums used in the maintenance of the regular fire warden service. This is a striking contrast to the expenditure of \$4,642.79 in 1916 and over \$40,000 in 1912.

According to our records there have been but 128 fires reported by the wardens during the past summer. Of these, only 12 required the services of men outside of the regular

patrol. The Maine Forestry District was created in 1909 and the first compilation of figures of the work done by the district was for the year 1911. The following figures therefore, which show the number of fires and the expenses of fighting them, are of more than ordinary interest:

Year	Expense of fighting fires.	Fires reported by wardens.	Fires needing outside help
1911	\$20,984 49	—	121
1912	42,971 61	—	66
1913	*32,556 79	374	74
1914	14,955 02	684	105
1915	10,398 87	374	80
1916	4,643 79	289	54
1917	1,265 41	128	12

*1913 figures includes \$15,550 in back bills of 1911.

There are approximately 14,200,000 acres of forests in the State of Maine. Of this territory about 9,500,000 acres are in the Forestry District. At the present time there are 33 active Chief Wardens, 89 patrolmen, and 58 lookout stations, practically the same number in use since 1911. These men are under regular pay and the expenses given in the tables above are what have been paid to men outside the regular force, who have been needed in fighting fires.

The years preceding 1915 were remarkable for their dryness in the woods, and forest fires were prevalent on all sides. While there have been very wet springs since that time, the summers have been comparatively dry. The spring of 1917 was unusually wet and this fact contributed immensely toward the reduction of forest fires.

FOREST FIRES 1917 IN MAINE FORESTRY DISTRICT.

Township.	Date	Acres	Cause	Damage.
Attean.....	April	30	75 C. P. R. engine.....	Not mentioned.
Indian Stream.....	May	19	1 Locomotive.....	" "
Rangeley Pl.....	May	16	2 Locomotive.....	" "
Jerusalem.....	May	19	4 Train.....	\$20 00
Edmunds.....	May	19	1½ Brush fire.....	50 00
10 R. 3.....	April	20	30 Train.....	90 00
10 R. 3.....	April	26	3 Train.....	9 00
6 R. 9, W. E. L. S.....	May	9	3½ Cigarette.....	Not mentioned
1 R. 6, E. K. R.....	May	19	5 M. C. R. R. engine....	" "
Oakfield.....	June	7	— Brush fire.....	" "
Mt. Chase.....	May	31	← Brush fire.....	" "
1 R. 5, W. E. L. S.....	July	7	1 Unknown.....	\$10 00
1 R. 5, W. E. L. S.....	July	7	2 Unknown.....	30 00
5 R. 9.....	May	19	½ Cigarette.....	Not mentioned
Jerusalem.....	July	25	½ Train.....	" "
Drew Pl.....	Aug.	2	½ Lightning.....	" "
11 R. 11.....	Aug.	6	12 Dropped match.....	\$1,000 00
6 Washington County.	Sept.	16	3½ Cigarette.....	75 00
6 Washington County.	Sept.	14	2½ Parties unknown.....	50 00
		147		\$1,334 00

SUMMARY OF FOREST FIRES 1917 IN MAINE FORESTRY DISTRICT

County	Acreage	Damage
Aroostook.....	12	\$1,000 00
Franklin.....	6½	20 00
Penobscot.....	Not estimated.	Not estimated.
Piscataquis.....	7½	40 00
Somerset.....	81	None.
Washington.....	40	274 00
	147	\$1,334 00

SUPERVISION

As stated by the Chief of State Co-operation, of Washington, the State supervision has been the weakest part of the Maine work. To remedy this, two men, commissioned as Chief Wardens, were sent on all the lookout stations, interviewing the watchmen and making a thorough inspection of the telephones, telephone lines, trails, and when possible, interviewing the patrolmen. They reported on blanks furnished them emphasizing whatever was necessary to make the work more effective and living conditions more agreeable. In every case where tools or repairs were recommended, this department made it their duty to see that the recommendations were carried out at once. These inspectors were Carlton W. Eaton, Associate Professor of Forestry at Orono, and Frost H. Williams, of Jackman, both men of wide experience in the forests of Maine.

EDUCATIONAL WORK

Besides the letters, to which reference has already been made, it was the intention of this Department at the very early part of the season that the State should be well covered with fire notices. Over twenty-nine thousand (29,000) of these notices were distributed and posted all over the State. These have greeted the eyes of visitors at every point, and as a result, the caution to beware of throwing lighted matches, cigar and cigarette stubs in the woods has been heeded better than ever before.

Some of these notices were published and circulated with the approval and in conjunction with the United States Forest Service, from which we received sixty-nine dollars and four cents (\$69.04). This amount was expended on the Slash work, outside of the Maine Forestry District.

Also the Kennebec Valley Protective Association, a private organization of the land owners in the Kennebec watershed, has distributed a series of effective warning posters throughout the extensive forested territory which is covered by its membership.

PERMANENT IMPROVEMENTS

Most of the improvements for 1917 are mentioned in the reports of the Chief Wardens, filed in this office, but here it would seem advisable to mention the permanent and main improvements.

STEEL TOWERS ERECTED

Station	Watershed	Height in feet.
Flagstaff Mt.,	Kennebec,	50
Pleasant Pond Mt.,	Kennebec,	24
Bigelow Mt.,	Kennebec,	38
*Mt. Kineo,	Kennebec,	64
Mattamiscontis Mt.,	Penobscot,	48
Mt. Chase,	Penobscot,	16
Mattagamon Mt.,	St. John	16

WOODEN TOWERS ERECTED.

Station	Watershed	Height in feet
Pocamooshine Mt.,	Machias,	58
Rocky Mt.,	St. John,	10
Aziscoos Mt.,	Androscoggin,	10
Speckles Mt.,	Androscoggin,	15

Steel towers partly erected and to be finished in 1918:

Ragged Mt.,	Penobscot,	36
Center Mt.,	Penobscot,	16
Doubletop Mt.,	Penobscot,	48
Squaw Pan Mt.,	St. John,	48

The tower on Kineo Mountain was erected in conjunction with the Kennebec Valley Protective Association, Maine Central Railroad Company, and Ricker Hotel Company.

Excepting the material for the steel tower on Kineo Mountain, the steel towers erected the past season were carried over from the administration of Hon. Blaine S. Viles. These were purchased in 1914 with the intention of erecting them in 1915.

During the past season the Forestry Department has built more than one hundred miles of telephone line, constructed fifteen camps for wardens and watchmen, and three store-houses. Forty complete telephones were bought and installed. The following new equipment and tools have been provided: Two motor boats, ten canoes, forty-eight United States flags (for lookout stations,) fourteen dozen mattocks, fifty-three dozen pails, twenty-three dozen axes and twenty-eight dozen shovels. In all about \$7,000 has been invested in tools for the Maine Forestry District this season.

Of greatest importance to the watchmen, and therefore worthy of special mention, are the fine binoculars which were purchased and distributed to the most important lookout stations in the fire district.

IMPROVEMENT ON LOOKOUT STATION MAPS.

In the early part of the year of 1914, during the administration of Hon. Blaine S. Viles, as Forest Commissioner, plans and specifications were prepared for steel towers, surmounted

by sectional wooden buildings, to be used as Fire Lookout Stations. With this report will appear cuts, showing some of these towers and buildings erected subsequent to the above date.

Following these improvements it now becomes necessary to equip these stations with an adequate map of the territory covered by each station.

With this end in view work was commenced along these lines in June of this year (1917) when Mr. Archie G. Norcross and Mr. E. S. Atkinson (the latter representing the U. S. Government) made the initial trip to Washington County, procuring the panoramic sketches from which maps were to be made of Cooper, Wesley, and Lead Mountain fire stations.

Mr. Atkinson, being familiar with this work in New Hampshire, offered such suggestions as would facilitate in making the maps, at the same time applying himself to the work of sketching.

Following this work Mr. John B. Church accompanied Mr. Atkinson to Boundary Bald and Coburn Mountains to familiarize himself with the use of the panoramic alidade, after which Mr. Atkinson returned to New Hampshire.

The field work necessary to prepare twenty sketches was carried on by Mr. Norcross, assisted by Mr. Church, until November fifth.

Owing to the severe weather, and from the fact that most of the watchmen had left their stations the field work was discontinued and the tracings of the maps thus obtained were commenced.

The stations were mapped in the following order: Cooper Mountain, Wesley Mountain, Lead Mountain, Boundary Bald Mountain, Mount Coburn, Aziscoos Mountain, West Kennebago Mountain, Saddleback Mountain, Hedgehog Mountain, Three Brooks Mountain, Norway Bluff, Williams Mountain, Boarstone Mountain, Pleasant Pond Mountain, Mount Bigelow, Schoodic Mountain, Tug Mountain, Bald Mountain, Mount Kineo, and Flagstaff Mountain.

THE RELIEF ALIDADE.

The device employed in the making and perfection of lookout maps is the same as is now in use in New Hampshire and

was designed by Frederick H. Coburn. It is as follows: Upon a tripod a table 26 inches in diameter is mounted. The table is covered with drawing paper and on this paper a circle of approximately 10 inches radius is drawn from a point in the center of the board, leaving an outside margin of three inches.

The interior of the circle is reserved for the drawing, a plane topographic map of the surrounding country with the mountain, as a center. The alidade is then placed upon the drawing board locating the pivot point, which projects from the base of the alidade, in the hole in the center of the board.

The forward arm then extends out to the 3-inch margin. After adjusting the forward sight so that the front sight will cover the highest mountain peak upon the horizon, and at the same time the needle point will fall within the outer edge of the paper, the rear sight is adjusted to include all the foreground possible and still cover the highest peak. Then the work is ready to begin.

The front sight is then adjusted to coincide with the change of contour along the mountain peaks, ridges and water lines.

The whole panorama is thus completed very accurately. Mountains in profile or relief, ridges, lakes, etc., are shown exactly as they appear from the station.

These maps will be found to be of great value in accurately locating forest fires, as the watchman has the added advantage of noting in relation to the ridges and hills at about what distance from the station the fire appears to be.

Much interest has been manifested in this work during the season of field work by tourists and sportsmen, from the fact that many mountains will appear upon these maps that do not appear on the ordinary maps.

Following the example of New Hampshire and other states copyrights have been applied for.

STATION TABLES AND EQUIPMENT

With the advent of the new maps it was found advisable to devise some method to protect them within the stations.

A new design of table has been offered by Mr. Norcross with the following features: instead of the wooden stand formerly used, galvanized angle iron has been substituted (see cut with this report.)

Mounted upon the stand is a circular wooden table 30 inches in diameter and 1 3-4 inches thick, made up of two thicknesses of planed pine boards.

Upon this table is placed a felt mat the size of the table. Covering the mat is one thickness of drawing paper upon which is placed the map.

A plate glass cover 1-4 inch thick with beveled edge fits over the map. Around the outer edge of the table and extending 1 inch over the edge of the glass is placed a galvanized iron ring set in white lead and fastened beneath the table.

This insures the map from moisture and dust, thereby preserving it for many years.

The design of the table-stand, by having sufficient lateral motion, allows an unobstructed view past window casings.

These tables and stands in conjunction with the new maps will greatly assist in locating fires quickly and accurately.

Many valuable maps and notes have been gathered during the season, which have aided materially in the making of the center maps.

OUTSIDE MAINE FORESTRY DISTRICT

FEDERAL CO-OPERATION.

The reason that Federal co-operation has been limited to the Maine Forestry District is that the State has provided no appropriation for the fire protection work for the rest of the State. Nevertheless the Federal Government has, during the last four years, made an allotment of \$1,500 in the hopes that that part of the State outside of the Maine Forestry District, would make an effort to avail itself of the Federal Aid. By the passage in 1915 of the Slash Law, which applies both to the Maine Forestry District and the rest of the State, although carrying no appropriation, the State made a step toward obtaining such aid, by the following arrangement:

SLASH

The Department was authorized to enforce the law outside the district, on time and expenses chargeable to the Land Office, up to the amount of \$1,500. This arrangement formed the basis for the co-operation by which the Federal Government employed a certain number of patrolmen to travel over a certain territory with an automobile, thus locating the Slash areas which are in violation of the Law. These men were instructed to interview the Selectmen, Road Commissioners, and the owners on whose land this Slash was found. They were further instructed to try to induce these men to destroy such Slash at once or to set a definite date for such burning. All such cases found were reported to this office on blanks furnished them. But we have found that the majority of the cases reported have by this time been taken care of and we are glad to report that the people in general are wide awake to the benefits of this movement.

Under such arrangement the sum of \$1,260.23 has been received from the Federal Government by this department.

Letter to the Municipal Officers:

Gentlemen:

I desire to again call your attention to the Slash Law, a copy of which is enclosed.

If there are any places in your town where Slash has been left within fifty feet of the right of way of any railroad or highway will you kindly notify this department at once, also giving the name and address of the responsible parties that I may take it up with them and endeavor to have them clean it up.

May I have your hearty co-operation in this matter as it is only with the aid of the town officials that this department can learn of existing conditions in the various towns and an effort made to lessen the forest fire risk.

Very truly yours,

FORREST H. COLBY,

Forest Commissioner.

Letter to Selectmen and Mayor of each Town and City in York and Cumberland Counties:

Dear Sir:

Adjoining the rights of way of the railroads, more especially the Boston & Maine, there is more or less inflammable material in certain sections. This matter has been greatly added to this season on account of quite a quantity of hay that was not cut during the haying season and is now on the ground. It would do away with a great fire menace if you would co-operate with us in having the citizens of your town burn this dead hay during the fall. If a suitable time is selected there will be no risk in doing this for there are always days during the fall that there are little flurries of snow which makes an opportune time for such work.

Very truly yours,

FORREST H. COLBY,

Forest Commissioner.

PATROL.

The Sokokis Lumber Co. of Kezar Falls is vitally interested in fire protection outside of the Maine Forestry District, especially in the town of Parsonsfield, and as evidence of its interest

contributed the sum of \$200 to start the patrol outside the Maine Forestry District. This money was turned over to the State Treasurer where a new entry was made as follows: "Money to be expended outside the Maine Forestry District." There was allotted by the Government the sum of \$200 making a joint sum of \$400 to make a start on the patrol system in that part of the State. George F. Granville was commissioned a patrolman and received the necessary instructions. He was called upon to patrol the first two weeks in August as the weather was getting somewhat dry, and was paid jointly by the United States Government and from the money deposited in the State Treasury for this purpose.

Letter to Railroads in regard to patrol outside of the Maine Forestry District:

Gentlemen:

The season of forest and woodland fires is drawing near. This department is getting everything in readiness as fast as it is possible. I presume you are aware that the Forest Commissioner has the authority to put on a railroad patrol outside of the Maine Forestry District. Notwithstanding this fact, we do not wish to dictate to the railroads, but rather feel we can meet on mutual ground and work the matter out together for the best good to the State of Maine and all concerned. I would be glad to receive any suggestions from you and hope that at an early date I may hear from your department that has this in charge.

Very truly yours,
 FORREST H. COLBY,
 Forest Commissioner.

(In answer to the above.)

Boston & Maine Railroad,
 J. H. HUSTIS, Temporary Receiver,
 Department of Fire Claims.
 Boston, Mass., April 6, 1917.

MR. FORREST H. COLBY,
 Forest Commissioner,
 Augusta, Maine.

Dear Mr. Colby:

We have your letter of the 3d instant. We do appreciate the powers of the Forest Commissioner and are glad to state

that they have helped us materially in the matter of fire prevention.

As you undoubtedly know, we have three gasoline cars which patrol our tracks on the Western between Rollinsford and Rigby, and four on the Eastern between Portsmouth and Scarborough, and in addition our section crews are on the alert for fires. These patrol cars are equipped with a fire extinguisher, broom, pail and shovel.

We have been making an effort to have owners of land contiguous to our right of way remove all inflammable material by burning a strip as wide as possible from our right of way fence and to keep the Slash, etc., piled back in accordance with the law of your State. Where they have refused to do it, our section foremen have been trying to get permission, and we are glad to state we are meeting with some success. The people are gradually learning the value of fire prevention.

We are sure that the spark arresters and ashpans of our locomotives are receiving constant examination and we believe they are in first class condition.

One suggestion I can make to you in the interest of fire prevention is that owners of pasture-land, mowing-land, and the like, should be required to burn a strip say 100 feet wide along our right of way fence, or let it be understood that we have permission to do so. There are many cases where such land fronts a grove of pine and if the grass is not burned over each spring and fall there is danger from fire. The owners of land alongside the railroad can do a whole lot to prevent fires.

(Signed)

Yours truly,

E. A. RYDER, Commissioner.

LOOKOUT STATIONS.

This Department has endeavored for the last four years to interest the towns and cities in building lookout stations, as they are proving to be the most efficient way to protect our forests from fires. In 1916 the towns of Alfred, Limerick, Shapleigh and Waterboro appropriated \$50 each for the purpose of erecting a station on Ossipee Mt. With a like amount appropriated by the Federal Government this movement seemed to be assured. But the party who owned the top of the mountain wanted such an exorbitant price for the privilege of erecting

such a station that the plan fell through. In the spring this department will again make a strong effort to establish a station on that particular mountain and on Agamenticus Mountain.

FOREST FIRES

Under the present law the Selectmen of towns and the Chief Engineer of the cities, are the Forest Fire Wardens in their respective places. These men are supposed to report to this department, on blanks furnished them, all forest fires of more than one acre in extent, stating to the best of their information the area burned over and the damage done, together with the probable amount of property destroyed, etc. (See Sec. 43 herein.)

This law is not compulsory, but should be made so, as it is a well known fact that many woodland fires within the limits of towns and cities are not reported as provided by law.

FOREST FIRES OUTSIDE OF THE MAINE FORESTRY DISTRICT—1917

Township	Date	Acres	Cause	Damage
Kingfield.....	May 15	3	Locomotive.....	Not mentioned
Kingfield.....	May 17	3	Locomotive.....	\$50 00
Brownville.....	May 1	75	Locomotive.....	500 00
Hancock.....	April 27	75	Unknown.....	50 00
Scarboro.....	May 21	75	Portable mill.....	Not mentioned
Greenwood.....	May 19	5	Locomotive.....	200 00
Augusta.....	May 21	35	Brush fire.....	None
Augusta.....	May 21	15	Brush fire.....	None
Augusta.....	November 5	25	Brush fire.....	None
		311		\$800 00

PUBLIC LANDS

INVESTIGATION OF PUBLIC LANDS

Cary Plantation.

In 1911 a resolve was passed by the Legislature which reads as follows:

Resolved:—"That the Land Agent is hereby authorized to sell and convey to actual settlers thereon certain lands in Cary Plantation in Aroostook County, constituting part of the school lots of said plantation, if he deems advisable, for such price per acre and on such terms of payment as he may deem advantageous; provided, that in making sales of said lands the legal and equitable rights of persons claiming under said settlers shall be considered and preserved; and provided also that the proceeds of any sale shall be added to the school fund of said plantation."

The actual settlers have occupied these lands for years and are willing to buy, and as inquiries were coming into this office in regard to the rights of these persons, it was thought advisable to make an investigation for the school lots in that plantation.

D. H. Mooers of Houlton was engaged and make the following report:

LOT No. TWENTY-FIVE (25).

Lot numbered Twenty-Five (25) is occupied by Fred Culliff as a cattle pasture.

It has about ten (10) acres cleared in the southwest corner. About three-fourths of this lot is swamp with not much merchantable timber; about the same kind of growth as in Lot Twelve (12).

Assuming that there are eighty (80) acres in the lot, we estimate about three hundred (300) cords of spruce pulpwood, worth about the same as in Lots Twelve (12) and A-37.

On account of the rocky nature of the soil, it is not very well suited for farming.

LOT No. A-37.

Lot numbered A-37 has been occupied by Sanford R. Grant for about twenty-two (22) years. He has a small unfinished frame house; no barn. He has, according to his own statement, about six (6) or seven (7) acres under cultivation, and we estimate about ten acres cleared.

There is about one-fourth of this lot burnt and grown up to poplar trees and bushes.

The rest is low, swampy growth, with very little merchantable lumber, except about two hundred (200) cords of spruce pulpwood. The long haul to Houlton, about twelve (12) miles, the nearest market, would make this worth not more than \$1.50 per cord.

The entire lot would be worth not more than three hundred (300) dollars in its present condition. It is not a profitable farming lot, by reason of its rocky, poor soil and swamp growth.

LOT No. 12.

Lot numbered Twelve (12) is occupied by Joseph Ivey and brother, whose house is located on the International boundary line, and is but little more than a shack.

There is hardly any pretense at farming. Formerly there was a clearing of perhaps Twelve (12) acres in the northern and central parts of the lot, but it has now grown up to bushes and small spruce trees.

The ground is rocky. There is a small clearing on the east side of the lot of about four (4) acres, now occupied as a pasture by William F. Tower. We estimated that there are about ten (10) acres cleared.

About one-fourth of this lot is burned. The easterly and southerly parts of this lot are swampy, with no merchantable timber, except pulpwood.

We estimated about three hundred fifty (350) cords of spruce pulpwood at \$1.50 per cord, or \$525, based on the assumption that there are one hundred thirteen (113) acres in the lot.

On the whole it is not a very good farming lot, having been tried by one man, and no one has since occupied it for that purpose.

LOT No. A—25.

Lot No. A Twenty-five (25) is occupied by William F. Tower. He has a small barn on this lot and one other small building used as a storehouse. These buildings are not in very good condition.

He has, according to his own estimation, about twenty-five (25) acres cleared. This land is rough and rocky, and would not rate above second-class farming land.

About twenty-five (25) acres have grown up to small poplars. The remainder of the lot is low, swampy land.

Would say that there is about one hundred fifty (150) cords of spruce and fir pulp on this lot, worth \$1.50 per cord.

He is willing to pay \$200 for this lot, without further parley, having occupied this as a part of his homestead farm for the past twenty years.

LOT No. A—12.

Lot No. A Twelve (12) has been occupied by William F. Tower as a part of his homestead for more than twenty years last past. He has a small house (unfinished), and according to his own estimate, he has about eight acres cleared.

There may be twenty acres more that would make second-class farming land when cleared, though the land is rough and very rocky.

The remainder of the lot is low and swampy.

Should say that there are about three hundred (300) cords of pulpwood on this lot, worth not more than \$1.50 per cord, owing to the long haul, about twelve miles to Houlton, the nearest market.

Tower is willing to pay \$200 for this lot, and have no further parley.

LOT No. 11.

Lot No. 11 is occupied by Mrs. Nason. She has a house barn and some small buildings.

About forty-five (45) acres of land in good cultivation.

The remainder of lot is low and swampy; not much good for farming.

Would say that there is about three hundred fifty (350) cords of spruce and fir on this lot. Owing to the long haul to Houlton, the pulp would be worth about \$1.50 per cord.

Mrs. Nason has been on this lot forty-five years, and she is not willing to pay anything for a title to this lot.

Lot is worth at the present time, \$2,000.

SALE OF PUBLIC LOTS.

We have sold to William F. Tower, Lots A-12 and A-25 for \$400, as recommended in the above report, but we have not yet been able to get a settlement for the other lots, although we expect to have one in the near future.

TRESPASS ON PUBLIC LOTS

Although circular letters were sent to the local Assessors of the different plantations, asking for information in regard to trespasses on the school lots, none were reported, which speaks very highly for the inhabitants of the different plantations. They understand that no cutting should be done on these lots without a permit from the Land Agent. As we read the reports of the different Land Agents, we are led to believe that in years passed trespasses were frequent and hard to settle for two reasons, viz.: misinterpretation of the law and indistinct lines.

RETRACING AND DEFINING LINES ON PUBLIC LOTS.

In September the line between the State lot which is owned by A. G. Preston and the School lot in Plantation No. 14, was resurveyed and the matter of expense was divided equally between Mr. Preston and the State.

In May, the lines around the public lots in Bigelow Plantation resurveyed by Wm. M. Viles of Flagstaff.

STUMPAGE PERMITS SEASON 1917-18.

Permits to cut timber have been granted on the public lots of the following plantations:

Nashville, Long Pond, Langtown, Lakeville, Bigelow, Allagash (2), Hamlin, Caratunk, Coplin, Stacyville, Dallas (2), No. 21 (Hancock Co.), Moose River, Winterville, Flagstaff,

Reed, Glenwood and St. John. These permits were granted under authority given the Land Agent by Chapter 8, Sections 7 and 8 of the Revised Statutes.

ISLANDS.

The islands of the State have always been the source of much controversy and there is still much interest taken in them. The bulk of the islands in which the State had an interest have been disposed of by deed or grant. A list of unconveyed islands can be found in the report of the Forest Commissioner of 1914:

We find that in 1876 an act was passed by the Legislature authorizing and requiring the Land Agent to sell, under the direction of the Governor and Council, all the islands on the coast belonging to the State. A different stand was taken by the State in 1913, when an act was passed which read as follows: "The title of all islands located in the sea within the jurisdiction of the State of Maine, except such as have been previously granted by the State or are now held in private ownership, shall remain in the State of Maine and be reserved for public use."

Chapter 8, Section 6, of the Revised Statutes gives the Land Agent authority to lease the islands, under the direction of the Governor and Council, when the title is in the State.

For the year 1917, there has been collected and turned over to the State Treasurer the following amounts, which have accrued from stumpage permits for the winter of 1916-1917, and for camp site rentals for the year 1917.

Lakeview Plantation,	\$4,759 04
Cary Plantation,	363 00
Flagstaff Plantation,	322 59
Moro Plantation,	287 70
Highland Plantation,	231 35
Number 14 Plantation,	91 20
Winterville Plantation,	2,412 16
St. John Plantation,	629 75
Oxbow Plantation,	1,770 00
West Forks Plantation,	1,679 21
Dead River Plantation,	1,925 07
Stacyville Plantation,	1,078 50
Nashville Plantation,	28 38

Caratunk Plantation,	1,867	19
Long Pond Plantation,	6,069	82
Number 33 Plantation,	203	00
Caswell Plantation,	342	50
Moose River Plantation,	5,852	19
Cyr Plantation,	627	65
Number 21 Plantation (Hancock)	958	80
Letter E Plantation,	50	00
Township 16, Range 10, W. E. L. S.	272	65
Township 16, Range 11, W. E. L. S.,	57	62
Township 17, Range 10, W. E. L. S.,	177	36
Township 17, Range 11, W. E. L. S.,	104	57
Township 5, Range 8, W. E. L. S.,	10	00
Township 3, Range 4, W. B. K. P.	90.00	
Township 4, Range 2, W. B. K. P.,	125	00
Township 4, Range 3, W. B. K. P.,	125	00
Township 5, Range 4, W. B. K. P.,	200	00
Township 5, Range 3, W. B. K. P.,	50	00
Township 5, Range 5, W. B. K. P.,	50	00
Township 4, Range 3, W. B. K. P.,	25	00
Indian Township,	9,461	54
Islands	70	00
Office Fees,	74	50
Interest,	468	06
Fort Kent,	144	35
Total	\$43,022	75

LEASES OF ISLANDS.

The following leases have been granted and are in force, 1917:

Name of Island.	Lessee.	Term.
Sellers Island in Blue Hill Bay.	Fransworth Packing Co., Brooklin, Me.	5 years.
Hen Island, Hancock County.	William Herrick, Swan's Island.	3 years.
Islands in Great Pond Plantation 33	Lillian C. Wholl, Boston.	6 years.
Long Ledge and Unnamed Ledge. . .	Raymond A. Tinker, Swan's Island. . .	5 years.
Ledges in Seal Cove between Buckle	Frenchman's Bay Packing Co., South	
Swan's Island.	Gouldsboro.	5 years.
Weeds Ledge.	G. L. & E. W. Hardy, Deer Isle, Maine.	5 years.
Old Man's Island, Cutler, Washing-	The National Association of Audubon	
ton County.	Societies.	1 year.
The Brothers & Pulpit Rock, English-	The National Association of Audubon	
man's Bay, Washington County. . .	Societies.	1 year.

LEASES ON THE PUBLIC LOTS.

The following leases have been granted, and are in force 1917.

Township.	Portion of public lot.	Purpose.	Lessee.	Terms.
4, R. 2, W. B. K. P., Oxford County	1 acre	Camp site	Chester Sweat, Andover	5 years.
4, R. 2, W. B. K. P., Oxford County	1 acre	Camp site	Emerson McMillan, New York, N. Y.	5 years.
3, R. 3, B. K. P., W. K. R. Somerset County	All of N. E. Lot	Crops	R. V. Safford, Dead River	1 year.
5, R. 8, W. E. L. S.	Part	Camp site	McDonald & Cram, Sherman	1 year.
4, R. 5, W. B. K. P., Oxford County	Part	Camp site	George E. Nason, Wilson's Mills	1 year.
5, R. 4, W. B. K. P., Oxford County	1 acre	Camp site	Roland H. Ripley, Wilson's Mills	5 years.
Oxbow Plantation Aroostook County	1 acre	Boathouse site	Libby Bros., Oxbow	1 year.
16, R. 10, W. E. L. S., Aroostook County	2 acres	Mill site	Walter Wheelock, St. John Pl.	1 year.
4, R. 3, W. B. K. P., Oxford County	1 acre	Camp site	George W. Fanjoy, Cupsuptic	5 years.
3, R. 3, W. B. K. P., Franklin County	Part	Camp site	Kennebago Hotel Co., Kennebago	10 years.
3, R. 4, W. B. K. P., Franklin County	Part	Camp site	Kennebago Hotel Co., Kennebago	9 years.
3, R. 4, W. B. K. P., Franklin County	Part	Camp site	Ed. Grant & Son Co., Phillips	1 year.
5, R. 3, W. B. K. P., Oxford County	All N. E. and . . S. W. Lots	Camp site	Parmachenee Club, New York City	5 years.
5, R. 5, W. B. K. P., Oxford County	S. E. Lot	Camp site	Parmachenee Club, New York City	5 years.
5, R. 4, W. B. K. P., Oxford County	1 acre	Camp site	E. S. Bennett, Wilson's Mills	5 years.
5, R. 4, W. B. K. P., Oxford County	1 acre	Camp site	J. W. Bucknam, Wilson's Mills	5 years.
Letter, E. Franklin County	All	Camp site	Jeff. D. Thomas, Rumford	5 years.
4, R. 2, W. B. K. P., Oxford County	½ acre	Camp site	Thomas L. Barber, Framingham, Mass.	3 years.
4, R. 2, W. B. K. P., Oxford County	Small island, Upper Richard- son Pond, near outlet	Camp site	Phebe Downs, Three Tuns, Pa.,	3 years.
Plantation 21, Washington County	Part	Private Camp	Irving Sprague, Princeton	1 year.
Codyville Plantation Washington County	All	Hay	S. W. Hunt, Brookton	1 year.

Note.—All the permits above mentioned, that run for more than one year, were given out during the years 1915 or 1916. It is the opinion of the present Forest Commissioner that long term leases of this kind are not desirable, but that leases should be given for one year, giving the lessee the privilege of renewing in preference to leasing to any new party.

INDIAN TOWNSHIP—WASHINGTON COUNTY.

To Hon. Forrest H. Colby, Bingham, Maine.

Land Agent and Forest Commissioner for the State of
Maine:

We beg to submit a report of the estimate of lumber on Indian Township.

In making an estimate of this town we have divided it into three sections, viz.: The Eastern section, Western section, and Middle section or settlers' lots.

The Eastern section contains all of the land east of the settlers' lots; the Western section all of the land west of the settlers' lots. The Middle section or settlers' lots, comprises all lots on both sides of the Houlton road now owned by the State.

Indian Township originally contained about 20,000 acres, but after taking out the flowage of the St. Croix Paper Co.'s dam, the lots owned by private parties, waste land, etc., it now contains eight or ten thousand acres of land with lumber on it.

The large lumber on this town has been cut off with the exception of the western part of Lot No. 11—a sort of heater piece between Lots No. 9 and 13, and Lots No. 13, 17 and 19, on which quite a large amount of spruce and pine are now standing. The rest of the town is of a smaller growth of spruce, pine, fir and hemlock, also a fair lot of cedar growing in the swamps and along streams. Birch and poplar shows up well in some sections but the poplar is more scattered over the town.

We found quite an amount of lumber less than six inches breast high, composed of spruce, fir and birch, but this is scattered all over the town with the exception of a few lots and on land near the flowage on the Eastern section.

Indications show that about 40 years ago, and again about 60 years ago, there were heavy burns on Indian Township, which have since come up to a good growth of mixed timber. Those burns are noticeable along the Houlton and Grand Lake Stream roads.

In recent years there has been quite a heavy cut of black growth and poplar on this land, especially pine. These operations as a rule were not done in what we would call a "work-

man-like manner." The stumps were cut high, and the body of the tree cut off near the first limbs, leaving quite a percentage of lumber in the woods. This was especially noticeable in the poplar and pine lumber.

The lumber on this town is within easy reach of the streams that flow across the land. Near the east and west lines of Indian Township on the east, Tomah Stream flows across the northeast corner and along the east line. On the west side there is Musquash Brook, and Flipper Creek, that flow into Big Lake. Huntley Brook flows the entire length of the town near the central part into Lewey Lake. The lines on Indian Township we have newly run out, spotted over and painted white. Posts painted white in the woods and red on the roads.

Our estimates for the three sections are as follows:

EASTERN SECTION.

Spruce,	5,190,000 feet
Pine,	2,310,000 feet
Fir,	1,610,000 feet
Hemlock,	180,000 feet
Cedar,	110,000 feet

Total,	9,400,000 feet
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White Birch,	2,300 cords
Poplar,	2,250 cords

Total,	4,550 cords
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MIDDLE SECTION

On Lotted Land East and West of Houlton Road:

Spruce,	5,030,000 feet
Pine,	2,040,000 feet
Fir,	1,280,000 feet
Hemlock,	550,000 feet
Cedar,	150,000 feet

Total,	9,050,000 feet
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FOREST COMMISSIONER'S REPORT

White Birch,	3,200 cords
Poplar,	3,900 cords
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Total,	7,100 cords

WESTERN SECTION.

West of Settlers' Lots:

Spruce,	3,400,000 feet
Pine,	1,200,000 feet
Fir,	850,000 feet
Hemlock,	950,000 feet
Cedar,	450,000 feet
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Total,	6,850,000 feet
White Birch,	2,500 cords
Poplar,	1,500 cords
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Total,	4,000 cords

TOTAL ESTIMATE OF INDIAN TOWNSHIP FOR
THREE SECTIONS.

Spruce,	13,620,000 feet
Pine,	5,550,000 feet
Fir,	3,740,000 feet
Hemlock,	1,680,000 feet
Cedar,	710,000 feet
	<hr/>
Grand Total,	25,300,000 feet
White Birch,	8,000 cords
Poplar,	7,650 cords
	<hr/>
Grand Total,	15,650 cords

C. C. STEWART, Surveyor.

C. A. SPAULDING, Assistant.

WHITE PINE BLISTER RUST

REPORT OF THE WHITE PINE BLISTER RUST WORK IN THE STATE OF MAINE—1917.

The scouting work done during the summer of 1916, by G. B. Posey, Agent for the U. S. Department of Agriculture Bureau of Plant Industry, showed conclusively that the White Pine Blister Rust already had a wide distribution in Maine, and that remedial measures were imperative.

The Maine members of the Committee on the Suppression of the Pine Blister Rust in North America, present at the conference held in Washington, D. C., in December, 1916, decided that some definite steps should at once be taken to provide means for combating this disease in Maine.

They therefore addressed a letter to the Governor, petitioning him to bring the matter to the attention of the legislature then in session, and to urge the appropriation of funds for the purpose of controlling the disease. The following is a copy of the letter:

Orono, Me., January 31, 1917.

Hon. Carl A. Milliken,
Governor of Maine,
Augusta, Maine.

Sir:

The undersigned have the honor to present you the following statement of facts concerning the White Pine Blister Rust:

At the recent conference in Washington, D. C., several points in regard to this disease were brought out very clearly and generally agreed upon.

1. That the disease threatens to destroy the present stand of white pine, and is a serious menace to the growing of any future crops of this species, or any of the five-leaved pines.

2. That it has been found in Maine in sufficient quantity, and distributed over so large a territory as to merit immediate action on the part of the State authorities.

3. That eradication is probably already out of the question, but that regulation and control are still possible.

4. That remedial measures should be applied where most needed and should not be spread thinly over too large an area.

5. That the Maine Crop Pest Commission (Public Laws of 1915, Chapter 147) be called upon to carry out what measures are deemed necessary to control this disease; and that they be given whatever additional authority is necessary, and sufficient funds to carry on work of investigation, promulgation of information concerning the disease, and regulation and control where it is deemed necessary or advisable.

The so-called Crop Pest Commission was created to handle such diseases as the powdery scab of the potato. It provides for handling diseases of "any tree, shrub, vine, vegetable or other plant," and further specifically provides that "it shall include currant, gooseberry, blackberry and raspberry bushes," (the first two species of ribs, being the alternate host of the white pine blister rust.)

Up to this time investigations have been conducted in Maine only by the United States Bureau of Pathology, U. S. Department of Agriculture, chiefly for the purpose of definitely locating the infected areas. These investigations have shown that in Maine there are already five known plantations and one nursery infected with the disease. That the disease has spread to native-stock, (not plantations); and that on currants and gooseberries the disease is generally distributed throughout the entire white pine section of the State.

As soon as the disease was known to be present in Maine, the attention of the Governor was brought to the matter through the Maine Experiment Station, and again, later some action in the matter was recommended, but up to this time nothing definite has been done.

The seriousness of the situation may be appreciated when we consider that the white pine crop in the northeast is worth some \$75,000,000; and there are now over 50,000 acres of white pine plantations, which are being added to annually by some 10,000,000 seedlings. More than 5,000,000 acres of land pre-

eminently suited to growing this crop, still await planting. White pine is unquestionably the fastest growing, most easily managed, and most profitable timber tree for the region.

That the Federal Government looks upon the situation as extremely serious may be judged from the fact that at a recent meeting of the Cabinet, the Secretary of Agriculture was authorized to add an especial appropriation of \$300,000 to the general agricultural appropriation bill for the specific purpose of combating this disease.

All of the other New England and Eastern states are taking measures for the control of the disease and are asking or have already obtained appropriations for carrying these matters into effect. (From \$8,000 to \$25,000 in different states).

The disease will not stop at state lines. Co-operative and concerted action is absolutely essential for the successful control of the disease. Maine should do her part, and do it at once. Now is the time. Later may be too late.

With this end in view, having presented the above facts, we suggest that some such measure as the attached bill be presented to the legislature for their immediate attention and action.

(Signed)

FRANK E. MACE,

Forest Commissioner.

FORREST H. COLBY,

Secretary, Kennebec Valley
Protective Association.

EDGAR E. RING,

President, Maine Forestry
Association.

JOHN M. BRISCOE,

Professor of Forestry.

The Governor then requested that such a bill be drawn up and presented to the legislature, embodying the necessary measures for the complete control of the disease, and providing the necessary funds for carrying it into effect. The bill, after some changes, was finally passed, placing the administration of the work in the hands of the Forest Commissioner, and not in the Maine Crop Pest Commission as originally proposed.

This bill was passed by the seventy-eighth legislature and was signed by the Governor, April 3, 1917.

GENERAL ORGANIZATION.

The work for 1917 was confined chiefly to eradication on two control areas. The first located at Kittery Point, including some three square miles, and the second near Alfred in the center of York County, covering about five square miles.

Some scouting was done early in the season, and several scouting inspections were made over more distant parts of the State in order to get some idea of the spread of ribes infection; but most attention was given to the two selected control areas.

The scouting was done by a crew consisting of the writer, Mr. A. Strauss, the pathologist of the party, and Mr. B. R. Waterman, the latter, the owner and driver of the automobile used during the season for this work.

No new areas of pine infection were discovered, excepting in very close proximity to those found by Mr. Posey in 1916. These were at York, Elliott, Kittery, and Gerrish Island. All of which may safely be assumed to have spread from the original infection at Kittery Point, and are not to be considered as new centers of infection.

The fact that ribes infection was general throughout the State as far north as a line from Rangeley, through Greenville and Millinocket, to Houlton, was brought out by the scouting work of this summer. In fact, so general was this infection of ribes, that after the conference held at Amherst, Mass., in July, no great stress was laid on the scouting work, excepting in so far as it led to locating the outlying boundaries of the disease; and after September 15th, the men were all put on eradication work at Alfred, to fill in the places of those assigned to return to college.

It was found after trial that the most efficient method for the eradication crew, was to have them work in units of not more than four or five men and a foreman, the men traveling from six to fifteen feet apart, depending on the nature of the site and the amount of underbrush. In this arrangement, the foreman travelled back of the men in line and kept them lined up as well as checked up on any plants overlooked by the others in the crew. The line was kept by one man on the end, he breaking off branches or spotting trees as he proceeded, and the whole crew then wheeling and returning in reverse order across the

given area, the left end man retracting his line, and returning as the extreme right-hand man of the new strip.

The chief difficulties encountered were in the breaking off of the stems of ribes, and in spotting small plants in thick undergrowth. For the latter purpose, each man in the crew, including the foreman, was provided with a stout staff. This was a considerable aid both in walking and in stooping, and also in beating down brush to discover ribes.

Men for the work were not easily obtained, under the then existing war conditions. Only two of the men employed were of draft age, but both of them were drawn in the first draft, one leaving for duties in New York State, and the other remaining with the crew till the close of the season, but subject to call at any time.

THE KITTERY POINT AREA.

Work was commenced at the Kittery Point area, the men assembling there June 18 and 19. The reason for selecting this area first as an eradication and control area is obvious, for the disease has here a firmer hold and has been longer established than at any other place in Maine. It was thought that the natural advantage of having practically three sides of the area bounded by water was an important consideration; and the northern boundary of the tract was made by the railroad line of the York Harbor and Beach Railroad. It included both Gerrish and Cutt's Islands and extended from Portsmouth Harbor on the southwest to Brave Boat Harbor on the northeast. It seems that this well isolated area should make an excellent place for noting the exact effects of the eradication of ribes.

On this area of about three square miles, 13,236 ribes were destroyed, or an average of about seven plants per acre. Fifty-seven percent. of the plants destroyed were diseased. Wild gooseberry was by far the most abundant on this area, comprising over 96 percent. of the ribes. The currants destroyed were for most part cultivated plants, or cultivated species that had escaped to the woods, and some 30 plants of the flowering currant used as decorative shrubs in dooryards. On this area the wild and cultivated species were so intermingled that no attempt was made to keep the cost separate for wild and cultivated species.

Much of the area had to be gone over twice, and it is estimated that at least 90 percent of ribes have been eliminated from the area. It is the intention to start the next season's work on this same area, and to enlarge it to cover some five square miles, by taking in additional areas north of the railroad now forming the northern line or boundary.

The matter of compensation was avoided this season, most of the owners being very willing to co-operate in every way possible to save the pines, which are recognized as of much more value in every way than the few cultivated ribes destroyed. And no one offered the slightest objection to the eradication of wild ribes, whether diseased or not. No serious opposition was encountered to the policy of completely eradicating ribes on specified areas as prescribed in the State law.

No attempt was made to remove diseased pines, except in the case of small trees that were pulled up and destroyed with the ribes. The owner of the largest area of diseased pines has agreed to have them cut during the coming winter, if a fair price for the stumpage can be obtained from the local logging contractors.

THE ALFRED AREA.

The work on the Alfred area was begun on the 13th of August. The selection of this area was very largely due to the discussions at the Amherst conference, where the desirability of having at least one area of good pine land cleaned up of all species of ribes, whether or not the disease be present at the time. Such a control area, located in a true commercial pine region, where the pine is particularly valuable, would serve not only as a sample eradication area, but could also be held as a test area to prove the effectiveness of eradication measures, should the disease spread later into that particular locality.

For this purpose, no location in the State seemed to offer more advantages than the heart of York County, and Alfred was selected as the headquarters for the work in that section. Mr. E. K. Jordan, of the B. C. Jordan Lumber Company, of Alfred, offered to co-operate in every way possible, and the first work done in this section was on the lands belonging to this company.

For four days the crew did not find a single specimen of ribes, on the dry, sandy lands situated southeast of the village. The

scouting crew, however, located infected ribes within three miles of the first area, on land that was of an entirely different character both as to soil and topography. The country here was rolling, and broken up into rather sharp ridges and stream valleys. Here, particularly on the lower and more moist situation, ribes were abundant, especially the skunk currant.

In all, this area lying northwest of Alfred, and comprising some five square miles, yielded 36,370 ribes by the end of September, the close of the field season for 1917.

The percentages here were as follows:

18,900 wild skunk currant,	52%
16,071 wild gooseberry,	44%
1,399 cultivated C. and G.,	4%
Totals, 36,370	100%

This averages about 11 plants per acre for the entire area covered.

During the latter part of the season very heavy infections were found in many cases, and this, of course, in the telial stage; but no diseased pine was discovered in this region, though a careful search was made for it, not only on the eradication area, but in the whole region surrounding it, and in fact through the whole of York County.

On the Alfred area, the organization of the crew having been perfected, the work went on much better and much more rapidly than in the earlier part of the season, and much more was accomplished in a shorter time on this area than on the area at Kittery Point.

NURSERIES AND COMMERCIAL RIBES PLANTATIONS.

No nurseries were found having plants of pine with the disease, and no portion of the State can be considered as a commercial center for growing ribes. Only one area of over a single acre of ribes was found by the scouting crew. This was at York Corner, near Chase's Pond. Here both currants and gooseberries are being grown in commercial quantities for sale and for making jams and jellies. These plants had been very care-

fully sprayed and well cultivated, and showed no infection till late in the season, and then only slight infection on currants only.

The productive white pine growing region in this State includes the whole of the southern portion of the State—the entire nine southern-most counties and the southern parts of Oxford, Franklin, Somerset, Penobscot, and southwestern Washington counties, as is shown by the accompanying map.

While the ribes infection is known to extend considerably north of this area, the pine is for the most part cut in that region, and is not of so great commercial importance at the present time.

The area covered by the eradication work this summer is so insignificant when compared with the total area of the State in which pine growth is of sufficient value to justify eradication work that it must be considered rather in the light of experimental work than the beginning of any definite policy of eradication for the white pine area of the State. From the work done this summer it becomes evident that such eradication work must be confined to areas where the pine is of sufficient importance to justify such intensive work, and that half-measures are entirely futile.

It would seem that sound measures for control must be based primarily on educational efforts, first in bringing the matter to the attention of the people, and in letting them know the exact nature of the disease, and the means for combating it; and second to secure their active, individual co-operation in combating and controlling it in so far as possible.

With this end in view, a conference was held with the County Agents at Orono early in August, and since then they have been actively spreading information in regard to the disease, and circulating posters, circulars and bulletins on the subject in their several counties. They have also promised to report to this office all cases of the disease found and all suspicious looking specimens which they may obtain in their routes.

Posters have been placed in post offices and other public places in the southern counties and a colored postcard illustrating and describing the disease has been circulated in the six southern-most counties through the courtesy of the Maine Agricultural

Experiment Station. Some 10,000 of these cards will be mailed to a selected list of citizens before next spring.

The office of the Forest Commissioner and also the Forestry Department at the University of Maine, at Orono, will be active educational agencies, and the Extension Service will also aid in spreading information at clubs, granges, churches, etc

Propaganda work and educational work have been well started in this State, but they must be kept up over a period of years to become effective.

QUARANTINE ON WHITE PINE AND RIBES.

In September a quarantine was established on all ribes and five-leaved pines, so that no shipments can legally be made into this State of any of the species carrying the disease, without special permission of the Forest Commissioner.

FINANCIAL.

During the season's work the Federal Government expended some \$2,500 and the State \$2,700.65 to date. There are still several bills not yet in on the State's account for printing of posters, mailing cards, etc., ordered, but not yet delivered. Postage for mailing these will amount to some \$250 more before the end of the year.

On the Kittery Point area, the cost of eradication was excessive, partly on account of the high cost of maintenance there, and also on account of the inexperience of the crew. It amounted to as much as \$1.50 per acre, but this includes the expense of going over some parts of the area more than once.

On the Alfred area, however, the cost was reduced to about \$250 per square mile, or some 39 cents per acre. This is not an unreasonable amount for even the individual private owner to invest as insurance in preventive measures on valuable pine timber land, if the results of this year's work show that it is worth while as a means of keeping the disease out of the area.

Since the actual and definite radius of infection is not yet determined, the results are problematical; and will probably remain so for several years at least. Nevertheless, the work should be continued until some definite results, either positive or negative, are an accomplished fact.

In the opinion of the writer, any State-wide campaign for the eradication of ribes is not only out of the question from the financial standpoint, but is also impossible from the practical side. The policy of the State should be to do the pioneer work for the citizens in this vitally important problem concerning their timber lands, and then give the results all the publicity possible, so that the private owner having valuable white pine timber lands, may know what to do to protect them.

RECOMMENDATIONS.

From this year's field work, the following seem to be the important points to bear in mind in formulating plans for next year:

1. The work should begin as early in the season as the leaves are out, not later than May first in this State.

2. Expenditures should be chiefly concentrated in the employment of men for eradication work, at from \$50 to \$60 per month each. Men who are not worth the price should be promptly eliminated. Cheap labor in this work is the most expensive and the least efficient.

It will probably be easier to select a good crew next year because more time can be given to the choice of applicants. It is likely that student labor will have to be used very largely on account of the scarcity of local labor, particularly in the summer season.

The two areas already worked on should first be gone over again very thoroughly, to see the exact result of this year's work and to make sure of a complete eradication of ribes.

The area at Bath should also have attention, and a control area of not less than five square miles should be established there between Bath and Brunswick. This will require the employment of about twenty men in all, six men in each crew including the foreman, and a supervisor and his assistant to take entire charge of the three crews. In this way a much larger area could be gone over than with the single eradication crew used the past season. An automobile should be provided for this work so as to enable supervision of the three crews. With men who have had some experience in the work available, we should have less trouble in getting the work promptly under

way, and greater results for next season may reasonably be expected. If the writer has charge of the work next season, it will not be necessary to employ a pathologist, and very little time need be given to scouting. The main stress should be put on experimental control areas, and in educational and publicity measures. It would seem that by such measures alone can any permanent good results be accomplished.

Respectfully submitted,

PROF. JOHN M. BRISCOE,

October 31, 1917.

Agent.

PROCLAMATION.

By virtue of the authority invested in me by Section 6 of Chapter 178 of the Public Laws of 1917, I hereby place an embargo on the shipment into, and forbid all persons, partnerships, associations or corporations to bring into the State of Maine any Gooseberry or Currant Plant, or five-leaved Pine, commonly known as White Pine, without obtaining a permit from the Forest Commissioner under penalty of being prosecuted under Section 6 of Chapter 178 of the Public Laws of 1917.

Given under my hand this twenty-first day of September, in the year of Our Lord, One Thousand Nine Hundred and Seventeen, at Augusta, State of Maine.

FORREST H. COLBY,

Forest Commissioner.

BENJAMIN C. JORDAN FUND.

At the session of the Legislature of 1909, Benjamin C. Jordan, of Alfred, who for many years has been interested in conserving the timber lands of Maine, presented to the members the unique proposition of giving to the State the sum of \$1,000. The conditions of said gift are set forth in the following proposition, signed by Mr. Jordan:

I would like to give to the State of Maine, to be its property forever, one thousand dollars, on condition that in consideration of said gift the State shall, once in 18 years, offer five prizes to be called the Jordan Forestry Prizes, as follows:

\$500.00 1st prize.
\$250.00 2d prize.
\$125.00 3d prize.
\$100.00 4th prize.
\$25.00 5th prize.

Said prizes to be offered now by the State for the five best lots of young forest growth in the State and awarded by the State Forest Commissioner subject to the approval of the Governor January 1st, 1927, and once in 18 years afterward forever, after a careful examination of all lots competing in accordance with the following rules:

Rule 1. Each lot shall consist of one parcel of not less than ten acres in somewhat regular shape and shall be accurately surveyed and plotted.

Rule 2. The majority of said trees shall not be less than ten feet nor more than thirty feet high and not less than ten nor more than thirty years old when the prize is awarded.

Rule 3. Said forest may consist of any of the following kinds of trees, but other circumstances and conditions being equal, preference shall be given in the following order: White Pine, White Oak, Hickory, Chestnut, Hachmatack, White Ash, Yellow Oak, Red Oak, Bass, Hemlock, Spruce, Norway Pine, Pitch Pine, Cedar, Fir, Poplar, Birch, Maple, Beech and Elm.

Rule 4. All competitors for the prizes shall file in the office of the State Forest Commissioner, their intention to compete, together with a correct and definite survey and plan of the lot, ten or more years before each award, and when such notice has been filed, said lot shall be eligible although the ownership may have changed.

Rule 5. Myself and my heirs shall have the same right as others to compete for the prizes.

Rule 6. In awarding prizes, other circumstances being equal, the following conditions shall be considered in the order named:

(a) Right number of trees per acre. (b) Even distribution over whole lot. (c) Health and thriftiness of trees. (d) Adaptation of the varieties of trees to the soil in which they stand. (e) Uniformity of size of trees. (f) Size of trees. (g) Size of the lot.

BENJAMIN C. JORDAN.

Alfred, Maine, January 14, 1909.

In accepting the offer the Legislature passed the following resolve:

Resolved: That the offer of Benjamin C. Jordan of Alfred, Maine, giving to the State of Maine, one thousand dollars, to be known as the Jordan fund, conditions of which are herewith annexed, be hereby accepted and the conditions of which shall be carried out by the State Forest Commissioner.

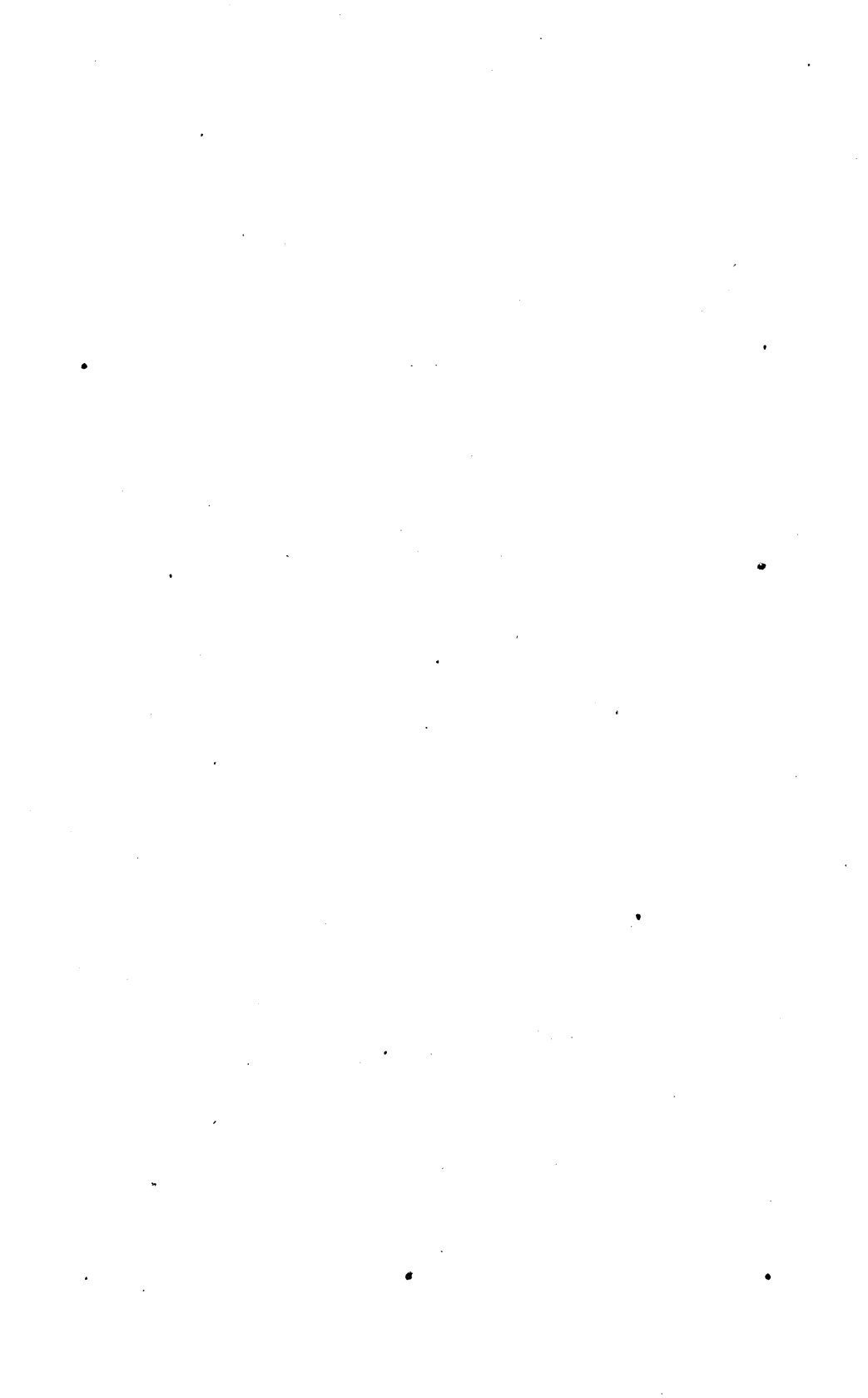
The \$1,000.00 was deposited with the State Treasurer by Mr. Jordan, as required during the year 1909.

To this date the following competitors have filed their intentions with the Forest Commissioner: Samuel Cony Manley, Augusta; Gardiner Forestry Co., Gardiner; Howard Gilpatrick, Hardwick, Mass.

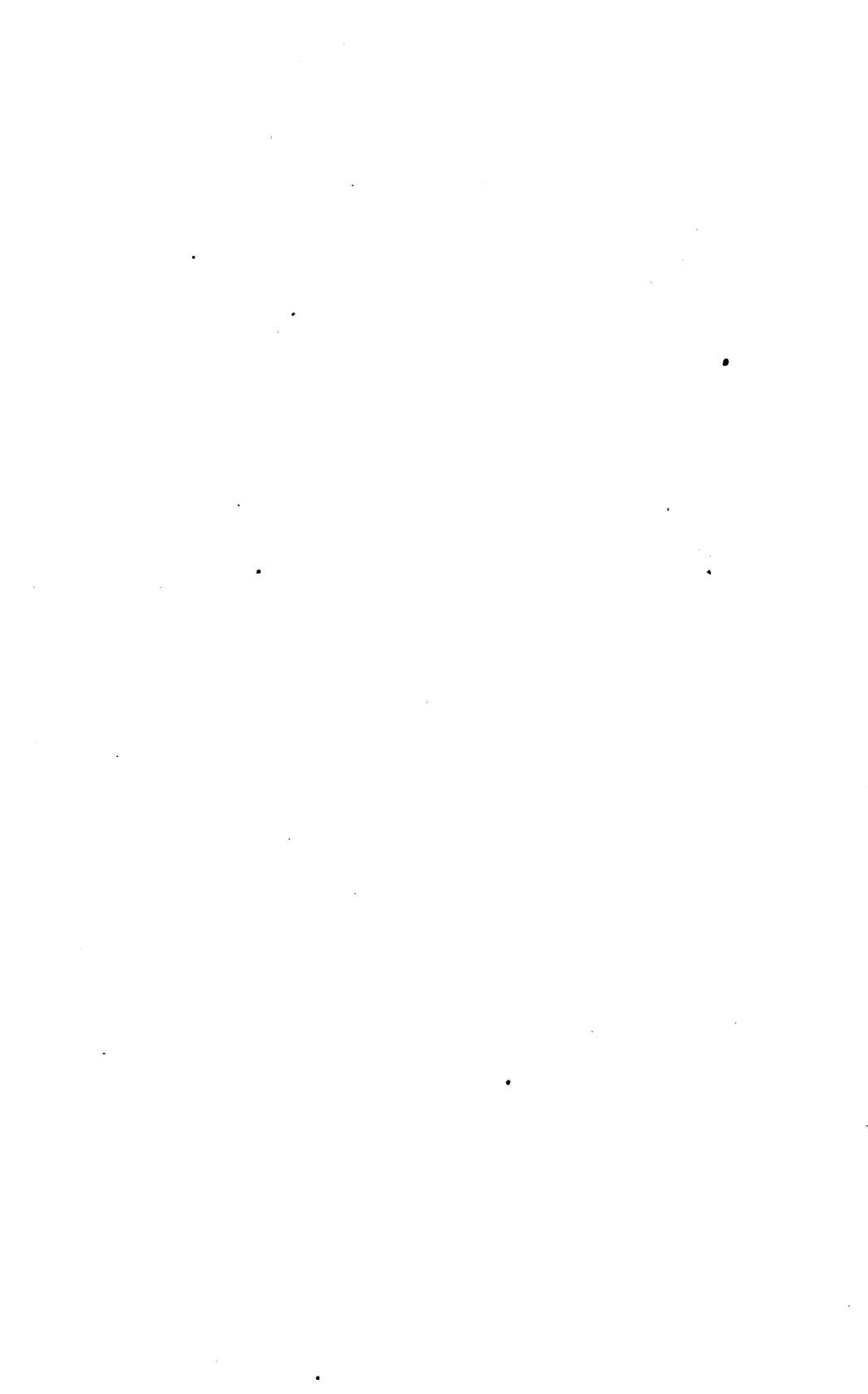
FINANCIAL STATEMENT OF DIFFERENT DEPARTMENTS COMBINED—1917

	Receipts and appropriations.	Expenditures.	Deposited State Treasury.	Balance.
Maine Forestry District.	\$110,818 09	\$77,627 92	_____	\$33,203 35
Outside Forestry District.	1,529 27	1,327 47	_____	201 80
Public Instruction in Forestry	5,000 00	4,109 69	_____	*890 31
State Nursery.	2,000 00	550 57	_____	1,449 43
Public Lands.	47,269 92	3,047 17	\$43,022 75	1,200 00
White Pine Blister Rust.	5,000 00	4,300 86	_____	699 14

*The expenses of publishing the second edition of "Forest Trees of Maine," which will cost about eight hundred dollars, will be taken out of this appropriation.



1918



MAINE FORESTRY DISTRICT

FINANCIAL STATEMENT

December 31, 1918.

RECEIPTS.

Balance on hand January 1, 1918	\$33,203 35
1918 Assessment	83,255 72
Interest on Deposits	112 34
Miscellaneous Income	1,186 66
Total Receipts	\$117,758 07

EXPENDITURES.

Expense of fire protection during season 1918 (For Detail see watershed expense)	\$110,734 20
Balance, December 31, 1918	\$ 7,023 87

EXPENDITURES—MAINE FORESTRY DISTRICT.

	St. John	Penobscot	Kennebec	Androscog- gin.	Machias	Total
Chief Warden	5,452 45	6,655 14	3,167 36	374 98	899 47	16,549 40
Deputy Warden	368 96	504 24	425 56	553 06	311 76	2,163 58
Lookout Expenses	7,155 86	11,432 34	8,308 04	2,590 82	3,989 17	33,476 23
Patrol Expenses	12,123 60	9,784 66	178 44	1,924 78	1,951 72	25,963 20
Fire Expense	584 54	2,117 95	454 95	1,609 44	2,841 10	7,607 98
Tools and Supplies	2,199 83	6,494 62	2,292 16	976 69	1,645 38	13,608 68
Adm. Charges	638 66	638 69	638 67	638 67	638 67	3,193 36
Misc. Charges	1,482 24	1,584 91	2,035 94	1,446 54	1,622 14	8,171 77
Totals	\$30,006 14	\$39,212 55	\$17,501 12	\$10,114 98	\$13,899 41	\$110,734 20

FEDERAL EXPENDITURES

Lookout Stations.....	\$7,494 00
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LOOKOUT STATIONS OPERATED

		<i>Fires Reported by Same.</i>
*Lead Mt.	Twp. 28, Hancock Co.....	0
Pleasant Pond Mt.	Caratunk Pl.	2
*Attean Mt.	Attean Twp.	1
Tumbledown Mt.	Twp. 5, R. 6, W. K. R.	1
*Squaw Mt.	Twp. 2, R. 6, E. K. R.	2
Snow Mt.	Twp. 2, R. 5, Franklin Co.	2
*Mt. Bigelow	Bigelow Twp., Somerset Co.	4
White Cap Mt.	Twp. 7, R. 10, N. W. P.	3
Spencer Mt.	Middlesex Grant, Piscataquis Co.	4
Rocky Mt.	Twp. 18, R. 12, W. E. L. S.	7
Pogey Mt.	Twp. 4, R. 9, W. E. L. S.	2
Otter Lake Mt.	Twp. 3, R. 4, W. E. L. S.	14
*Mt. Chase	Chase Twp.	18
*Ragged Mt.	Twp. A, R. 9, W. E. L. S.	9
*Mt. Kineo	Moosehead Lake.	6
*Mt. Coburn.	Twp. 3, R. 6, B. K. P., W. K. R.	3
*Wesley Mt.	Wesley, Washington Co.	3
Depot Mt.	Twp. 14, R. 16, W. E. L. S.	2
Round Mt.	Twp. 11, R. 8, W. E. L. S.	3
Aziscoos Mt.	Lincoln Pl., Oxford Co.	2
Mt. Katahdin	Twp. 3, R. 9, W. E. L. S.	2
*Bald Mt.	Twp. 2, R. 3, E. K. R.	2
Kibbie Mt.	Twp. 1, R. 7, W. B. K. R.	1
Priestly Mt.	Twp. 10, R. 13, W. E. L. S.	6
Boundary Bald Mt.	Twp. 4, R. 3, N. B. K. P.	4
*Williams Mt.	Twp. 2, R. 7, B. K. P., W. K. R.	6
*W. Kennebago Mt.	Twp. 4, R. 4, W. B. K. P.	7
No. 4 Mt.	Twp. A, R. 14, W. E. L. S.	2
Cobb Mt.	Lee, Penobscot Co.	1
*Pocamoonshine Mt.	Princeton, Washington Co.	5
Tug Mt.	Twp. 30, M. D. Washington Co.	1
Beetle Mt.	Twp. 7, R. 10, W. E. L. S.	3
Horse Mt.	Twp. 6, R. 8, W. E. L. S.	2
*Boarstone Mt.	Elliottsville Pl.	9
*Joe Mary Mt.	Twp. A, R. 10.	1
*Cooper Mt.	Cooper, Washington Co.	10
*Musquash Mt.	Topsfield.	4
Green Mt.	Twp. 4, R. 18, W. E. L. S.	0
Mucalsea Mt.	Twp. 5, R. 16, W. E. L. S.	5
Saddleback Mt.	Twp. 2, R. 1, W. B. K. P.	3
Double Top Mt.	Twp. 4, R. 10, W. E. L. S.	2
Nulhedus Mt.	Twp. 5, R. 17, W. E. L. S.	0
Norway Bluff	Twp. 9, R. 9, W. E. L. S.	3
No. 9 Mt.	Twp. D, R. 2, W. E. L. S.	4
*Hedgehog Mt	Twp. 14, R. 6, W. E. L. S.	5
*Three Brooks Mt.	Twp. 15, R. 6, W. E. L. S.	2
Speckles Mt.	Grafton, Oxford Co.	0
Spoon Mt.	Twp. 8, R. 7, W. E. L. S.	4

*Mattamiscontis Mt.	Twp. 3, R. 9, N. W. P.	8
*Squapan Mt.	Twp. 11, R. 4, W. E. L. S.	14
*Schoodic Mt.	Twp. 9, Hancock Co.	3
Hardwood Mt.	Twp. 9, R. 18, W. E. L. S.	0
Allagash Mt.	Twp. 7, R. 14, W. E. L. S.	0
Picket Mt.	Lang Pl.	1
Son bongey Mt.		1
Bald Mt.	Twp. 42, Washington Co.	0
Keillogg Mt.		0
Mitchell Mt.	Haynesville.	0
* Federal stations		209

REPORT OF FIRES BY PATROLMEN.

<i>Patrolman</i>	<i>Territory</i>	<i>County</i>	<i>Total No. Fires</i>
Fred Long	Twp. 12, R. 17	Aroostook Co.	1
W. B. Robinson	Twp. A, R. 5	Aroostook Co.	1
H. F. Russell	Twp. 18, R. 3	Aroostook Co.	2
Frank Marquis	Twp. 15, R. 8-9	Aroostook Co.	2
Scott Adams	Twp. 3, R. 2-3-4 & A, R. 2	Aroostook Co.	1
Otto Hede	Twp. 16 and 17, R. 4	Aroostook Co.	4
Frank McMannus	Twp. 8 and 9, R. 5	Aroostook Co.	2
Hubert Labby	Twp. 11, R. 16	Aroostook Co.	1
C. H. Fraser	Twp. 16, R. 5	Aroostook Co.	2
Joe M. Labby	Twp. 11, R. 6 •	Aroostook Co.	2
H. E. Huson	Twp. 10, R. 3-4; 11, R. 4	Aroostook Co.	4
Jos. Albert	Twp. 17, R. 4	Aroostook Co.	6
Henry Chassee	Twp. 17, R. 4	Aroostook Co.	2
Geo. W. Ripley	Twp. 16, R. 8; 17, R. 7-8	Aroostook Co.	3
Richard Witham •	Twp. 12, R. 17	Aroostook Co.	1
			— 34
John H. Martin	Twp. 3, R. 1	Franklin Co.	6
M. W. Toothaker	Twp. Dallas	Franklin Co.	7
Chas. Goggins	Twp. Letter D	Franklin Co.	2
			— 15
Charles Todd.....	Twp. 12, R. 17	Somerset Co.	1
Merl Spencer	Twp. Seboomook	Somerset Co.	1
			— 2
Leo Griffin	Twp. Indian 3	Penobscot Co.	1
Jos. A. Lebel	Twp. 6, R. 7-8	Penobscot Co.	2
Carroll G. Sargent	Twp. 7 and 8, R. 7	Penobscot Co.	2
Reuben B. Chase	Twp. 7, R. 8-9	Penobscot Co.	1
			— 6
L. E. Nice	Twp. Burbank	Piscataquis Co.	2
Chas. Daisey	Twp. 5, R. 10	Piscataquis Co.	1
			— 3
Samuel Marshall	Twp. 5, R. 4-5	Oxford Co.	2
			— 2
			—
			62

FEDERAL CO-OPERATION

As the general provisions of the 1916 agreement remain mutually satisfactory, a new contract was not required for this year. The text of the agreement will be found in the report of the Forest Commissioner for the year 1917.

The following tabulation will show the amount of money received from the U. S. Forest Service and the amount expended to date by this department under the different headings:

United States Department of Agriculture
FOREST SERVICE
Report of Expenditure on watersheds of Navigable Streams
State of Maine—Season 1918.

KIND OF EXPENDITURE	STATE		FEDERAL	
	Number	Amount of expenditure (salaries, travel, and other charges).	Number	Amount of expenditure (salaries only)
State or Federal:				
Collaborator.....			1	\$12 00
Lookout watchmen.....	36	\$14,758 77	22	7,482 00
Patrolmen.....	76	23,943 59		
State Only				
Firewarden, rangers, etc...	38	17,922 37		
Fire fighting.....		7,166 47		
Construction work (lookouts, telephone lines etc.		31,314 29		
Administration charges.....		2,316 02		
Miscellaneous charges.....		5,279 88		
Total to date.....		\$102,701 39		\$7,494 00

The Federal allotment, as in previous years, was confined entirely to Lookout Stations, selected by the Chief of State Co-operation, as follows:

<i>Stations.</i>	<i>Number.</i>	<i>Watchman.</i>
Squapan Mt.	52	J. M. Potter
Three Brooks Mt.	48	J. M. Donahue
Hedgehog Mt.	47	Herbert E. Brown
Mt. Chase	13	Warren Darling
Joe Mary Mt.	36	R. E. Sewall

Coburn Mt.	35	P. J. Walsh
Kineo Mt.	15	Alice Henderson
Mattamiscontis Mt.	51	John Stanchfield
Ragged Mt.	14	George H. Monroe
Boarstone Mt.	35	T. H. Katen
Squaw Mt.	5	Eugene Arnold
Attean Mt.	3	Allen Runnells
Williams Mt.	27	Herbert Holden
Bald Mt.	23	Richard Morris
Bigelow Mt.	7	Lewis F. Marsh
West Kennebago Mt.	28	Kenneth F. Lee
Musquash Mt.	38	Warren A. Bailey
Lead Mt.	1	Hiram Corliss
* Pocamooshine Mt.	33	Roy M. Fenlason
Wesley Mt.	17	S. M. Hawkins
Cooper Mt.	37	Oscar Sadler
Schoodic Mt.	53	Howard L. Webb

* Substituted for Tug Mt. Station.

In February a letter was written to all of the 1917 Federal employees in regard to their returning to their respective stations for the coming year. Practically all answered that they were ready to return, provided their salary was increased somewhat. According to the present law the salary of the deputy wardens is fixed at two dollars per day and subsistence. It was thought wise in the province of the Department to pay these wardens two dollars per day and allow them one dollar per day for board. In previous years they were paid two dollars per day and allowed fifty cents per day for board. This made an increase of fifty cents per day. Even at such a low salary all the Federal employees returned to their work in the spring except those that were called under the Selective Draft.

CO-OPERATION WITH THE STATE OF NEW HAMPSHIRE

As in previous years, the watchmen of the Maine Forestry District were furnished with a list of watchmen and wardens in New Hampshire, with post office address and telephone connection. They were instructed to be on the lookout for fires across the State boundary and should a fire be discovered to get into communication with the watchmen and wardens in that territory.

Patrolmen on the Magalloway River, the Valley of Big Meadows and Hammond Brooks were employed and paid jointly by the Maine Forestry District and New Hampshire Timberland Association.

CO-OPERATION OF THE RAILROADS.

As usual, all the section foremen of the different railroads in the State, whose divisions are in the Maine Forestry District, were commissioned as Deputy Forest Fire Wardens. These men were not called upon to do any work except during the month of May and the first part of June.

We are greatly indebted to all the railroads of the State for their hearty co-operation with this Department in the protection of our forests from fire.

SLASH.

As last year, instructions were given to the Chief Wardens that especial attention should be paid to the disposal of Slash along side of all roads, according to the Law. In some instances where it was difficult for the owner, for various reasons, to get at the burning of such slash the department went ahead and burned and the cost was divided equally between the State and the owners. Letters were written to the County Commissioners and Road Commissioners asking them to co-operate with us in regard to the so-called Slash Law.

FOREST FIRES.

According to our records, 271 fires were reported by our wardens and watchmen during this past season. Of these, 52 required the services of men outside the regular force. At one time in May a dozen big fires were raging in different parts of the State and just as they seemed to be beyond the control a heavy rain fell and they were extinguished at very small expense. We should mention here the fires which started on the railroad near Moosehead Station, Somerset County, two in the town of Wesley, Washington County, and two in Franklin County.

SUPERVISION.

Carlton W. Eaton, Associate Professor of Forestry at the University of Maine, was re-appointed inspector. He was unable to finish his work on account of being called to the colors, but the most important stations were inspected. On receipt of his reports at this office a copy was sent to the chief wardens, who were instructed to comply with the recommendations as closely as possible.

FOREST FIRES.

Township	Date	Acres	Cause	Damage
8, R. 4, Aroostook Co.	May 25	150	Lunch fire	\$1.00 00
2, R. 3, " "	May 26	5	Fishermen	50 00
Macwahoc " "	April 28	15	Unknown	
C, R. 2, " "	May 25	40		500 00
15, R. 7, " "	June 3	150	Brush fire	500 00
17, R. 4, " "	June 3	3	Unknown	75 00
8, R. 4, " "	June 3	25	Fire left in ground	50 00
10, R. 7, " "	June 19	4 rods sq.	Sportsmen smoking	
1, R. 5, " "	May 20	2 (bog)	Pulp peelers	
13, R. 6, " "	Aug. 28	4	Unknown	75 00
C, R. 2, " "	June 29	1	Sparks, camps	
12, R. 17 " "	Aug. 19	5	Brush fire	500 00
Dallas, " "	May 9	2	Freight train	
3, R. 1, " "	Aug. 19	5	Spark, train	5 00
3, R. 1, " "	Aug. 25	1-8	Berry pickers	
Letter D, " "	Aug. 23	15	Berry pickers	
No. 9, Hancock Co.	April 27	65	Fishermen	
No. 7, " "	April 27	60	Unknown	
No. 8, " "	May 16	75	Freight train	300 00
No. 8, " "	May 25	15	Freight train	
No. 22, " "	May 15	75	Fishermen	100 00
No. 16, " "	May 26	2	Fishermen	
No. 7, " "	May 25	1	Freight train	25 00
No. 8, " "	July 1	10	Unknown	30 00
No. 21 Plantation " "	June 5	1000	Unknown	1500 00
No. 21, " "	June 5		Unknown	
4, R. 1, N. D. " "	June 4	100	Unknown	300 00
4, R. 7, Penobscot Co.	June 24		Woodsmen	
6, R. 7, " "	June 11	1	Cigarette stub	
6, R. 7, " "	June 5	1	River drivers	
Indian Twp. No. 3 " "	April 29	5	Locomotive	
Schoodic Brook " "	April 28	3	Unknown	
A, R. 7, " "	June 3	1	Match	
Lakeville, " "	June 6	1-8	Unknown	
No. 2, " "	June 5	10	Unknown	100 00
6, R. 7, " "	Aug. 21	3-4	Lighting	10 00
1, R. 6, " "	Aug. 23	2	Campers	30 00
Rainbow Lakes, Piscataquis Co.	June 18		Unknown	
Burbank, " "	Aug. 20	2	Campers	50 00
4, R. 10, " "	Aug. 28	250	Woodsmen	
7, R. 9, " "	May 24	15	Spark, locomotive	120 00
7, R. 9, " "	June 3	1-2	Spark, locomotive	25 00
Attean, Somerset Co.	April 29	10	Spark, locomotive	50 00
No. 5, " "	May 19	5	Lightning	
Soldier Town, " "	July 20		Unknown	
Chase Stream Town " "	June 6		Unknown	
Sapling Town, " "	June 21	10	Railroad	2000 00
Cooper, Washington Co.	May 19	5	Unknown	25 00
No. 27 E. D. " "	May 25	20	Unknown	120 00
No. 26, " "	May 20	100	Unknown	200 00
Kossuth Pl., " "	June 2	1	Unknown	1 20
No. 27, " "	May 25	75	Unknown	
Indian Town-ship, " "	June 6	1½	Unknown	100 00
No. 27, " "	June 3	60	Unknown	250 00
Wesley, " "	May 18	1200	Unknown	
Forest Station " "	June 4	15	Railroad men burning ties	75 00
Wesley, " "	June	200	Unknown	
No. 14 Plantation, " "	June 2	1	Fishermen	25 00
		3820 +		\$7291 20

SUMMARY OF FOREST FIRES.

SUMMARY OF FOREST FIRES.

County	Acreage	Damage
Aroostook.....	400	\$1850 00
Franklin.....	22 1-8	5 00
Hancock.....	1403	2255 00
Penobscot.....	24 1-16	140 00
Piscataquis.....	267 1-2	195 00
Somerset.....	25	2050 00
Washington.....	1678 1-2	696 20
	3820 +	\$7291 20

EDUCATIONAL WORK.

Besides the 10,000 tag posters containing the Laws and useful information in regard to forest fires, this Department has put out 8000 metal signs which will prove more substantial. A big danger sign four feet long by two feet wide was put out this year, which can be seen on all cross roads and main roads leading to the forests of the State. Some of these were strung on wires across the road and others were posted on the side of the road. It is well to state here that the Kennebec Valley Protective Association has distributed a series of very attractive and effective posters through the extensive forest territory which is covered by its membership.

PERMANENT IMPROVEMENTS.

The detail of the building of the steel tower at Kineo Mt. was completed and the State should be proud of such a station, as it is the best fire station in the country.

STEEL TOWERS ERECTED.

Station.	Watershed	Height in feet.
Ragged Mt.	Penobscot	36
Round Mt.	Penobscot	48
Doubletop Mt.	Penobscot	24
Otter Lake Mt.	St. John	48
*Center Mt.	Penobscot	16

WOODEN TOWERS ERECTED.

Squa Pan Mt.	St. John	26
Bald Mt.	Machias	55
Mt. Mitchell	Penobscot	38

* Not completed.

The steel for the following stations was purchased this year and will be erected next season.

No. Nine Mt.	St. John	36
Passadumkeag Mt.	Penobscot	36
Moxie Bald Mt.	Kennebec	16

During the past season the Department has built about forty miles of telephone, erected eight new camps, and two store-houses. Thirty-eight telephone instruments were purchased and installed and seven test sets were added to the service. A twenty-five horse-power motor boat capable of carrying twenty-five men at any time was purchased and placed on Chesuncook Lake.

STATION MAPS.

The twenty panoramic maps which were started last season have been completed and installed on the stations. Our engineer has sketched for the following stations: Depot Mt., Round Mt., Doubletop Mt., Ragged Mt., Mattamiscontis Mt., Poca-moonshine Mt., Musquash Mt., Attean Mt., Kibbie Mt., Horse Mt., Tumbledown Mt., Snow Mt., and Mt. Chase.

These maps will be finished this winter and will be ready for the stations the coming spring. We have spent this year in preparing and making permanent improvements over \$31,000.00.

INVENTORY

The Department has, this fall, taken a complete inventory of all stations, camps, tools, telephone instruments, telephone lines, that comprise the system of the Maine Forestry District. We submit the following tabulation which we think is very conservative.

INVENTORY

Watershed	Lookout Stations	Camp	Telephone Miles	Telephone Instruments	Tools	Total
	No.	No.	No.	No.		
St. John	15— \$7,100	27— \$3,975	242— \$4,850	47— \$940	\$4,374 75	\$21,239 75
Androscoggin	5— 1,850	4— 700	13— 360	8— 160	813 75	3,833 75
Kennebec	14— 8,500	13— 1,800	104— 3,880	60— 1,200	7,803 65	23,183 65
Penobscot	20— 6,450	24— 4,300	100½— 3,810	66— 1,320	6,549 65	22,429 65
St. Croix, Machias, etc	8— 2,900	5— 800	109½— 2,190	35— 700	1,783 75	8,373 75
Totals	62—\$26,800	73—\$11,575	754½—\$15,090	216—\$4,320	\$21325 55	\$79,110 55

OUTSIDE MAINE FORESTRY DISTRICT

SLASH.

It is disappointing to report that the arrangement with the U. S. Forest Service for the year 1917 in regard to the Slash disposal could not be continued. By writing letters to different Selectmen and Mayors of the towns and cities we have succeeded in many instances to have the most dangerous places cleaned up. This department is indebted to all the railroads in the State, particularly the Maine Central Railroad, in keeping this Department informed about Slash left along side their lines by individuals contrary to the so-called Slash Law. In every instance where the railroad has notified the Department of such condition it has been possible to move or burn such Slash.

PATROL.

George F. Granville was again commissioned as a patrolman and was called upon to patrol only a few weeks during the dry spell. He was paid out of money donated to the Department by the Sokokis Lumber Co.

LOOKOUT STATIONS.

It is a pleasure to report that after much difficulty in making arrangements, the Department has been able to erect on Agamenticus Mt. and Ossipee Hill steel towers twenty-four feet in height each. These were erected in co-operation with the U. S. Forest Service. The material was paid for entirely by this Department with money received from the Contingent Fund of the Governor and Council. The material cost \$391.49 and the erection of same cost \$1,096.51. Telephone connection of these towers with the New England Telephone Co. will be completed early next spring. The maps for these two stations have been sketched and will be ready for the fire season of 1919.

FOREST FIRES.

As shown by the tabulation below, there were more fires this year than last. As in the Maine Forestry District, fires were raging all over the State during the month of May and the first part of June, but with the help of the rain, which fell at an opportune time, these fires did very little damage.

FOREST FIRES.

Town	Date	Acres	Cause	Damage
Scarboro	May 9	10	Unknown	None
Standish	May 11	5	Sparks, portable mill	\$4200 00
Sebago	May 8	400	Sparks, portable mill	Not mentioned
Orland	May 22	400	Burning brush	600 00
Sullivan	May 20	150	Unknown	900 00
Union	April 28	40	Clearing for blueberries	1000 00
Camden	June 3	90	Mill stack	3000 00
Alna	May 9	30	Carelessness	Not mentioned
Somerville	June 3	30	Sparks, portable mill	1000 00
Edgercomb	June 2	8	Burning Stumps	100 00
Boothbay	April 19	40	Rubbish fire	Not mentioned
Fryeburg	April 28	700	Unknown	Not mentioned
Brownfield	May 16	20	Portable mill	500 00
Livermore	April 26	30	Unknown	Not mentioned
West Bath	April 28	5	Unknown	Not mentioned
Westport	May 8	900	Smokers	50,000 00
Alexander	Aug. 13		Sparks	Not mentioned
Dennysville	May 19	140	Fishermen	600 00
Columbia Falls	May 18	20	Unknown	200 00
Kennebunk	May 8	600	Sawdust pile	3500 00
Hollis	May 8	1500	Brush fire	5000 00
		5118		\$70,600 00

SUMMARY OF FOREST FIRES.

County	Acres.	Damage.
Cumberland	415	\$4,200.00
Hancock	550	1,500.00
Knox	130	4,000.00
Lincoln	108	1,100.00
Oxford	750	500.00
Sagadahoc	905	50,000.00
Washington	160	800.00
York	2100	8,500.00
Totals	5118	\$70,600.00

PUBLIC LANDS

We find in the laws of 1909, Chapter 268, a resolve authorizing the sale at public auction of lots number 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, and 109, in Township No. 18, Range 5, which is now St. Agatha. These lots were burned over a great many years ago and nothing has ever grown on them. This department does not deem it advisable to sell these, as after some inquiries it has been found that no man in that section would pay over 75c an acre.

In the same Resolve we also find a clause authorizing the Land Agent to sell in the same way in the town of Madawaska lots numbered 108, 109, 110, 160, and 161. By the records of the office the value of these lots could not be ascertained and the services of Henry J. Pelletier of Madawaska were obtained and he has submitted the following investigation:

LOT 108.

The first party that began to clear land on this lot was Eloi Beaulieu. He worked on this lot for a number of years and cleared about 20 to 25 acres of land, and then sold to Xavier Michaud. Xavier Michaud then sold half to George Michaud, Cleveland, Me., and the other half to Jos. R. Cyr, St. David, Me.

The last two parties since that time have cleared some more land and now have about 20 acres each more or less. They both have claims on the cultivated land on the ground that they bought it or worked on it. The wood on this lot is thick second growth. What was big enough has been cut from time to time by the nearby settlers. The lines are clear, having the corner bounds, but there is a little trouble between the two parties.

LOT. 109.

Dolphie Cyr, Cleveland, Me., has cleared about 2 or 3 acres of land on this lot. Very little of this lot is fit for cultivation,

being wet and swampy. The wood on this lot likewise is second growth cedar, spruce and fir trees mostly. What was big enough for use has been cut from time to time by the nearby settlers. That man claims what he has cleared.

LOT 110.

Adolph Cyr, Cleveland, Me., has cleared land on this lot, about 10 acres more or less. He has claims on that part that he has cleared on the ground that he worked on it. The wood there is like the wood on the other lots, (108) and (109). The lines are clear. All these lots, (108), (109), (110), would be valuable for wood, pulp wood, ties and logs in a number of years if the nearby settlers are kept off.

LOT 160.

This lot is claimed by three parties: Jos. Cyr, Vital Cyr and Florent Lagasse of St. Agatha, Me.

Jos. Cyr has about 25 acres on this lot of good cultivable land, and most of this has been under cultivation this summer.

The other parties, Vital Cyr and Florent Lagasse, have about 20 acres each of cultivated land on this lot, being under cultivation this summer. The wood on this lot is thick and all second growth, some being large enough for pulp wood but too small for logs.

Each party claims one-third (1-3) of the lot, all having claims on the lot on the grounds that they cleared the land and cultivated it. The lines on this lot are not very clear and I was not able to find the corner bounds, but there does not seem to be any trouble about them.

LOT 161.

I traced the south line of this lot, because it was impossible to follow the line otherwise, all traces having been burnt and most of the marked trees cut down.

On this lot there are about 15 acres more or less of cleared land, that is the stumps are not yet all cut and it is not very good for cultivation, but good enough for pasture.

Two parties claim this lot; one Magloir Leclair claims about five (5) acres of this cleared land, on the grounds that he bought

the work of the deceased Nazair Beaulieu, who had cleared the land.

The other party who has claims on this lot is Alec Losier. He claims about ten (10) acres, more or less, on the grounds that he settled there and cleared this land. He has a camp on that lot and lives there most of the time. There is not very much lumber on this lot, in places the lumber has been destroyed by fire, and the soil along the lake is mostly swamps and bogs. However, along the lake there are quite a few cedars, too small yet to be of any use. On the S. W. part of this lot there are some quite large hardwood trees.

On the N. E. side of the lot there are many spruce and fir trees, many large enough for logs, and there would be some pulp wood also. There would be more trees or logs on this lot if they had not been cut by Beaulieu and Leclair, from 15-25 cords of pulp wood on this lot this summer.

There is no road going to this lot.

After careful consideration of the facts stated in this report this Department believes that these lots should not be sold at public auction, but to the actual settlers and will so recommend to the coming Legislature.

STUMPAGE PERMITS.

1918-1919.

Permits to cut timber have been granted on the public lots on the following Plantations: Coplin, Elliottsville, Nashville, (2), Long Pond, Flagstaff, Plantation No. 21, Hancock Co., Caratunk, Allagash, (2), Dallas, and The Forks. These permits were granted under authority given the Land Agent by Chapter 8, Sections 7 and 8, Revised Statutes. The permit on Elliottsville Plantation was given to cut hardwood for ship timber to a concern from Camden, Maine.

ISLANDS.

As usual, this Department has been called upon to answer a great many inquiries about the title of Islands on the coast of Maine. The investigation made in 1914 has proven to be a great help in giving a clear answer to all such inquiries. No leases of Islands were given during this year.

REVENUES.

This Department has on hand at the present time \$30,184.31 collected for stumpage and rental, with a few more bills to be collected, when the full amount will be turned over to the State Treasurer to be credited to the different Plantations and Townships, according to Chapter 8, Section 2, of the Revised Statutes.

Lakeview Plantation	\$3,102.41
Flagstaff Plantation	180.02
Coplin Plantation	2,491.08
Highland Plantation	737.84
The Forks Plantation	7.40
Winterville Plantation	1,356.33
St. John Plantation	1,434.52
Oxbow Plantation	5.00
Dallas Plantation	1,014.24
West Forks Plantation	8.00
Elliotsville Plantation	219.79
Staceyville Plantation	421.18
Bigelow Plantation	316.18
Nashville Plantation	3,868.55
Caratunk Plantation	4,842.86
Long Pond Plantation	1,516.23
No. 33 Plantation	51.75
Moose River Plantation	430.71
No. 21 Plantation	806.50
Lang Plantation	4,924.12
Hamlin Plantation	126.50
Letter E., Franklin Co.	50.00
Twp. 16, R. 10., W. E. L. S., Aroostook Co.	1,152.57
Twp. 16, R. 11., W. E. L. S., Aroostook Co.	230.77
Twp. 17, R. 10, W. E. L. S., Aroostook Co. ....	.36
Twp. 17, R. 11, W. E. L. S., Aroostook Co.	124.50
Twp. 5., R. 8, W. E. L. S., Aroostook Co.	10.00
Twp. 4, R. 3, W. B. K. P., Oxford Co.	25.00
Twp. 3, R. 4, W. B. K. P., Franklin Co.	90.00
Twp. 4, R. 2, W. B. K. P., Oxford Co.	30.00
Twp. 3, R. 3, W. B. K. P., Franklin Co.	100.00

Twp. 5, R. 3, W. B. K. P., Oxford Co.	50.00
Twp. 5, R. 4, W. B. K. P., Oxford Co.	125.00
Twp. 5, R. 5, W. B. K. P., Oxford Co.	50.00
Twp. 5, R. 20, W. B. K. P., Somerset Co.	85.33
Madawaska	5.00
Islands	60.00
Passamaquoddy Tribe Indians Fund:	
Indian Township	45.96
Interest	248.37
Office Fees	69.25
	<hr/>
Total	\$30,413.32

REPORT ON PUBLIC INSTRUCTION IN FORESTRY
AND FOREST NURSERY.

TO THE HONORABLE FORREST H. COLBY,
Forest Commissioner,
Augusta, Maine.

Sir:

I have the honor to submit the following condensed report of this department for the years 1917 and 1918:

The period just past has been a difficult one for us, in common with all other educational institutions in the United States, owing to the number of men enlisting in the various branches of the service. Many of our students were unable to complete the requirements for the Degree of Bachelor of Science in Forestry, but notwithstanding these unfavorable conditions we were able to graduate the following men:

In June, 1917—Harold P. Andrews
Edward K. Hanley
George E. Hansen
Philip N. Libby
William F. O'Donoghue
William G. Wahlenberg

In May, 1918—Harold L. Annis
Lewis T. Calhoun
Herbert R. Lemont
Robert B. Parmenter
Carlton L. Perkins

All of these men on graduation entered some branch of the service, or the war industries.

At the beginning of the college year 1917-1918 the following was the registration in the Forestry Department: Seniors, 5; Juniors, 4; Sophomores, 7, and Freshmen, 13, making in all 29 students majoring in Forestry. In the fall of 1918, the organi-

zation of the Students' Army Training Corps made it impossible for any of the men to register in their usual major departments, and required a uniform curriculum set down by the War Department.

A number of the men formerly in the Forestry Department have expressed their intention to return to complete their course as soon as conditions return to normal, and it is hoped that provision will be made for them to do so.

The usual short courses in Forestry have been offered for Agriculture students and also to candidates in the Pulp and Paper course in the Department of Chemistry. Besides lectures in schools, granges and clubs, an important part of the educational work during the past year was the revision of the bulletin, "The Forest Trees of Maine," and the issuing of a new edition for free distribution.

A bulletin on "Marketing Farm Woodlot Products in Maine," by George N. Lamb of the Forest Service, was published through the kindness of the Agriculture Extension Service at the University of Maine, in co-operation with the United States Department of Agriculture. This is known as Extension Bulletin No. 113, and may be obtained free on application to the Extension Service, Orono, Maine.

No important additions have been made to the equipment, and the staff was reduced to one man, Mr. C. W. Eaton being granted leave for enlisting in the Aviation Department of the United States Navy.

This year the Forest Nursery has become self supporting, the sales of the season amounting to \$846.57. In the future, if some arrangement can be made for retaining the money from sales of stock for maintenance, the Forest Nursery can be made to pay its own expenses.

Last spring transplanting was a difficult task both on account of the shortage of student labor and because the school year had been shortened, bringing the commencement time right up to the field season for transplanting. All of the forestry students taking the course in Nursery Practice did all that they possibly could by working overtime; but even with this aid we could not have moved the amount of plants that we did had it not been for volunteers from the young ladies of the University. They

responded in sufficient numbers to make the work a success, and proved very adept. With their aid we were able to set more than 200,000 transplants in the short time allotted for the work.

We still have on hand a large number of three-year-old seedlings of White Pine, which will make excellent stock for next spring planting, and can be sold at considerably less than the transplants of the same age.

For the spring of 1919, we will also have on hand in three-year-old transplants the following:

White Pine	155,000
Red Pine	30,000
Norway Spruce	50,000

These plants are all suitable for economic forest planting in Maine. Besides these we have small quantities of a number of different species, grown more for experimental purposes, and to familiarize the forestry students with the different trees and the manner of raising them. There are also more than 250,000 two-year-old seedlings, and 500,000 one-year-old seedlings of various species, chiefly Pine and Spruce, now growing in the Nursery.

It has been decided to discontinue the growing and sale of any plants larger than four-year-old transplants, so as to in no way compete with commercial nurseries growing planting stock primarily for ornamental purposes. We are thus enabled to give all of the limited space available to the growing of young seedlings and transplants which we can sell at a very low figure for economic forest planting, which we hope to make an ever growing success in the Pine Tree State.

Respectfully submitted,

JOHN M. BRISCOE,

Professor of Forestry.

20 November, 1918.

WHITE PINE BLISTER RUST

INTRODUCTION

The work in Maine during the previous season (1917) has been chiefly concentrated on two areas, one at Kittery Point, where there was a large area of diseased pine, and the other near Alfred, in the heart of a good pine country, but where no diseased pine has been discovered. The purpose of the latter area was for a check in ascertaining the possibility of keeping the disease out of pine where ribes have been eradicated.

As a check on the eradication work and, inasmuch as the work was new and the crews were inexperienced, it was thought bent to go over these areas thoroughly again this season as the first thing on the program for 1918, and to start the eradication on another area of pine known to be badly diseased, located along the New Meadows River between Brunswick and Bath.

No general scouting was undertaken, except that incidental to inspections of plantations. Some 46 plantations of pine totalling more than 250,000 trees were inspected during the season, and of these only at two places were suspicious specimens found. These were later identified by Dr. Taylor of the Bureau of Plant Industry as having only secondary fungi, and not blister rust.

Educational work was an important part of the program this year, and exhibits were shown at the larger fairs, besides the usual methods of poster, card and bulletin, distribution.

ORGANIZATION

The administration of the work was in the hands of Forrest H. Colby, the State Land Agent, and the Forest Commissioner, who appointed N. L. Violette as collaborator and John M. Briscoe as executive agent in active charge of the field work, with B. R. Waterman as clerk and assistant. A co-operative agreement with the Bureau of Plant Industry was entered into,

which was simply an extension of the existing memorandum of understanding. This agreement provided for a maximum expenditure of not more than \$5,500.00 on the part of each of the co-operators.

We were fortunate in having Mr. W. O. Frost, a member of the Bureau of Plant Industry, and an able foreman with last year's experience in handling a crew; and also Mr. M. E. Brann, who had done similar work for the Gipsy Moth Commissioner as a crew foreman.

Two crews were formed with six men in each crew, under the direct supervision of the foreman.

The crew assembled at Alfred June 1, and the training and preliminary work were done there together, and as two separate units until June 22, when one crew was sent to Klittery Point.

Four months of continuous service is a long while to keep up intensive interest in eradication work, and various schemes had to be resorted to to maintain the efficiency of the crew, the chief of which was the awarding of a cash prize of \$5.00 to the one who left the least ribs behind him; the crew foreman to keep score, and be the judge. Mr. P. F. McGouldrick won this prize.

It is an easy matter to go at high pressure for a day, or for a few days at a time; but the monotony of the work, which, while not exactly strenuous, is tedious and nerve-exhausting in the extreme and has a distinct effect in time. The psychology of ribs eradication could be studied to advantage.

For general efficiency, the following men hold the highest honors, consisting both personal efficiency and length of time employed continuously:—Frost, Brann, McKechnie, McGouldrick, Faulkner, and Mortell. Any of these men would make first-class foremen for future work, Frost and Mortell having had two years' experience at the work in their respective lines and the other four showing remarkable keenness and adaptability. It was difficult to get good men who would not be affected by the draft. There were no drones in either of the crews, and none of the men employed had to be discharged for any failure on their part to do their duty.

Two of the men, Barron and Stewart, left in July to answer a call to the Naval Reserves Station in which they were enlisted

at that time, and Collins left to take up eradication work in New Hampshire. The six men crew with a foreman was found the most efficient, and was used consistently throughout the season.

Whether any work will be conducted next year, will depend entirely upon the action of the next Legislature, since state appropriations for this work will expire December 31, 1918. A new appropriation of equal amount will be asked for to continue the work.

At present no plans have been made for the work next year, nor can they well be made with the present indefinite factors both of finance and labor. Students were the only ones who would consider the job at the wages offered. The foreman received \$90 per month and two of the crew with last year's experience, \$60 per month. All of the other members of the eradication crew received \$50 per month. All expenses were paid by the State.

Few of the men who worked this season will be available for work next year, since most all of them have joined the Students' Army Training Corps in their various colleges or have been inducted into some branch of the service.

It seems advisable to change radically the present method of eradication, now that the experimental stage of the eradication work is over, and fairly definite cost data are obtainable for different types of woodland. Local co-operative control should be encouraged and developed in so far as possible. This will need to be supervised and systematized by some central agency, in order to secure any uniform or satisfactory results, and for this purpose State funds should be made available.

Areas eradicated should be carefully scouted and results watched for at least five years.

The Brunswick area should be enlarged and eradication of ribes completed.

Enough work has been done to settle any question of State-wide eradication of ribes. The cost would be prohibitive and the result would apparently be of very questionable value.

Future efforts at eradication should be confined to tracts of valuable young white pine, and the immediate vicinity of such tracts, where the value of the timber will justify the expense of eradication as a protective insurance.

It is difficult and somewhat dangerous to generalize from the data available at this time, but the work in Maine shows that while the average number of ribes per acre for all types of forest was six on the Kittery Point area, and 26 on the Brunswick area, a far greater number were found in the swamp and miscellaneous (includes stone-wall) types. One acre of swamp type, on the Alfred area, had 1470 plants of wild gooseberry, taking 17 hours' man-labor to eradicate, and costing \$3.78. This was the extreme outside figure, and was so abnormal that it should have been omitted in the calculation of the general average cost. It was included, however, and is largely responsible for bringing the average figure (including all types) for the Alfred area up to \$.75 (per acre), while the average for the Kittery Point area was \$.35, and for the Brunswick area \$.56, or just about the correct mathematical average of the other two.

FIELD INVESTIGATION

In the scouting done this season no actually new areas of infection were found as the Bath-Brunswick area was known to Posey in 1916. The extent of the area was considerably enlarged by explorations of Frost in the spring of 1918.

Taken as a whole, the infection of ribes was not as general, nor as severe where found as it was in 1917. This may be due to unfavorable weather conditions at the time of the fruiting on pine or to other causes not definitely determined.

The aëca stage was practically over by June 20 at Kittery Point. No infected ribes were found this season on the Alfred area till July 26, when skunk currant was found diseased. The Telial stage was found on the same area on August 20, while ribes were found in abundance on all of the area eradicated, but not more than 25 per cent. were diseased.

MAPPING

The mapping of the demonstration areas was done by Mr. W. S. Moir in a most accurate and painstaking way. More time and expense was put on this work than would be necessary for a mere eradication of ribes; but as the work was for obtaining definite and detailed cost figures, it was necessary to have maps with a considerable amount of local detail.

The present commercial White Pine area in Maine may be roughly included in ten southern counties with an extension into

the central portion of Washington County, as shown on the map accompanying the report for 1917. No new areas of infection were located during the present season.

Inspections of plantations and of native grown stock were made in every county in the state excepting Aroostook. A detailed list of these inspections is as follows:

INSPECTORS, 1918.

<i>Name of Owner. Nearest P. O. Source of Stock.</i>	<i>Date.</i>	<i>Number.</i>
R. Leavitt, Kezar Falls	Keen Forestry As. 1915	3,000
E. Piper, Kezar Falls	Keen Forestry As. 1916	1,500
Sokokis Lumber Co., Kezar Falls	Keen Forestry As. 1916	90,000
W. D. D. Churchill, Kezar Falls	Keen Forestry As. 1916	1,000
Mrs. J. B. Fenderson, Old Orchard	Native Pine growth	
W. A. Maguire, Ogunquit	Keen Forestry Co. 1915	1,000
Cecil Clark, Clark's Mills	700 acres Native Pine	
Dr. Brock, Lyman	Native Pine	
Herbert A. Jackson, Portland	D. Hill	10,000
F. M. Spiller, No. Raymond	Diseased Currants	
Dr. C. B. Sylvester, Harrison	Keen Forestry As. 1916	7,000
O. N. Abbott, Harrison		10,000
E. C. Rich, Richville	Keen Forestry As. 1914	3,000
W. A. Merrill, Gorham	Native Pine	
J. P. Clement, Gorham	Native Pine	
Thompson & Turner, Auburn	30 acres Native Pine	
G. A. Mahoney & Son, Saco	5 acres Nursery	50,000
Dr. Twitchell, Monmouth	Native Pine (3 badly inf. currants)	
Mrs. J. B. Brackett, E. Parsonsfield	Native Pine 100a	
F. T. Feary, Pemaquid Point	Native Pine 10a	
Breckenridge Estate, York	1 diseased Pine (Currants removed last year)	
Mrs. C. H. Chase, Chase's Pond	Currants slightly infected	
	None on Gooseberries	
W. K. Burnell, Fryeburg	White Pine Keen Fy. As. 1913-16	5,000
E. E. Hastings, Fryeburg	W. P. Keen Fy. As. 1913	8,000
E. Weston, Fryeburg	W. P. Keen Fy. As. 1914	1,000
T. C. Eastman, Fryeburg	Red & W.P. Keen Fy. As. 1916	6,000
F. H. Moore, Waterford	W. P. Keen Fy. As. 1915-16	7,000
H. M. Small, Thorndike	W. P. Keen Fy. As. 1914	2,500
R. B. Dunning, Bangor	W. P. Keen Fy. As. 1916	150
Mrs. R. M. Jones, So. China	White Pine Keen Native	
A. L. Soule, Mechanic Falls	Pine and Currants	
R. A. Wing, Livermore Falls	W. P. Keen Fy. As. 1916	2,000
G. L. Palmer, Kent's Hill	W. P. Keen Fy. As. 1915-16	6,000
Walter Flint, West Baldwin	White Pine and Currants	
E. E. Black, West Baldwin	Currants Infected	
M. M. Bailey, Portland	W. P. Keen Fy. As. 1913	2,000
H. Hanson, Oak Hill, Scarboro	200 Currant Bushes	
J. L. Dean, Waterville	W. P. Keen Fy. As. 1914	4,000
H. E. Wight, Parkman	W. P. Keen Fy. As. 1913	2,500

L. K. Lee, Foxcroft	W. P. Keen Fy. As.	1913	2,000
W. A. Garrigues, Rangeley	W. P. Keen Fy. As.	1916-17	6,050
Langtown Co., Rangeley	W. P. Keen Fy. As.	1916	3,000
Alfred Bowditch, No. Haven	W. P. D. Hill	1910	2,100
J. A. Brewster, Camden	W. P. 2 Pines Wagner		
	Park Nur.	1915	
John Hyde, Estate, Bath	Native Pine		
Mt. Desert Nur. Co., Bar Harbor	Commercial Nur.		15,000

No pines effected by the White Pine Blister Rust were found in any of the inspected plantations.

ERADICATION AREAS.

ALFRED AREA

The Alfred area is located in the heart of York County in the center of one of the best white pine producing sections of the State. On this area nearly 3000 acres were eradicated and the types included the Mature Conifers, Immature Conifers, Mixed, Hardwoods, Swamp, Pasture and Cleared Land, and Miscellaneous. The latter including all stone walls, and precipitous areas.

No infected ribes were found on this area until July 26th, when skunk currant was found to be infected; and no infected pine has been discovered to date.

During the last half of August the plan for eradication was somewhat modified, limiting the eradication to areas found to be particularly abundant in ribes, such as the actual pine types and the Brush type. In these localities they seemed to be the greatest menace, and a much larger area was covered in a shorter time than in the former method of covering every foot of the area.

This helped materially to reduce the cost of eradication on this area during the month of August, which averaged .36 per acre as against from .56 to .75 by the former method. It is felt that the results will be fully as satisfactory, and that the method is justified by the decrease in cost obtained.

There are many stands of young pine in this area that will run from 15,000 to 20,000 ft. b. m. to the acre; but taking the average stand at only 10,000 per acre, the cost of protection by this method would be only about 31-2c per 1000 ft. b. m., which is unquestionably worth while considering present prices of pine lumber.

The chief object of eradicating this area was to provide a check area in a good pine region, as a means of noting the effect of eradication in case of a spread of the disease to this section of the State.

No cultivated ribes were pulled in this area during the present season, so all of the ribes eradicated were wild gooseberry and skunk currant, the latter being very abundant in parts of the area. The large amount of skunk currant found in several instances was due to the fact that low meadows where they were very abundant, had been mowed over just before the eradication work was done on the same area last year. On these mowed over areas, no ribes were found last season; but perfect mats of young reproduction were found in abundance at the beginning of the work this year. Most of these plants were not over three inches high at the time of eradication; but they had long and substantial roots, making the process of eliminating them long and difficult and considerably increasing the cost in such places.

On this area the location of these clumps of ribes was noted on the map, as well as the location of the patches of other wild ribes, and this map will be of considerable value for future work.

KITTERY POINT AREA

The Kittery Point area covered this season was some 1500 acres in extent, and included practically all the types.

Owing to the very mixed character of the growth on this area, and the resulting difficulties of mapping and of eradicating, the wage cost of eradication per acre was higher than on either of the other areas in most of the types.

Practically all of the cultivated ribes within this area were destroyed in 1917, so that all but some 134 plants were wild gooseberry.

No eradication of the diseased pine was attempted by special request of the Bureau of Plant Industry, pathological experimental work being carried on within this area by the members of the Department.

On account of the area being very much cut up by stone walls and irregular property lines, as well as the swamp area and the natural rock and pebble deposits along the shore line, this area was the most difficult to work of any of the areas eradicated. It

required more time per unit area, both for mapping and for the eradication, than either of the other areas. We were fortunate in having Mr. W. O. Frost, a good foreman with last year's experience, in charge on this area, and he was allowed to pick his crew from all of the men available for the work.

Housing and living conditions were one of the chief difficulties, but we were able to secure quarters for the crew until the end of August, when it was necessary to leave the area before having completed the second eradication of Gerrish Island, on account of the U. S. Housing Commission taking over all hotels and boarding houses in the locality to accommodate the workers at the Portsmouth Navy Yard and adjacent war industry plants.

On this area a total of 13,236 ribs were eradicated last season, as against 9,364 ribs this year.

BRUNSWICK AREA

This area was selected for eradication on account of the valuable pine that it includes and because much of the young pine was known to be already diseased. In order to, if possible, check the spread of the disease, in what is so far as known the northernmost limit of the diseased pine, an area of about one square mile was selected by the joint co-operators for eradication. This area was located along the west bank of the New Meadows River, in the town of Brunswick, extending from the new State road between Brunswick and Bath, south to a point of land below the New Meadows Landing.

The crew was depleted by resignations by the first of September, and as most of the remaining men were obliged to report at their various colleges for duty in the S. A. T. C. on October 1, only one month's work was possible on this area, and only one crew was available. An effort was made to secure local labor, and advertisements were inserted in the local paper to that effect, offering good wages and Government time, but they met with no response; and the work was necessarily discontinued for lack of labor September 28th. The last two weeks of this time were largely taken up in going over a check area, at the direction of Mr. G. L. Barrows, so that only about 450 acres of new ground were covered on this area. The time occupied in making this check, which was incomplete even at

the expiration of the season, would have been ample to have finished the 640 acres originally laid out for the purpose.

I am informed by Mr. W. O. Frost, who was foreman of the crew there, that during October Mr. Barrows hired school boys from the Bath High School (temporarily closed on account of the epidemic), and made an attempt to finish the check area to his satisfaction; but the results obtained were not gratifying, since more ribes were found the sixth time over than on the fourth and fifth times. Mr. Frost attributes this to the fact that the boys were becoming more accustomed to the work and to the identification of the plants; and perhaps to the falling of the leaves of many of the other associated species; but he says emphatically that he is not in favor of boys of 12 years of age for this work as "they could not stand it at all in hot weather," and "were all in" even this cool weather.

A larger area was mapped than was possible to eradicate this season, so as to provide a good field for beginning operations at the opening of another season if this eradication work is continued, and also as a means of locating the limits of the diseased pine in this vicinity.

Work should be continued on this area next year, in order to obtain any permanent or satisfactory results; but it is not likely that local labor can be obtained on account of the demand made by the ship building industry at Bath.

Co-operative work on an area near Limerick, York County, was suggested, but no definite plan could be made for work this year.

In the opinion of the writer, too much stress was laid on minutia and details in the field procedure. The result was an increase in the time taken to eradicate a given area, and the distraction of the foreman from his chief duty to check up overlooked ribes behind the crew.

Without good maps made in advance, the position of the foreman was made next to impossible, since his whole time was employed in keeping track of paces and the other details required in form B. R. 1.

Form B. R. 4 was an excellent aid to both of the co-operating parties, particularly if it could have been returned by the Federal

agents with the same promptness that was demanded by them of the State representative.

The six-man crew seems to give the best results, spacing the men in the line from 6 to 12 feet apart, according to the character of the undergrowth. The foreman following the crew at a distance of about five or six paces in the rear. The two end men are made responsible for keeping the lines, which in most cases is done by breaking branches.

Ribes diggers were used and were a help where large plants were found or where they were imbedded in rocky or difficult places to pull without breaking the roots. Not all of the crew, however, need to be provided with them. Two or three to a crew are enough, and the end men should not be hampered with carrying them. The long-handled diggers, made in the form of a pick on one side and a two-pronged fork on the other side of the handle, were found to be the most useful, but some of them were made too light for the work, and in other types the handle was not properly fastened to the end of the pick.

No compensation for cultivated ribes was paid. Practically all of the few cultivated plants eradicated were diseased, and no claims were made by the owners for compensation.

Blister Rust was not found in any of the commercial nurseries inspected during the season; the Maine Department of Horticulture in co-operation with the Forestry Department expending some \$500 in inspection of nursery stock at commercial nurseries.

The general attitude of the people was a mild tolerance. Timberland owners were interested in doing anything practical to stop or hold the disease. Many people consider the methods used as impractical and are not convinced of the effectiveness of eradication, but are willing to do anything that may stop or check the spread of the disease.

Only one area of commercial ribes was met with, and that was outside of any of the eradication areas, near York, Maine. At Chase's Pond, Mrs. C. H. Chase grows both currants and gooseberries for making jellies and jams on a commercial scale. Only slight infection on currants was found.

One violation of the quarantine on ribes was found in a plantation of 200 currant bushes on the farm of Mr. H. Han-

sen, at Oak Hill, Scarboro, in Cumberland County. The owner was not aware of the quarantine, and the currants were not diseased when inspected on August 23, 1918.

EDUCATION

Lectures were given at the State College, and before a meeting of the County Agents at Orono.

All of the bulletins, No. 742, available, were distributed and also 20,000 colored post-cards showing the stages of the disease on Pine and on ribes. Large posters were distributed at the Post Offices and railway stations throughout the pine region of the state warning of the disease and giving the important details for identification and control.

A personal effort was made to acquaint every one seen on the eradication areas and in the inspection work with the true character of the disease, and the approved methods of control.

A circular distributed by the Extension Service at the University of Maine, also gives advice to prospective planters of white pine and suggested means of recognizing the disease if present in plantations.

It is intended to issue a new bulletin on the subject, written in a non-technical way and with pictures of the chief host plants, for general distribution. About 30,000 of these will be circulated during the winter, as an educational measure, and in preparation for future work in the state.

Illustrated lectures and talks to clubs and granges will also be given during the winter, and information on the subject will be sent to all prospective forest planters in the spring of 1919. Literature for this purpose is now in preparation.

We are indebted to several of the County Agents for valuable assistance in sending in information of diseased plants, and in extending general information on the subject, as well as in making displays and exhibits of specimens of the disease at county fairs and grange meetings.

EXHIBITIONS WERE SHOWN AT THE FOLLOWING FAIRS:

Aug. 26-29.	Eastern Maine Fair Association,	Bangor
Sept. 3- 5.	Cumberland County Fair,	Gorham

- “ 10-13. Central Maine Fair, Waterville
 “ 17-20. Maine State Agricultural Fair, Lewiston
 “ 24-26. Franklin County Fair, Farmington
 “ 26-27. Cumberland Center Fair, Cumberland Center
 Oct. 8-10. Topsham Fair (cancelled on account of
 epidemic).

The material shown at these exhibitions included specimens of the disease on both pine and all kinds of ribes. Large specimens of pine were mounted for the purpose, and also small hand specimens were shown. The various species of both wild and cultivated currants and gooseberries, including the following currant, were shown under glass mounts. Descriptive posters and specially prepared signs were shown with the specimens, and the display was arranged in as attractive manner as possible, and received excellent attention from the public and favorable comment from the local press. Fresh specimens of wild ribes were also shown, and a supply of post cards and bulletins was distributed at all of the exhibitions.

Many questions were asked and answered, and it is hoped that the erroneous impression that the white pine blister rust is some kind of an insect pest has been in a measure corrected.

No changes were made in the law under which the work in Maine was conducted this year, but inasmuch as the proclamation of the quarantine was not included in last years' report, it might be well to quote it here :

PROCLAMATION

By virtue of the authority vested in me by Section 6, Chapter 178, of the Public Laws of 1917, I hereby place an embargo on the shipment into, and forbid all persons, partnerships, associations or corporations, to bring into the State of Maine any Gooseberry or Currant plant, or five-leaved Pine, commonly known as White Pine, without obtaining a permit from the Forest Commissioner under penalty of being prosecuted under Section 6 of Chapter 178 of the Public Laws of 1917.

Given under my hand this twenty-first day of September, in the year of our Lord, one thousand nine hundred and seventeen, at Augusta, State of Maine.

(Signed)

FORREST H. COLBY,
 Forest Commissioner.

FINANCIAL STATEMENT.

In Maine the following projects were kept separately: Administration and Supervision, Eradication, Field Investigations, Education, and Miscellaneous. There were no local co-operative control areas, and no compensation was paid for any plants destroyed.

As shown by the tables following, the total expenditures during 1918, of the United States Department of Agriculture, Bureau of Plant Industry for the work in Maine, amounted to \$4,276.53, including all figures in the hands of the author up to November 1, 1918; and the State expenditures for the same period amounted to a total of \$4,543.16 for the same period. Thus making a gross total of \$8,819.69 expended for White Pine Blister Rust work in Maine for the season, up to the time of this report.

These figures are necessarily incomplete, and should not be used for publication, since the Federal expenditures for October are not included, nor are the State totals for October yet obtainable.

Further expenditures will be made by the State for educational work and for publications during the fiscal year, ending December 31, 1918. A complete statement cannot, therefore, be made until after that time.

The average costs for eradication only were as follows, as shown by the accompanying tabulated data:

Average cost of labor, all areas, all types (by types) .53 per acres
 Average cost of expenses, all areas, all types.50 per acre

Total cost of eradication\$1.03 per acre

This agrees with the total amount expended for that purpose.

The average cost for board and lodging of the men was \$10.50 per week, per man, which was about the best that could be done under present conditions.

The total area eradicated during the period was 4904½ acres, and the total number of plants 90,097, or an average of 18.8 plants per acre for all areas, consuming on an average 2.1 man-hours labor, which at an average cost of .25 per man-hour for labor agrees with the average cost per acre found from the date, or .53 per acre.

It is also evident from the tables that the types having the most ribes, and requiring the most attention and time are the Pine Type, Mature Pine and Immature Pine, Brush Type, Swamp Type, and Pasture or Cleared Land Type, the others being of comparatively minor importance.

With these cost figures at hand it will be an easy matter to advise individual owners as to the approximate cost of eradication according to the kind of land that they own, and wish to eradicate of ribes. Under normal conditions it will probably be possible for individual owners to employ labor for the purpose for about the actual labor cost shown in the tables. When local labor can be employed it will be advisable to employ it even at a higher cost per man-hour, since no additional expenses will have to be incurred in the eradication work in that case.

In figuring on costs by this method, however, it should be borne in mind that it will take on an average about 2 hours' man-labor per acre.

It should be noted that the average labor cost of eradication, obtained by figuring the different types separately, is considerably more than the average taking the total cost of eradication and the total area covered in each project.

While the average cost, taking the types separately, for all types is 53c per acre, due to including several abnormal figures based on only a small acreage, the average cost figures, taking the totals by projects, as shown by the tables, are as follows:

LABOR ERADICATION

Average cost, per acre for the Alfred area.....	\$.30
" " " " " " Kittery Point area.....	.40
" " " " " " Brunswick area .....	.25
	<hr/>
	.95
	<hr/>
Average cost per acre for all areas, season 1918.....	.32

Taking this as the average cost for labor, per acre, and adding the average expense cost for eradication of.....\$.50 we have as the grand total for eradication per acre.....\$.82 for the work done during the season of 1918. This may be taken as a fair average for all types.

Since labor cost would be the only one that need be considered in the majority of cases where the work was to be done for eradication of ribes only, an average figure of 32c per acre for all types would seem to be a fair one. Such an expenditure may well be recommended to individual owners, as an investment in the form of protective insurance on young stands of white pine.

Respectfully submitted,

WHITE PINE BLISTER RUST WORK,

JOHN M. BRISCOE, *Agent.*

1916



MAINE FORESTRY DISTRICT

FINANCIAL STATEMENT

DECEMBER 31, 1919.

Receipts

Balance on hand January 1, 1919.....	\$ 7,023.87
1919 Assessment	112,773.87
Interest on Deposits.....	119.96
Miscellaneous Income	3,374.57
	Total Receipts
	\$123,292.27

Expenditures

Expenses of fire protection during season of 1919 (For detail see watershed expenditure)	\$121,158.58
	Balance December 31, 1919
	\$2,133.69

EXPENDITURES—MAINE FORESTRY DISTRICT

	St. John	Penobscot	Kennebec	Androscoggin	Machias	Total
Chief Warden	\$6,079.04	\$6,446.26	\$3,996.70	\$ 308.30	\$ 1,520.12	\$ 18,350.42
Deputy Warden	719.47	677.85	108.43	-	163.05	1,668.80
Lookout Expense	8,268.05	13,403.42	7,856.34	4,805.97	3,331.87	37,663.65
Patrol Expense	11,134.10	6,283.22	605.42	1,958.58	940.92	20,928.24
Fire Expense	1,835.91	2,570.40	1,245.20	216.19	534.99	6,402.69
Tools and Supplies	6,153.61	7,850.30	4,589.21	1,599.51	2,782.41	22,955.04
Admin. Charges.....	950.20	969.91	953.43	942.00	953.43	4,769.02
Misc. Charges.....	904.28	1,129.02	1,444.63	744.41	823.76	5,046.15
Totals	\$36,042.66	\$39,330.38	\$20,779.41	\$10,574.96	\$11,056.60	\$117,784.01
Refunds from various sources during the year.....						3,374.57
						\$121,158.58
FEDERAL EXPENDITURES						
Lookout Expense.....	\$683.40	\$1,148.40	\$1,820.40	\$227.40	\$1,847.40	\$5,727.00

FIRE SEASON

The Maine Forestry District, the past season has experienced one of the most dangerously dry seasons since its establishment in 1909. The rainfall was below normal; no general rains and very few showers, and what showers we had were of no consequence. Early in the season the brooks became low and some of them dry, and the fishermen and woods travelers were very numerous.

In the Spring of 1919 the Forestry Department initiated a new project, namely: The organization of The Guardians of the Forests of Maine. The first meeting was held April 8th and 9th and attended by over 40 Chief Forest Fire Wardens, and representatives of the timberland owners. The program of this meeting was made up as follows:—

PROGRAM

TUESDAY FORENOON

Commissioner and Deputy Commissioner will meet Wardens at 9.36 and 9.50 trains.

10.00 o'clock

Assignment of rooms at the Augusta House

10.30 o'clock

Meeting in Senate Chamber at State House
Calling of the Roll.

10.45 o'clock

Address of Welcome by the Commissioner

11.15 o'clock

Question Box

(About 11.15 A. M. a "Question Box" was opened, the wardens asking questions of A. P. Daniels and N. A. Collins, who are representatives of the Western Electric Co. Most of the inquiries were in regard to the telephones, telephone lines, and 'phone boxes.)

12.00 noon

Luncheon at the Augusta House

TUESDAY AFTERNOON

2.00 o'clock

Address, Maine's Forests

HON. BLAINE S. VILES, Former Forest Commissioner

2.30 o'clock

First Aid Work

MAJOR BIAL F. BRADBURY

3.00 o'clock

Address on Fish and Game

COMMISSIONER WILLIS E. PARSONS

4.00 o'clock

Moving Pictures at Colonial Theatre

TUESDAY EVENING

7.00 o'clock

Banquet at Augusta House

Music by Merrill's Orchestra

Address, "My trip across as Manager of the New England
Sawmill Units."

By E. C. HIRST, State Forester of New Hampshire

WEDNESDAY FORENOON

7.30 o'clock

A Real Woods Breakfast, Augusta House

8.30 o'clock

The Commissioner and Deputy Commissioner will be in the office at the State House to confer and advise with the wardens in regard to the work for each Warden's own territory.

11.00 o'clock

Meeting in the Senate Chamber for final talk and final adjournment.

12.00 noon

Farewell luncheon at Augusta House.

The lookout stations were opened earlier than usual. Lead Mt., in Hancock County, was opened April 14th, and the first fire of the season was discovered by this station on April 20th. By the first of May practically all of the watchmen and patrolmen were on duty and had to be kept on until September 15th, when we were favored with a general rain all over the State. A notable fact for 1919 is that Washington and Hancock Counties which in the past have always been unfortunate with forest fires, had no fires of any consequence this season. The territory between Millinocket and Ashland proved to be the most dangerous section for forest fires in the Maine Forestry District. This section is supervised by three Chief Forest Fire Wardens, John E. Mitchell of Patten, Thomas Griffin of Millinocket and Charles L. Weeks of Ashland. The reason for this we believe is that there was more lumbering and more fishermen in that particular section than in any other part of the State.

FOREST FIRES REPORTED BY LOOKOUT STATIONS.

No. Station	Name	No. Fires
1.	Lead Mt. Twp. 28, Hancock Co.	8
2.	Pleasant Pond Mt. Caratunk Plantation	1
3.	Sally Mt. Attean Township	0
4.	Tumbledown Mt. Twp. 5, R. 6, W. K. R.	1
5.	Squaw Mt. Twp. 2, R. 6, E. K. R.	10
6.	Snow Mt. Twp. 2, R. 5, Franklin Co.	1
7.	Bigelow Mt. Dead River Pl., Somerset Co.	6
8.	White Cap Mt. Twp. 7, R. 10, N. W. P.	5
9.	Spencer Mt. Middlesex Grant, Piscataquis Co.	2
10.	Rocky Mt. Twp. 18, R. 12, W. E. L. S.	10
11.	Center Mt. Twp. 4, R. 10, W. E. L. S.	0
12.	Otter Lake Mt. Twp. 3, R. 4, W. E. L. S.	15
13.	Mt. Chase Chase Township	6
14.	Ragged Mt. No. 4 Indian Purchase	10
15.	Kineo Mt. Moosehead Lake	5
16.	Coburn Mt. Twp. 3, R. 6, B. K. P., W. K. R.	2
17.	Wesley Mt. Wesley, Washington Co.	3
18.	Depot Mt. Twp. 14, R. 16, W. E. L. S.	2
19.	Soper Mt. Twp. 8, R. 12, W. E. L. S.	10
20.	Round Mt. Twp. 11, R. 8, W. E. L. S.	11
21.	Aziscoos Mt. Lincoln Pl., Oxford Co.	1
22.	Katahdin Mt. Twp. 3, R. 9, W. E. L. S.	1

23. Moxie Bald Mt.	Twp. 2, R. 3, E. K. R.	2
24. Kibbie Mt.	Twp. 1, R. 7, W. B. K. P.	0
25. Priestly Mt.	Twp. 10, R. 13, W. E. L. S.	1
26. Boundary Bald Mt	Twp. 4, R. 3, N. B. K. P.	1
27. Williams Mt.	Twp. 2, R. 7, B. K. P., W. K. R.	0
28. West Kennebago Mt.	Twp. 4, R. 4, W. B. K. P.	11
29. No. 4 Mt.	Twp. A, R. 14, W. E. L. S.	2
30. Pocoomoonshine Mt.	Princeton, Washington Co.	5
31. Passadumkeag Mt.	Grand Falls Pl.	4
32. Tug Mt.	Twp. 30 M. D., Washington Co.	0
33. Beetle Mt.	Twp. 7, R. 10, W. E. L. S.	2
34. Horse Mt.	Twp. 6, R. 8, W. E. L. S.	4
35. Boarstone Mt.	Elliottsville Pl.	15
36. Jo Mary Mt.	Twp. A, R. 10.	1
37. Cooper Mt.	Cooper, Washington Co.	10
38. Musquash Mt.	Topsfield.	0
39. Green Mt	Twp. 4, R. 18, W. E. L. S.	0
40. Mucalsea Mt.	Twp. 5, R. 16, W. E. L. S.	5
41. Saddleback Mt.	Twp. 2, R. 1, W. B. K. P.	13
42. Doubletop Mt.	Twp. 4, R. 10, W. E. L. S.	3
43. Nulhedus Mt.	Twp. 5, R. 17, W. E. L. S.	0
44. Lawler Hill	Benedicta.	0
45. NorwayBluff	Twp. 9, R. 9, W. E. L. S.	13
46. No. 9 Mt.	Twp. D, R. 2, W. E. L. S.	1
47. Hedgehog Mt.	Twp. 15, R. 6, W. E. L. S.	8
48. Three Brooks Mt.	Twp. 15, R. 6, W. E. L. S.	0
49. Speckles Mt.	Grafton, Oxford Co.	1
50. Spoon Mt.	Twp. 8, R. 7, W. E. L. S.	3
51. Mattamiscontis Mt.	Twp. 3, R. 9, N. W. P.	7
52. Squa Pan Mt.	Twp. 11, R. 4, W. E. L. S.	24
53. Schoodic Mt.	Twp. 9, Hancock Co.	2
54. Hardwood Mt.	Twp. 9, R. 18, W. E. L. S.	0
55. Almanac Mt.	Lakeville Pl.	0
56. Allagash Mt.	Twp. 7, R. 14, W. E. L. S.	2
57. Picket Mt.	Lang Pl.	0
58. Flagstaff Mt.	Twp. 3, R. 4, B. K. P., W. K. R.	
59. PogeY Mt.	Twp. 4, R. 9, W. E. L. S.	0
60. Washington Bald Mt.	Twp. 42, M. D.	0
61. Mitchell Mt.	Haynesville.	5
62. Soubungo Mt.	Twp. 4, R. 11, W. E. L. S.	3
63. Black Cat Mt.	Twp. 1, R. 9, W. E. L. S.	8
64. DeBoullie Mt.	Twp. 15, R. 9, W. E. L. S.	1

Patrolman	Territory	County	No. Fires
Richard Witham	Twp. 12, R. 17	Aroostook	1
Robert J. Walsh	Twp. 10, R. 4	Aroostook	1

Joseph Labby	Twp. 11, R. 6	Aroostook	2
Jos. J. Albert	Twps. 17, R. 3, 4, 5	Aroostook	3
E. K. Peck	Twp. 7, R. 3	Aroostook	1
Andrew Sawyer	Twp. 9, R. 7	Aroostook	1
Geo. M. Austin	Twps 16, R. 4, & 17, R. 4	Aroostook	2
Otto Hede	Twps. 16, R. 5 & 17, R. 5	Aroostook	2
John Webber	Twp. D, R. 2	Aroostook	3
James Smart	Twp. 16, R. 5 & 6	Aroostook	1
Frank McMannus	Twps. 5,R.5; 8,R.6; 8,R.9.	Aroostook	2
H. E. Huson	Twp. 10, R. 3	Aroostook	1
			— 20
M. W. Toothaker	Dallas	Franklin	2
John H. Martin	Twp. 3, R. 1	Franklin	5
			— 7
Chas. Giggins	Letter D	Oxford	1
			— 1
Herbert Tinker	Twp. 8, R. 14	Penobscot	1
Jos. A. Lebel	Twps. 6, R. 7 & 8; 7, R. 8	Penobscot	2
W. F. Harnden	Twps. 7, R. 7 & 8, R. 7	Penobscot	1
			— 4
E. J. Grant	Twp. 5, R. 14	Piscataquis	2
Leon E. Potter	Twp. 1, R. 10	Piscataquis	1
			— 3
			—
Total.....			35

FEDERAL CO-OPERATION

The co-operation of the United States Forest Service was continued under the agreement which was signed in 1916. On account of the State of California qualifying for co-operation under the Weeks Law, together with the fact that Congress failed to increase the so-called Weeks Laws appropriation, our allotment for 1919 has been somewhat smaller than in previous years. The following tabulation will show the amount of money received from the U. S. Forest Service and the amount expended by this department under the different headings:

UNITED STATES DEPARTMENT OF AGRICULTURE FOREST SERVICE

Report of Expenditures on Watersheds of navigable streams, State of Maine, Season of 1919

FOREST COMMISSIONER'S REPORT

Kind of Expenditure	Number	State	Federal
		Amt. of expenditures (Salaries, travel and other charges)	Amt. of expenditures (salaries only)
State or Federal:			
Collaborator			\$ 12.00
Lookout Watchmen	42	\$ 16,275.78	5,715.00
Patrolmen	75	19,527.90	
State only:			
Fire wardens, rangers, etc.	38	19,304.41	
Fire Fighting		6,397.69	
Construction work		49,687.01	
(Lookouts, telephone lines, etc.)			
Administration charges		4,212.76	
Miscellaneous charges		2,378.46	
Total for the year		\$117,784.01	\$5,727.00

As in previous years, the Federal allotment was confined entirely to lookout stations named below:

Stations	Number	Watchman
Squa Pan Mt	52	J. M. Potter
Three Brooks Mt.	48	J. M. Donahue
Hedgehog Mt.	47	Herbert E. Brown
Mt. Chase	13	Warren Darling
Coburn Mt.	16	P. J. Walsh
Kineo Mt.	15	Alice Henderson
Mattamiscontis Mt.	51	John Stanchfield
Ragged Mt.	14	George H. Monroe
Boarstone Mt.	35	T. H. Katen
Squaw Mt.	5	C. H. Leland
Attean Mt.	3	Allan Runnells
Boundary Bald	26	Ed. Goslin
Bald Mt.	23	Richard Morris
Bigelow Mt.	7	Lewis F. Marsh
West Kennebago Mt.	8	Wallace S. Houston
Musquash Mt.	38	Warren A. Bailey
Lead Mt.	1	Hiram Corliss
Pocamoonshine Mt.	33	Merle E. Hoar
Wesley Mt.	17	S. M. Hawkins
Cooper Mt.	37	Oscar Sadler
Schoodic Mt.	53	Howard L. Webb

CO-OPERATION WITH THE STATE OF NEW HAMPSHIRE

As in previous years, the watchmen of the Maine Forestry District were furnished with a list of watchmen and wardens in New Hampshire, with post office address and telephone connection. They were instructed to be on the lookout for fires across the State boundary and should a fire be discovered to get into communication with the watchmen and wardens in that territory.

Patrolmen on the Magalloway River, the Valley of Big Meadows and Hammond Brooks were employed and paid jointly by the Maine Forestry District and New Hampshire Timberland Association.

CO-OPERATION WITH THE RAILROADS

The section foremen of the different railroads in the State, whose divisions are in the Maine Forestry District, were commissioned as Deputy Forest Fire Wardens. These men were called upon many times this summer to put out fires. We find in the tabulation of forest fires in 1919 that only nine fires were caused directly by the different railroads. We believe that this is a good showing that all the railroads are making in protecting the forests from fire.

SLASH

Early in the spring letters were written to all the Chief Forest Fire Wardens, instructing them to take care of all slash in their respective territories and we are informed by these men that in all cases where slash was left along side the road, contrary to the law, it was taken care of, either by the owner of the land or the operator. Letters were also written to the County Commissioners and Road Commissioners in regard to slash left along side the road in the District.

SUPERVISION

Mr. Edwin I. Small, expert woodsman, and once employed by this department as foreman of the construction crew, in putting up towers and camps, was appointed Inspector for the Season of 1919. We are glad to report that more stations were inspected this year than in any other year since the establishment of the Maine Forestry District. Out of the sixty-four lookout stations in the District, fifty were thoroughly inspected by Mr. Small. On receipt of his reports in this office a copy was sent to the Chief Warden, who was instructed to comply with the recommendations as closely as possible.

FOREST FIRES

According to our records, 292 forest fires were reported to this office by our watchmen and patrolmen during the past season. The services of outside help, besides our regular force,

were required on 85 fires, which are listed in the tabulation below. The largest forest fire of the season occurred May 31st on what is called Chase Stream Township, Somerset County, and it was about the most'expensive fire.

TOWNSHIP	DATE	ACRES	CAUSE	DAMAGE
2, Range 3,	Aroostook Co.,	May 16.	5 Cigarette	\$50.00
D, Range 2,	"	May 15	20 Burning stumps	100.00
11, Range 4	"	May 14	12 Burning brush	*
3, Range 4,	"	May 14	10 Campers	1,000.00
10, Range 3,	"	June 3	2½ Unknown	*
12, Range 6,	"	June 9	12 Woodsmen	360.00
11, Range 6,	"	July 1	2 Fishermen	15.00
12, Range 13,	"	July 1	100 Cigarette	*
8, Range 4,	"	June 25	50 Campers	75.00
14, Range 7,	"	June 26	2 Campers	*
20, Range 11, 12	"	June 19	20 Canadian farmers	*
9, Range 7,	"	June 21	4 Unknown	15.00
11, Range 8,	"	July 4	100 Fishermen	500.00
8, Range 4,	"	July 5	½ Campers	*
12, Range 17,	"	June 24	3 Canadian farmers	*
9, Range 17,	"	June 21	4 Unknown	15.00
10, Range 6,	"	July 21	4 Cigarette	900.00
9, Range 7,	"	Aug. 13	½ Unknown	20.00
12, Range 9,	"	Aug. 16	½ Lightning	10.00
Glenwood Pl.,	"	Aug. 18	1 Campers	10.00
Jerusalem,	Franklin Co.,	Apr. 23	10 Engine	*
Jerusalem,	"	Apr. 23	1 Engine	5.00
Jerusalem,	"	May 14	12 Engine	*
Jerusalem,	"	May 15	15 Fishermen	75.00
Letter D,	"	May 14	20 Engine	*
Dallas Pl.,	"	May 30	½ Engine	*
Redington	"	June 3	2 Pulp cutters	100.00
3, Range 1,	"	June 4	2 Lightning	5.00
3, Range 4,	"	June 5	10 Fishermen	*
10 S. D.,	Hancock Co.,	May 16	1500 Fishermen	*
8, S. D.,	"	May 10	20 Unknown	30.00
8, S. D.,	"	Apr. 28	12 Unknown	30.00
16, S. D.,	"	May 16,	1500 Fishermen	1,000.00
8, S. D.,	"	May 31	25 Fishermen	50.00
10, S. D.,	"	June 1	40 Blueberry pickers	*
33, M. D.,	"	May 22	2 Fishermen	6.50
8, S. D.,	"	June 1	15 Unknown	*
28, M. D.,	"	June 25	2½ Unknown	100.00
No. 21, Pl.,	"	June 23	5 Unknown	100.00
4, Range 3,	Oxford Co.,	May 31	Engine	*

4, Range 5,	"	June 11	1	Fishermen	*
Adamstown	"	Aug. 1	1-10	Lightning	*
Andover West Surplus	"	Aug. 5	1-10	Unknown	*
4, Range 3,	"	June 8	30 sq. ft.	Fishermen	*
3, Range 7,	Penobscot Co.,	July 3	¼	Fishermen	*
Indian No. 3	"	May 16		Unknown	*
Drew Pl.,	"	May 14	9	Fishermen	*
6, Range 7,	"	May 21	½	Drivers	*
1, Range 8,	"	June 6	3	Matches	*
2, Range 8,	"	June 26	300	Matches	*
A, Range 7,	"	July 27	1-8	Unknown	*
2, Range 8,	"	Aug. 2	75	Lightning	*
A, Range 7,	"	Aug. 13	¼	Berry pickers	*
6, Range 8,	"	Aug. 12	16	Berry pickers	*
Indian No. 3,	"	Sept. 29	14	Unknown	*
7, Range 14,	Piscataquis Co.,	Aug. 22			*
Elliottsville Pl.,	"	May 1	2	Accidental	30.00
Big Squaw	"	May 30	2	Engine	20.00
1, Range 9,	"	June 3	¼	Lightning	
2, Range 10,	"	June 13	15	Unknown	50.00
5, Range 10,	"	July 1	16-10	Campers	328.00
1, Range 9,	"	Sept. 17			*
5, Range 10	"	May 14	11	Woodsmen	*
5, Range 10,	"	Sept. 22	2	Unknown	80.00
Long Pond Pl.,	Somerset Co.,	May 14	2	Burning brush	*
Chase Stream	"	May 13	75	Engine	*
Chase Stream	"	May 31	125	Fishermen	900.00
5, Range 16,	"	June 3,	2	Lightning	*
Spaulding Town,	"	June 29	1	Fishermen	10.00
4, Range 5,	"	June 6	2sq. rds	Lightning	*
4, Range 7,	"	Sept. 5	6	Woodsmen	36.00
Beddington	Washington Co.,	Apr. 20	50	Unknown	*
No. 32, M. D.,	"	May 19	50	Unknown	100.00
Grand Lake Str. Pl.,	"	May 23	3	Unknown	10.00
30, M. D.,	"	May 9	35	Woodsmen	*
Plan. No. 21,	"	June 26	2	Campers	75.00
10, Range 3,	"	June 2	2	Engine	80.00
10, Range 3,	"	June 4		Fishermen	*
5, N. D.	"	July 5	¼		15.00
				4352	\$6305.50

*Not mentioned

SUMMARY OF FOREST FIRES FOR 1919 IN MAINE
FORESTRY DISTRICT

County	Acreage	Damage
Aroostook	353	\$ 3070.00
Franklin	72½	185.00
Hancock	3121½	1316.50
Penobscot	418	
Piscataquis	33	508.00
Oxford	1	
Somerset	21½	946.00
Washington	142	280.00
	4352	\$6305.50

CAUSES OF FIRES

Lightning	8
Railroad	9
Unknown	21
Lumbering	4
Brush Burning	6
Campers	37
	85

CAUSES OF FOREST FIRES ARE CLASSIFIED UNDER
THE SIX FOLLOWING HEADINGS

LIGHTNING: Fires the origin of which is directly traceable to lightning.

RAILROADS: Fires incidental to the construction, operation or maintenance of common carrier railroads. (This includes fires from sparks or cinders from all locomotive or construction engines, from lighted cigars, etc., thrown from car windows, from the clearing of rights of way, or from the individual carelessness of any employee or passenger.)

LUMBERING: Fires incidental to all lumbering operations. This includes fires caused by sawmills or donkey-engines and logging railroad loco-

tives, except on such logging railroads as are common carriers; and by the carelessness of of all lumbering employees.

BRUSH BURNING: Fires caused by clearing lands for any purpose (other than for rights of way for common carrier railroads, and brush burning in lumbering operations) or by rubbish, garbage, range, stubble or meadow burning, and by burning out animals, insects or reptiles.

CAMPERS: Fires resulting in any manner from carelessness of campers, stockmen, prospectors, picknickers, surveyors, berry-pickers, hunters, fishermen, automobilists, tramps, and other travelers through the forest.

UNKNOWN: All fires the origin of which cannot be determined with such degree of certainty as would justify their inclusion under any other head.

EDUCATIONAL WORK

It is the belief of this department that the greatest need of the present time in this state is the education of the five per cent of the population which does not act with care and intelligence in its treatment of the woods. Most of the citizens of Maine and most sportsmen from out of the State are now very careful. There remains that small residue that always cause trouble, and to these people the department is trying every year and especially this year, to reach them by putting out posters. The posters put out this year are mostly metal signs hung on trees and above roads. During this past season pamphlets have been distributed in practically all of the public places in the State. The Kennebec Valley Protective Association has also helped us a great deal in this particular work.

PERMANENT IMPROVEMENTS

We desire to enumerate here the different permanent improvements which were made during the past season and can be found in the Chief Forest Fire Wardens reports that will be found elsewhere.

STEEL TOWER		
Station		Watershed Height in Ft.
Kennebec	12	Squaw Mt.
Kennebec	12	Moxie Bald Mt.
Androscoggin	24	Aziscoos Mt.
Androscoggin	36	Speckles Mt.
St. John	12	*DeBoulie Mt.
St. John	36	No. 9 Mt.
Penobscot	12	Soubungo Mt.
Penobscot	48	Black Cat Mt.
Machias	36	Passadumkeag Mt.
Penobscot	12	Center Mt.

*To be completed 1920.

During the past season the department has built about 150 miles of telephone lines and ten camps. Fifty-five telephone instruments were purchased and installed and six test sets were added to the service. During the winter of 1918-1919 a thirty foot motor boat with a twenty horse-power motor, the Catherine B., was built by E. M. White & Co., Oldtown, Maine, and placed on Chamberlain Lake. This large boat is of sufficient power to patrol the lake in all weather and adds greatly to the protection of this territory. The smaller boat used formerly on Chamberlain was placed on Eagle Lake. A boat house has been built on the shore of Chamberlain Lake near the Chamberlain Farm buildings. The main improvement made on the telephone lines the past season was the building of a twenty-five mile line connecting the Chesuncook region with the Allagash region. This was built early in the spring of the past season and runs from Chesuncook to the Tramway Camps at head of Chamberlain Lake via Mud Pond. This was a very expensive piece of work but it is the belief of this department that it is money well invested. Help can now be called from the wardens on the lower Allagash region to help fire fighting in the upper section of Chesuncook Region. Another motor boat was purchased and put in Grand Lake. There was also purchased by this department early in the season 32 dozen shovels, 46 dozen pails, 26 dozen axes, 24 dozen mattocks, and five canoes. Seven Ford cars purchased and placed as follows: one in Machias Watershed

under the supervision of F. E. Patten of Cherryfield, and two in St. John Watershed under the supervision of C. L. Weeks and C. M. Austin, and three in the Penobscot Watershed under the supervision of D. H. Lambert, R. L. Brick, and John E. Mitchell.

Station Maps

The fourteen panoramic maps which were sketched last season have been completed and installed in the stations. Our Engineer has sketched maps for the following stations during the past season: Black Cat Mt., Squa Pan Mt., Mitchell Mt., Washington Bald Mt., Passadumkeag Mt., Squaw Mt., White Cap Mt., Moxie Bald Mt., Spencer Mt., Soper Mt., Allagash Mt., Priestly Mt., Soubungo Mt., Center Mt., Beetle Mt., No. 9 Mt., and Nulhedus Mt. Early next spring out of the sixty-four lookout stations now in use in the Maine Forestry District fifty will be equipped with these maps. This leaves seven of these stations to be sketched, the other seven are only emergency stations. The tabulation on page four will show the amount of money expended for supplies and construction under the heading of construction work.

OUTSIDE MAINE FORESTRY DISTRICT

LOOKOUT STATIONS

The lookout stations on Agamenticus Mountain and Ossipee Hill, on which steel towers were erected last fall, were connected with the system of the New England Telephone and Telegraph Company. These stations were opened early in May and kept open until early in October. Under an agreement with the United States Forest Service the salary of the watchmen on these two stations was paid two-thirds by the Service and one-third by the State. There were thirty-four fires reported by the watchman on Agamenticus Mountain, and twenty-one fires by the watchman on Ossipee Hill. Although the lookout system outside the Maine Forestry District is not yet perfected, we are satisfied with the results obtained so far.

WARDENS

According to the present law, the selectmen of the towns are Forest Fire Wardens, and have the whole responsibility of fire protection in their respective towns. Knowing these men to be very busy and not having much time to attend to the details of forest protection, it was thought advisable by this department to ask the selectmen to appoint a deputy forest fire warden, who would have full charge of forest fires in the towns for which they were appointed. Accordingly the following letter was written to the Selectmen of the different towns in the State.

March 27, 1919.

To the Honorable Board of Selectmen:

Gentlemen:

The forest and wood lot fire season seems to be very close at hand. I am enclosing a copy of the law in regard to forest

fires in the organized towns of our State. You will note that the Selectmen of the organized towns are the Forest Fire Wardens for such towns. Please note that Fire Wards in organized towns do not have supervision over forest fires. I respectfully call your attention to that part of the Law which pertains to the negligence of Selectmen and their liability for damages if they do not attend to their duty in this respect. It has been suggested to me that in cases where the Selectmen do not have the time to attend to this duty that they appoint one or more men, to be known as Deputy Forest Fire Wardens, who have telephone connection and own an automobile, and are interested in the forests and wood lots, to be their representatives in looking after these matters and Taking Charge of the Work in the case of forest fires. Please impress upon these men the importance of being very prompt to act when notified of fire starting in their locality, and the importance of being within telephone communication through the dry season, giving the local operator the number where they can be called. Report to this department any Deputies appointed by you; or in case you do not appoint Deputies please let us know the name of the Selectmen in charge of forest fires.

I would also call to your attention that according to reports of this office the fire loss in the Maine Forestry District, meaning outside of the organized towns, for the season of 1918 was \$7,291.20, while in the organized towns, meaning the towns not in the Maine Forestry District, it was \$70,600.00. I believe if proper care and attention is given this forest fire problem by the Selectmen of the towns that there is no reason why the fire loss outside of the Maine Forestry District should be any larger than it is within the Maine Forestry District.

I am not writing this letter to find fault with any town official but simply to bring the matter home to you that we may cooperate to the best possible advantage and do everything we can to eliminate forest fires from our State this season.

Any advice or assistance that we can render we shall be glad to do.

Very truly yours,

(Signed)

FORREST H. COLBY,
Forest Commissioner.

In accordance with this letter, deputy wardens were appointed in the following towns: Lebanon, Fryeburg, Cornish, Cumberland, Monson, Cornville, Searsport, Limerick and Gorham. Arthur A. Ramsdell of York and C. W. Fluent of Cornish Center were appointed watchmen for Agamenticus and Ossipee Mountains respectively. The watchman on Ossipee reported during the season 21 fires and the watchman on Agamenticus reported 34 fires. An agreement was reached with the U. S. Forest Service whereby the watchmen were paid two-thirds by the Service and one-third by this department. The money used by the department to pay these watchmen was taken from the appropriation for general forestry purposes. Steel has been purchased for two forty-eight-foot towers to be placed on Cedar Mountain in the town of Parsonsfield and Pleasant Mountain in the town of Denmark. These four stations will cover all of York County, part of Cumberland and all that part of Oxford County not covered by the lookout stations in the Maine Forestry District.

SLASH

Warren C. Merrill of Skowhegan was appointed inspector to look after slash enforcement. As soon as the appropriation for general forestry purposes became available, which was on July 4th, a Ford car was purchased and turned over to the inspector, who, from that time until September 17th, when he finished to return to college, had travelled six thousand two hundred and six miles, covering nearly all the roads in York, Cumberland, Sagadahoc, Lincoln, Kennebec, Somerset, and the south part of Oxford and Franklin. There were many places where the slash was very bad and as the weather was very dry it was thought advisable not to burn but to have the slash piled in these bad places and ready to burn in the fall on the first snow. This fall the following letter was written to the Selectmen in regard to disposal of slash at this time:

To the Selectmen:

Many times last summer during the dangerous dry period we had inquiries in regard to the disposal of slash. We have advised in all cases to pile the brush and wait for a favorable time to burn it. In the central and lower part of the

State it is now the most favorable time to burn Slash. We favor this time of the year as the first light snows are beginning to fall and there is no danger of the fire escaping; and the slash burns much better than in the early spring. In the springtime you will find that the inside of the pile remains so damp that it will not burn well; or if it does burn it will require a great deal of time and work.

We do not mean to dictate to you but we do want to refresh your memory in regard to this work as we are very anxious to have all of the slash by the roadside disposed of this fall if possible. If you know of any slash in your town that has not been disposed of, a word from you to the parties leaving the same will do much for the cause. We will appreciate it if you will give this your careful attention for the next few weeks.

Very truly yours,

FORREST H. COLBY,
Forest Commissioner.

The so-called Slash Law was amended by the last Legislature, requiring permits to burn brush from the Forest Commissioner. As the law did not come into effect until July 4th, only thirty-six permits were granted this season. The law was also amended requiring the Forest Commissioner to furnish to the Municipal Officers of all the towns and organized plantations of the State blank permits signed by him for the burning of brush and slash, and full authority was given to these officers to counter-sign and grant such permits signed by the Forest Commissioner. Books of twenty-five permits have been prepared and will be ready for distribution early next spring. Another amendment which was added to this law is the clause making any violation of the so-called slash law punishable by a fine of fifty dollars.

PATROL

George F. Granville was again commissioned as a patrolman covering the section around Parsonsfield. He was paid out of the money donated to the department for that purpose by the Sokokis Lumber Company and from the appropriation for general forestry purposes.

FOREST FIRES

The damage done by forest fires outside of the Maine Forestry District was a great deal less this season than in 1918. The following tabulation gives the number of fires that were reported to this office by the Selectmen.

FOREST FIRES OUTSIDE OF THE MAINE FORESTRY DISTRICT.

TOWNSHIP	Date	Acres	Cause	Damage
Monticello.....	June 2	60	Burning fallow.....	*
Greene.....	Aug. 10	8	Campers.....	*
Chapman.....	Aug. 6	3	Unknown.....	\$20.00
Yarmouth.....	May 15	2	Locomotive.....	*
Sebago.....	June 6	3	Potable mill.....	30.00
Sebago.....	May 29	40	Portable mill.....	none
Standish.....	April 23	40	Burning brush.....	200.00
Yarmouth.....	May 2	2	Portable mill.....	*
Standish.....	June 13	75	Unknown.....	25.00
No. Yarmouth.....	July 26	5	Wood choppers.....	100.00
Temple.....	Aug. 1	2	Lumbermen.....	none
Tremont.....	Aug. 15	2	Berry pickers.....	300.00
Brownfield.....	Aug. 2	300	Cigarette.....	300.00
Bowdoin.....	July 4	10	Saw mill.....	*
Cornville.....	April 20	75	Unknown.....	1,300.00
Balleyville.....	May 16	15	Unknown.....	200.00
Lebanon.....	July 30	1½	Cigarette.....	100.00
Lebanon.....	Aug. 2	5	Locomotive.....	50.00
North Berwick.....	July 29	20	Unknown.....	none
		668½		\$2,625.00

SUMMARY OF FIRES OUTSIDE OF MAINE FORESTRY DISTRICT.

COUNTY.	Acreage	Damage
Aroostook.....	63	\$20.00
Androscoggin.....	8	*
Cumberland.....	167	355.00
Franklin.....	2	—
Hancock.....	2	300.00
Oxford.....	300	300.00
Sagadahoc.....	10	—
Somerset.....	75	1,300.00
Washington.....	15	200.00
York.....	26½	150.00
	668½	\$2,625.00

* Not mentioned.

Causes of fires, Unknown, 5; Campers, 4; Lumbering, 6; Rai roads, 2; Burning brush, 1; Total, 18.

PUBLIC LANDS

NATIONAL FORESTS

June 30, 1919, the United States Forest Service had acquired, under the Weeks Law, 27,860 acres of land in this State which has been made part of the White Mountain National Forest. This land is all located in the County of Oxford and this County in 1918 received from the U. S. Forest Service \$247.08, which is twenty-five per cent of all money received from this Forest Reserve during that fiscal year, and in accordance with the Section in the U. S. Revised Statutes, Volume 35, Page 260, which reads as follows :

“That here after twenty-five per centum of all money received from each forest reserve during any fiscal year, including the year ending June thirtieth, nineteen hundred and eight, shall be paid at the end thereof by the Secretary of the Treasury to the State or Territory in which said reserve is situated, to be expended as the State or Territorial legislature may prescribe for the benefit of the public schools and public roads of the county or counties in which the forest reserve is situated :

Provided, That when any forest reserve is in more than one State or Territory or county the distributive share to each from the proceeds of said reserve shall be proportional to its area therein.”

In accordance with the above section the Legislature of 1919 passed the following Resolve: “The money received from the department of agriculture of the United States, under the resolve of congress approved May twenty-third, nineteen hundred and eight, amounting to two hundred and eighty-seven dollars and seven cents, is hereby transferred to the county treasurer of Oxford County.”

This year \$446.50 has been received by this department from the same source, but as the resolve passed in 1919 is not appli-

cable to this particular sum, the next legislature will be asked to pass a general act taking care of all such moneys received. This amount has been turned over to the State Treasurer, who has deposited it in the savings bank at four per centum interest.

SCHOOL LANDS

In accordance with the resolves passed in 1905, 1915, and 1919, parts of the public lots in Wallagrass Plantation, St. Francis Plantation, in Aroostook County, and Number 33 Plantation in Hancock County, have been lotted and will be sold to the actual settlers thereon as soon as a fair settlement can be made.

Under resolve passed by the legislature of 1903 this department has sold to J. Lewis York of Rangeley one hundred acres of land located in the so called Minister Lot in Dallas Plantation.

Permits to cut timber have been granted on the Public Lots of the following plantations: Staceyville (2), New Canada, St. John, Elliottsville, Hammond (2), Hamlin (2), Macwahoc, The Forks (2), Lang, Dennistown, Allagash, Sebois, Glenwood, No. 21 Pl., Hancock County. Also permits were given in Township 17, Range 14, and 13, Range 11, where the public lots have not been located.

For the year 1919 there has been collected and turned over to the State Treasurer, the amounts below, which have accrued from stumpage permits for the winter of 1918-1919, also for camp site rentals for the year 1918-1919.

FOREST COMMISSIONER'S REPORT

REVENUE FROM STUMPAGE PERMITS AND CAMP SITE RENTALS.

Lakeview Plantation,	Piscataquis County,	\$326.11	
Oxbow Plantation,	Aroostook County,	5.00	
Nashville Plantation,	" "	1,756.89	
Hamlin Plantation,	" "	25.35	
Flagstaff Plantation,	Somerset County,	1,334.52	
The Forks Plantation,	" "	6,140.28	
Caratunk Plantation,	" "	2,765.94	
Long Pond Plantation,	" "	462.24	
Moose River Plantation,	" "	193.65	
Lang Plantation,	Franklin County,	3,304.00	
Coplin Plantation,	" "	4,019.34	
Dallas Plantation,	" "	857.64	
Letter E. Plantation,	" "	50.25	
No. 21 Plantation,	Hancock County,	1,221.94	
No. 33 Plantation,	" "	283.00	
Township 10, Range 4,	Aroostook County,	15.00	
" 16, " 10,	" "	1,471.17	
" 16, " 11,	" "	107.74	
" 17, " 11,	" "	232.04	
" 5, " 8,	Penobscot County,	10.00	
" 4, " 3, W. B. K. P. :	Oxford County,	24.25	
" 4, " 2, " " " " :	" "	56.75	
" 5, " 3, " " " " :	" "	49.25	
" 5, " 4, " " " " :	" "	124.25	
" 5, " 5, " " " " :	" "	50.00	
" 3, " 4, " " " " :	Franklin County,	90.00	
" 3, " 3, " " " " :	" "	100.00	
			\$25,076.60
Passamaquoddy Indian Fund, Indian Twp.,		1,988.46	
Fort Kent (Sale of Land),		71.10	
Madawaska (Sale of Land),		99.93	
Islands (Lease),		135.00	
Interests (On Deposits),		231.48	
Office Fees,		77.50	
			2,603.47
	Total		\$27,680.07

REPORT ON PUBLIC INSTRUCTION IN FORESTRY AND FOREST NURSERY

To Hon. Forrest H. Colby,
Forest Commissioner,
Augusta, Maine.

Dear Sir:

I have the honor to present the following condensed report on the work of the Forestry Department at Orono, for the year 1919-20:

REGISTRATION

After the close of the war the recuperation of the Forestry Department was immediate and rapid. In the fall of 1919 many new students registered in this course, and a number of the former students just returned from overseas, returned to complete their work in this Department. The total registration in the Forestry Department in the fall of 1919 was 48 major students taking the full four years course, and more than 50 other students from other Departments of the University elected one or more forestry courses.

The total registration of forestry majors was as follows.

Seniors	8
Juniors	2
Sophomores	19
Freshmen	16
Specials	3
	<hr/>
Total	48

In spite of the very unusual conditions shared in by all educational institutions during the past several years, we were able to graduate 5 men in 1918 and 2 men in 1919. And it is

expected that by commencement of 1920, 8 more men will have finished the requirements for the degree of Bachelor of Science in Forestry, and will receive their degrees as of the Class of 1920.

FACULTY

On the resignation of Professor C. W. Eaton, we were very fortunate to be able to secure the services of Mr. C. W. L. Chapman as Instructor of Forestry and assistant in the Department. Mr. Chapman graduated from the school here in 1914, and has since had five years of practical work and teaching in this country, as well as overseas experience during the war.

EQUIPMENT

Some 200 new stereopticon slides have been added to the permanent equipment. No new purchases were made, other than replacements during the years of the war, but it will be necessary to add considerably to the equipment during the next year or two to provide for the increased registration.

X. S. P.

A chapter of Xi Sigma Pi (Gamma Chapter) has been organized in connection with the Forestry Department. This is the National Honor Society for students in forestry. Only men with an average rank of 75% or better and no failures in forestry subjects are eligible for election to the society. The object being to stimulate scholarship as well as to promote good fellowship.

PUBLICATIONS

During the past year we were able to make a co-operative agreement for entomological investigations in Maine. The Forestry Department in co-operation with the Maine Agricultural Experiment Station secured the services of Dr. M. W. Blackman, Ph. D., Professor of Entomology, Syracuse University, for the summer of 1919.

Besides doing considerable original work on bark insects, Dr. Blackman gave us the manuscript for two very excellent bulletins. One on the Spruce Budworm and the other on the White Pine Weevil. A supply of these bulletins is still available, and will be sent free to applicants.

For lack of sufficient funds, other needed publications have had to be deferred. It is hoped that a more liberal appropriation will be made next year for carrying on this work.

STATE FOREST NURSERY

The State Forest Nursery is now self-supporting. It is no longer to be considered in any way as a liability but as an asset to the State. Sales for 1919 amounted to 193,625 trees, and brought in \$1,185.65 or more than the appropriation for carrying on the work.

Of the sales, 134,865 trees were transplants and 58,760 were in the seedlings stage when sold.

From present indications sales for 1920 will nearly double those for 1919, and we have had a larger demand for seedling stock than at any time since the nursery was started.

The State Forest Nursery has stimulated the interest in forest planting, not only in the case of the private owner, but also with many of the large pulp and paper companies; and the demand for planting stock is rapidly increasing.

White Pine and Norway Spruce were the species most in demand with a small amount of Red Pine. Seed of the latter species has been out of the market for the past two years, so that we have been unable to provide for the future with this species as we should have liked to. We have, however, several thousand three and four year old transplants of this species and a smaller amount of large, twice-transplanted stock now six years old.

Limited quantities of Scotch Pine and Mungo Pine are also on hand for next spring delivery, and a number of excellent young poplars, grown from cuttings and now from 6 to 12 feet high.

Orders this year exceeded the supply, which owing to the few students in attendance during the years of the war, and

to the impossibility of securing local labor, was not as large as it would have been under normal conditions.

The space allotted for this work is however, too small, and there is no room for expansion on the Campus. It is greatly to be hoped that sufficient funds will be provided for starting another and larger nursery preferably in the southern part of the State, in addition to and in co-operation with the State Forest Nursery at Orono.

Our nursery here is of vital importance to the work as it is the laboratory for the students of forestry, in which they acquire first hand knowledge of nursery practice, and it is also valuable for experimental purposes; but it is not large enough to meet the demands now coming in from all parts of the State for forest planting stock. Either temporary subsidies should be provided for encouraging private owners to meet the demand, or an auxiliary nursery should be started for the purpose primarily of growing forest trees in large quantities, and at a price to warrant economic forest planting in Maine.

CONCLUSION

While the war put a temporary check on the natural development of the Forestry Department just as it did with every other phase of educational work, this check has now been removed, and we will progress just as fast and as far as the Legislature of Maine sees fit to provide funds for the development of this work. To anyone familiar with the natural resources of Maine, this would seem to be a good business proposition, since it is fundamental and basic for the best development and utilization of our forests.

Respectfully submitted,

JOHN M. BRISCOE,

Professor of Forestry.

BLISTER RUST CONTROL

STATE OF MAINE

Introduction

Prior to the opening of the field season of 1919, the work done in Maine consisted of demonstration and eradication areas at Alfred, Brunswick, and Kittery Point; of general scouting for the disease throughout the State; and of inspection of plantations, particularly those planted with stock from outside of Maine.

The program for 1919 included the completion of the eradication area at Brunswick; checking over the eradication areas at Alfred and at Kittery Point; and the beginning of a project for mapping the white pine areas of the State, as a basis for more definite information as to the exact location and extent of the white pine, and as a guide to further investigation and eradication.

From the work already done it seems evident that any program of state-wide or general eradication is altogether out of the question and impractical both from the physical and economic standpoint. Enough has been done to be thoroughly convincing on this point. It is necessary, therefore, to have definite and detailed information as to where the most valuable white pine stands are located, not only those of present, but also those of potential economic value, in order to advise the owners as to the best means of keeping the blister rust from such areas, and suppressing or at least holding it within bounds if it is found.

No such information is at present available, and it is considered essential as a basis for the future state policy in regard to blister rust control, inasmuch as the experimental

work so far carried on by the State and the Federal government has obtained most of the important data necessary for the information of private owners who are willing to aid in combating the disease.

It is becoming increasingly evident that from now on the owner of white pine owes it to himself as well as to his neighbor to protect his pine from blister rust, just as he protects any timberland from fire. A certain expenditure will be necessary to effect this, just as he must pay insurance in one form or another for the fire protection of his timber crops.

The best methods of procedure and accurate cost figures for eradication work in some eight or ten different types of land have been carefully worked out in the scientific, experimental and demonstration work done to date by the State and Federal organization co-operating, and it is hoped that this work may be continued for any data needed; but it is to the private owner that we must look in the future for taking the initiative in the actual eradication work.

Both the State and Federal organizations stand ready to advise, to co-operate and to co-ordinate the work undertaken by towns and cities, as well as by corporate and private owners to protect their lands. Further than this they should no longer be expected to go in the matter of eradication.

In order to aid in eradication of ribes from white pine areas the offer is made to duplicate the amount of any funds appropriated by towns, or organizations of any kind, or contributed by individual citizens for the protection of their timberlands, and the forestry department of the state stands ready at any time to plan co-operative work with any organization or individual wishing to do eradication work.

To facilitate such co-operation the use of the following form of agreement is suggested:

STATE OF MAINE

FORESTRY DEPARTMENT

Co-operate Agreement—Control of White Pine Blister Rust

Memorandum of understanding between the Forest Commissioner, Maine Forestry Department, and.....

_____ of _____, Maine, herein known as the Co-operator.

1. For the purpose of protecting white pine growth against the disease, commonly known as the White Pine Blister Rust, the Co-operator hereby agrees to contribute the sum of \$., to be expended under the direction of the Commissioner.

2. The Commissioner agrees to expend the sum contributed by the Co-operator in the control of the White Pine Blister Rust on the land of the Co-operator, particularly for the removal of currant and gooseberry bushes.

3. In consideration of an agreement between the Commissioner and the Bureau of Plant Industry, U. S. Department of Agriculture, whereby Federal aid is furnished to the State and its Co-operators, the Commissioner hereby agrees to expend an equal sum, in the control of the White Pine Blister Rust, on the land of the Co-operator, or on land adjacent or nearby, so that the Co-operator's pine growth may hereby be better protected.

4. In order to facilitate the handling of field crews and accounts, the Co-operator agrees to advance to the Commissioner, the contribution of \$., upon the request of the Commissioner, before eradication work is begun on the Co-operator's land.

5. It is agreed that the charges against the total sum available for this project shall consist of wages and expenses of field men, and shall not include charges for clerical work nor overhead expenses incurred at the Central Office at Augusta.

6. It is agreed by the Commissioner that upon the completion of this work, a statement of all expenditures incurred in carrying out this project, together with a report indicating the area where control measures were performed, will be rendered to the Co-operator.

This agreement, signed this day of, 1920, shall remain in effect until the completion of the control measures herein specified.

Countersigned:
.....
Agent

.....
Co-operator.
Maine Forestry Department
By.....
Forest Commissioner.

Organization

As formerly, the administration of the work was placed in the hands of the Forest Commissioner, Mr. Neil L. Violette of Augusta was appointed Collaborator; John M. Briscoe of Orono was appointed Agent in charge of field work; and Francis G. Marden, Clerk.

The co-operative agreement with the Bureau of Plant Industry, of the United States Department of Agriculture was renewed in practically the same form as for the two preceding seasons.

The State Collaborator and Agent acted as inspectors and supervisors so that no additional men were employed for that purpose.

The foreman placed in charge of the eradication crews, of six men each, were: Mr. G. H. Kimball, of Waterboro, and Mr. P. F. McGouldrick of Augusta, both having had previous experience in the work. After the close of the eradication work, Mr. Kimball did scouting work in the southern part of York County, immediately north of the eradication area at Kittery Point, and this area is now ready for eradication work next season.

The field season began May 1st, and continued into September. Mr. Foster was retained on the mapping work into November and Mr. Kimball on scouting up to November 1st.

Scouting.

Both Mr. Curtis and Mr. Kimball as well as the State Agent did scouting work during the season, but no new areas of infection were discovered. This would seem to indicate that the disease is not spreading, at least to any alarming degree throughout Maine.

Whether we can go so far as to say that the work already done has had an effect in holding the disease in check and in confining it to the areas now known to be diseased, is problematical. Certainly there are no present indications of a rapid spread of the disease.

It is, therefore, against the possible damage to young growth and reproduction of this valuable species that we must direct all our efforts.

The method of preliminary scouting adopted at the request of the Bureau of Plant Industry for eradication work proved satisfactory and helped to reduce the cost figures on eradication areas where it was used.

The following method, as outlined by Mr. E. C. Filler, has been used in Maine.

PRELIMINARY SCOUTING

Preliminary scouting is used to advantage in sections where the bushes are comparatively few, and grow more or less in patches, or in a territory where only certain types contain Ribes. Such scouting consists of finding the Ribes in a section and marking their location in the field and on a map so that the bushes in such places can be pulled at some future time without having to strip the whole area. No eradication work is performed by the crew in those areas that are shown by the scout as containing no Ribes. This scouting system is a prime factor in reducing the cost of eradication.

The success of this method will invariably depend upon the ability of the scout. No set rules can be applied to scouting. It is a thing that requires natural ability in handling one's self in the woods. A scout must have good judgment, keen eyesight, and be most conscientious in his work. On his reports will depend what eradication work is to be done.

The following methods have proven most effective in preliminary scouting for ribes. The scout covers the section by running parallel strips with a compass every 100 or 200 feet, giving particular attention to those places where Ribes are likely to occur. If only a few bushes are found the scout pulls these. However, when scattered Ribes are found more or less abundantly, or patches of Ribes, such as skunk currants, are encountered, he does not try personally to eradicate these. In such cases, the scout marks the trees, by paint or blaze, around the patch and then arrows a line out to the nearest road or some natural feature, as a stream. Here he marks a tree by the roadside in a definite way, as a cross within a circle. In some cases, instead of marking each Ribes plot by a trail direct to the road, or some natural feature, two or more such areas may be connected by a blazed line. On

an enlarged map of the section covered, the scout shows the approximate location of the areas containing Ribes, the trails to such plots from the roadways, and any connecting lines between plots.

Later the foreman of the crew, with this map in his possession takes the men to the nearest Ribes mark shown near a road. Then following the blazed trail, he locates the patch of bushes, and directs the crew to pull them. The men move from one plot to another until all the areas containing Ribes have been covered. If some of the marked plots containing Ribes are large, it may be advisable for the crew to run strips, but usually this will not be necessary.

In order to eliminate blazing a trail from the Ribes patch to the roadway, the following system has been successfully tried out, where only a few patches of Ribes were found. The scout marked the approximate location of the currant or gooseberry plots on his map, and also made a mental picture of their exact location. When the foreman wished to have the Ribes in these plots eradicated, he asked the scout to take the crew to these places. In some cases it may work well for the foreman and scout to alternate in their duties. During that day, when the scout is showing the crew the Ribes plots, he could act as foreman, while the regular foreman could scout other sections.

If a scout knows a territory thoroughly, it may not be necessary for him to run parallel strips on his scout work. In such a case, he would scout effectively the places where he knows Ribes are liable to be found, and only roughly cover the other areas. For instance, in a territory where there are no skunk currants and practically no gooseberries on the dry hardwood ridges, he would confine most of his efforts in scouting the lowlands, along stream valleys, little runs, and hillside swamps. To check himself, he would occasionally run a strip along the ridge.

Where Ribes are very few and grow more or less in definite places, as in swamps, a method has been tried out, more or less successfully where the whole crew scout in line formation with spaces of about 50 feet to 100 feet between the men. Here the lineman uses a compass for running his line, and does not mark it in any definite way. The men run a strip across

the area to a definite boundary, and then return on the next strip, continuing in this manner until the whole section is covered. If Ribes are found, the lineman mark their lines, and the whole crew closes in and pull the bushes. As soon as these Ribes are eradicated, the line is re-established, and the crew continue on their strip.

During October Mr. Kimball scouted over 1160 acres in the town of Kittery, outside of and adjacent to the eradication area, at a cost of a little less than 9c per acre, taking out the small groups of Ribes, and marking the larger groups for crew eradication.

Eradication Areas

THE BRUNSWICK-BATH AREA

The Brunswick-Bath area was the only area on which eradication work was done this year, with the exception of the checking work on areas already gone over in whole or in part at Alfred and Kittery Point.

A portion of the Brunswick area was eradicated in 1918, but the greater part was done during the present field season. A section of some 1200 acres in West Bath was selected as a demonstration eradication area. It comprised practically all types recognized in the eradication work, and has great variations in topography, ranging from sea-level swamps and salt marshes to precipitous ridges.

On this area the total averages for all types are about as follows:

AREA—1192 ACRES

Average No. Gooseberries	23.1 per acre
Average No. Currants	56.8 per acre
Average No. Man-hours	2.24 per acre
Average Cost Eradication	\$1.16 per acre

Advanced scouting was not used on this area, as the number of Ribes was heavy and the occurrence very well distributed over the entire area.

This cost includes the entire cost of maintenance for the men as well as salaries, and was the maximum for all of the work done during the season.

A larger area about Brunswick and adjacent to the demonstration area was eradicated by using the advance scouting method, and this helped to considerably reduce the cost on an acreage basis.

THE ALFRED AREA

On the Alfred area very careful checking was done in order to find out the actual results from the eradication work of the previous season, and to learn, if possible, what to expect in the way of organized eradication of a large area.

The results were about what might reasonably be expected. The greater part of the Ribes found this season were either young seedlings or sprouts from plants broken off in the eradication work. Of the 1528 plants found over an area of 545 acres, 1092 or 60% were sprouts or young seedlings of less than six inches, while 436 or 40% were larger plants overlooked in the eradication work of the previous season.

As a whole, however, the previous eradication showed an efficiency of 95%. Only 4.9% of the number of plants previously found were taken out during the present season's work.

A general summary of the work on all of the Alfred check plots is as follows:

ERADICATION: ALFRED AREA

Year	Acres	No. of Ribes	Av. No. per acre	% Eradicated
1918	545	31,012	57.1	95.1
1919	545	1,528	2.8	4.9

The areas selected for the checks were taken at random from all parts of the eight and more square miles of the eradication area, the only pre-requisite being that the number of plants from the same area for the previous season should be definitely known, so that the above comparative figures might be obtained.

THE KITTEERY POINT AREA

The Kittery Point area presented more difficult problems in keeping an accurate record of the checks, inasmuch as some of the data for the eradication work of previous seasons

was deficient or missing. Some of the work on this area was done during the early stages of the eradication work, before the method of procedure had been very far perfected, so that the results are not as definite or as convincing as for the Alfred area. Nevertheless, they are of value, and the fact that they compare so reasonably with the work on the Alfred area would seem to indicate that they are not far out of the way.

The average number of Ribes found on check plots aggregating some 425 acres on this area, was 15, up to this season's work. The finding of 243 plants, or an average of one-half plant per acre, brings the previous eradication figure to a little better than 95½%.

During the season, on all areas, more than 1000 acres were checked over, with a total average of about 4½% of Ribes of all kinds found this season, as against 95½% previously eradicated.

With improved methods and increased experience, it may be quite possible to bring this up to at least 98% or even better, and the pathologists give us every assurance that even at the present figure, the work of checking the advance of the disease will be effective.

A schedule of the expenditures on the three areas follows:

Co-operation:

Up to the time of this report, no co-operation with towns or private owners has been solicited in Maine, for the reason that it has been deemed advisable to await more definite results from the experimental and demonstration work being carried on by the State and the Federal Government, before asking for further financial assistance from the owners who are already paying through taxation for the work now being carried on in the State.

Neither have any claims been paid for Ribes destroyed, since either the plants were diseased, and therefore they are a menace under our present law and can be destroyed without compensation by the Forest Commissioner or his agents; or the owners have consented to aid in the work of eradication to the extent of contributing their bushes in order to check the spread of the disease. Consent of the owner (for the removal) was always secured before the eradication of any cultivated Ribes.

In all of the areas where the eradication work has been carried on, the owners have been unanimous in their preference for white pine as a crop; and in no case was the growing of Ribes of sufficient economic importance to warrant the cleaning out of the pine in the vicinity.

Several large shipments of Ribes were excluded under the quarantine act, and the present policy of the State is not to permit the entrance of any species of Ribes as long as present conditions exist.

White Pine has been admitted in limited quantities from nurseries outside of the State, but only after inspection at the shipping point and also after receipt.

The following permits were issued during 1919 :

SPECIAL PERMITS, 1919

No. 1. Mar. 12, Keene Fy. Asso. to L. S. Piper, Kezar Falls, 10,000 White Pine Seedlings.

No. 2. Apr. 23, Amer. Fy. Asso. to W. A. Hodgden, East Boothbay, 10 White Pine Transplants.

No. 3. Apr. 23, Amer. Fy. Asso. to H. A. Morton, South Paris, 1,310 White Pine Transplants.

No. 4. May 3, Keene Fy. Asso. to R. A. Ring, Livermore Falls, 2,000 White Pine Transplants.

No. 5. May 7, Amer. Fy. Asso. to Paris Mfg. Co., South Paris, 1,300 White Pine Transplants.

No. 6. May 7, Amer. Fy. Asso. to E. F. Crockett, South Paris, 100 White Pine Transplants.

No. 7. May 8, Keene Fy. Asso. to P. L. Sprague, Ram Island Farm, Cape Elizabeth, 10,000 White Pine Transplants.

No. 8. May 9, Amer. Fy. Asso. to R. L. Marston, Skowhegan, 55 White Pine Transplants.

No. 9. May 19, Amer. Fy. Asso. to Freeman Marston, Portland, 2 Limber Pines.

No. 10. May 23, Amer. Fy. Asso. to Dr. R. L. Dennen, Mechanic Falls, 200 White Pine Transplants.

No. 11. Sept. 23, Amer. Fy. Asso. to Mrs. E. C. Cook, York Village, 50 White Pine Seedlings.

No. 12. Oct. 1, Amer. Fy. Asso. to Dayton Bickmore, Sandy Point, 1 White Pine (5') Transplant.

No. 13. Oct. 21, Amer. Fy. Asso. to Fletcher Steele, Biddeford, 6 White Pine Transplants.

Probably the most radical change in the methods used during the present season, was in the introducing of advance scouting of the areas to be eradicated. By sending an experienced man over the area in advance of the crew, and having him locate the Ribes for crew work, mark out the location, both in the field and on a map, and take out any single individual Ribes or small groups as he proceeds.

By this method considerable time is saved, particularly if the Ribes are not generally scattered over the area, but occur in more or less well defined places, varying with the topography or the ground cover.

In the actual eradication work on areas that have been previously gone over by the scout, the number of men in the eradication crew may be reduced to advantage to four men instead of six. If the location of the groups of Ribes has been well marked, both on the map and in the field, the crew immediately proceeds to the special areas, and does not attempt any line formation, except possibly on the limited areas to be covered by them. Very often the Ribes will be found on either side of a small stream, brook, or creek, and two men on either side will be able to work most effectively.

Cheese-cloth bands about the trees to mark the areas where the Ribes are found have proved to be about the cheapest and most desirable form of marker from every standpoint, being easily seen, comparatively durable, and entirely non-injurious to the trees.

Nurseries

No infections on pine were found in any of the nurseries of the State, and no trees diseased with the blister rust were found in plantations inspected during the present season. These included all of those planted with stock entering from without the State by special permit, and also many others planted from locally grown stock, particularly from the State Forest Nursery at Orono.

The Department of Horticulture reports finding diseased Ribes in practically all of the counties in the State.

The quarantine on all five leaved pines and all Ribes is still in force and will be continued as before.

Education

The general public seems to be distinctly apathetic in its attitude towards the blister rust control. This may be attributed chiefly to a lack of understanding of even the exact character of the disease. This, we are in hopes of correcting by the circulation and general state-wide distribution of the new circular on the disease just issued through the co-operation agencies. This circular will be distributed to all woodland owners and particularly to all owners of white pine in the southern part of the State.

The Extension Service of the College of Agriculture, University of Maine, at Orono, co-operated in displaying an exhibition of the blister rust specimens and in showing and distributing printed matter in the form of posters, circulars, and post cards, at the fairs and public exhibitions in the State during the last summer and fall.

Lectures on the subject were also given at University of Maine to all Agricultural and Forestry students, and to a number of other students electing such courses, as well as conferences and correspondence with the County Agents throughout the State.

The Second Annual Report of the Plant Pest Committee was distributed, and there are still some copies of this on hand for distribution on request.

Mapping

After going over the matter very carefully with the representatives of the Bureau of Plant Industry, the following plan for the mapping work was agreed upon and approved by them. It was consistently followed throughout the season.

Maps

The United States Geological Survey Maps are used as the basis of the work. Photographic enlargements of these maps, to the scale of 500 feet to the inch having been made, tracings are prepared from these enlargements, with proportional reductions for topographic lines, roads, and other minor features.

Black line prints from these tracings furnish the actual base maps for the field work, and for the finished map of the area.

Field Work

Two men with experience in sketch and topographic mapping are assigned to this work, at the rate of \$3.50 per day for actual time worked and expenses while in the field.

One copy of each map is cut into small sections of convenient size for sketch mapping in the field. Hand sketch boards are used for the work, and the map is first covered with a system of rectangular co-ordinates, in light lines, at intervals of one inch in each direction, showing the magnetic bearings. A hand compass and a six-inch rule, graduated in tenths, are the only instruments needed in the field work.

The forest type lines are drawn on these maps, checking on the magnetic lines and on the roads, streams, topography and other features shown on the base map.

Particular attention is given to locating accurately all areas of white pine according to a classification given herewith, and to make an estimate of its value.

The area of each block of white pine is obtained as accurately as is consistent with the method used, which involves pacing for the distances and checking in on roads, and other features shown on the base maps.

Types other than white pine are shown as nearly as possible as they occur, without, however, pacing out distances or spending too much time in getting unessential details, such as crooks, bends and general irregularities of outline.

A list of the owners of white pine of merchantable size and of large blocks of thrifty reproduction is obtained as the mapping proceeds, and any abundant crop of Ribes, either wild or cultivated, is noted in connection with the mapping; but no extra time is devoted by the map men to getting this information. If it is deemed necessary or advisable, another man will be sent over the areas mapped to get statistics and additional information in the nature of a census.

The mapping is done by townships, and one township is to be completed before starting on the next.

Detailed information as to the nature of the blister rust and the objects of the work are given to all who show interest in the work, and all information on the subject, gathered from the local residents, of either pine or Ribes, will be useful.

Types:

Ten types are recognized and classified, five of which are sub-types of white pine, and the other five not white pine. They are identified on the map as follows, by number, letter and color:

Type I—White Pine—Green—a—Pure pine 12 in. or over (80% W. P.) b,—Pure Pine 5 in. to 12 in. c,—Pure pine under 5 in. or 25 ft. high.

Type II—Pine and Hardwoods. Pine and other Conifers

Type III—Hardwoods—Yellow—over 5 in.—d, and at least 67% pure.)

Type IV—Brush—Brown—(to include thickets of briars, shrubs, small growth and cutover land, the latter to be marked with the letter sl.).

Type IVs1—Brush and Slash—Brown.

Type IVpc—Brush and Young Pine—Brown.

Type V—Pasture—Blue—(at least 65% grazing land)

Type VI—Cultivated land—White—all land not in other types.

Type VII—Swamps—'—the usual swamp designation.

The boundaries of types II and III are indicated as well as possible, but less time taken in getting minor details of outline than in the white pine types.

Scattered pine or small blocks of pine in other types are indicated by the letter P, followed by the class symbol, and the density of the stand shown by numbers as follows:

1.—Heavy 2.—Medium 3.—Light

In white pine stands, anything over 2½ acres in extent is considered as a separate type, and in the other type, anything above five acres in extent is shown as a separate type. All smaller areas are classified in the surrounding types.

Estimate:

An estimate of the stand of merchantable white pine has been made for all areas shown on the map, and a list of the owners is compiled for each township, showing the total acreage and an estimate of the amount of the white pine.

This estimate is obtained by taking the average of a number of one-half acre plots in each of the five sub-types of white pine. At least 25 such plots are taken as the basis for the estimate in each of the sub-types.

The areas are obtained by planimeter, and the estimate is worked up in connection with the field work.

Tabulated forms follow, showing the estimate, both in acreage and total contents for each stand of white pine, and the totals for the township.

It is intended that this shall be an estimate and not a detailed cruise of any one lot or of any particular lots of white pine, and the figures obtained shall not be applied to any one lot or stand of pine.

These maps will be of inestimable value for blister rust control and eradication work. They will give a sound and definite basis for comparing the cost of eradication and control work with the actual value of the timber saved, and they will furnish a more accurate estimate and location of the white pine than has ever been available. The results will also be extremely useful in planning all future operations for the continuance of State and Federal aid for the work.

This work was carried out and the maps made at a cost of a little more than 2c per acre.

The areas mapped for the season of 1919, blue-prints of which accompany and are a part of this report, are as follows:

Town	Acres	Square Miles
Eliot	550.40	.86
Kittery	10,189.60	15.77
South Berwick	4,594.20	7.18
Wells	755.20	1.18
York	36,024.40	56.21
	<hr/>	<hr/>
Total	52,113.80	81.20

Of these, the only towns completed were Kittery and York.

TOWN OF KITTERY

The total area for the town of Kittery is 15.77 square miles, of which 57% is farm land and 43% forest land. White

pine types represent 13% of the area, or 20% when young reproduction areas are included.

A complete summary for the town is as follows:

Species	Type	Percent	Acreage
White Pine	1a	1	105.38
White Pine	1b	8	789.65
White Pine	1c	4	346.76
White Pine	1d	0	29.15
Hardwoods	III	2	178.81
Brush and Young Pine ..	IVpc	7	714.81
Brush and Slash	IVsl	19	1,935.94
Pasture	V	7	713.40
Cultivated	VI	50	5,062.66
Swamp and Waste	VII	2	313.04
Totals		100	10,189.60

TOWN OF YORK

The total area of this town is 56.21 square miles or 36,024.4 acres. The forest land includes 72% of the area, while only 28% is cultivated or in pasture. The area has been heavily cut over in the past, and 43% is at present in cut over or slash land, only a small part of which has white pine reproduction.

A complete summary of the types is as follows:

TOWN OF YORK

Species	Type	Percent	Acreage
White Pine	1a	1	506.72
White Pine	1b	9	3,292.40
White Pine	1c	5	1,731.09
White Pine	1d	6	2,193.00
Hardwoods	III	6	2,436.39
Brush and Young W Pine	IVpc	5	1,749.16
Brush and Slash	IVsl	38	13,416.40
Pasture	V	6	2,374.63
Cultivated	VI	32	7,820.33
Swamp and Waste	VII	2	494.28
Totals		110	36,024.40

Recommendations

Since only the same appropriation as formerly, \$5,000.00, is available for the work for the season of 1920, it is recommended that the work on the pine survey be continued and that eradication work shall be undertaken only where financial co-operation with towns or owners may be obtained, to at least equal the amount so expended.

Respectfully submitted

(Signed)

JOHN M. BRISCOE,

State Agent

Orono, Maine, November 22, 1919.

1920

MAINE FORESTRY DISTRICT

FINANCIAL STATEMENT.

Maine Forestry District, December 31, 1920.

RÉCEIPTS

Balance on hand January 1, 1920	\$ 2,133.69
1920 Assessment	113,711.42
Interest on Deposits	104.84
Miscellaneous Income	3,944.37
	<hr/>
	\$119,894.32

EXPENDITURES

Expenses of fire protection during season of 1920 (For detail see watershed expense)	*119,564.27
	<hr/>
Balance December 31, 1920.....	\$330.05

* Unpaid fire bills to be paid in 1921, \$8,900.00.

EXPENDITURES—MAINE FORESTRY DISTRICT

FOR THE YEAR 1920.

ACCOUNTS.	St. John.	Penobscot.	Kennebec.	Androscoggin.	Machias.	Totals.
Chief Warden.....	\$6,137 14	\$5,605 93	\$4,111 32	\$693 13	\$2,478 77	\$19,026 29
Deputy Warden.....	349 80	374 65	199 59	-	63 61	987 65
Lookout Expense.....	5,796 17	12,402 00	5,884 10	2,296 23	4,972 88	31,351 38
Patrol Expense.....	9,133 73	4,956 75	34 36	1,328 48	726 40	16,179 72
Fire Expense.....	5,563 06	2,853 46	1,705 16	578 77	4,820 09	*15,520 54
Tools and Supplies.....	5,024 97	10,556 91	5,766 36	1,600 50	1,903 70	24,852 44
Administration Charges.....	1,478 95	1,474 96	1,475 00	1,474 97	1,502 45	7,406 33
Miscellaneous Charges.....	645 78	1,039 10	1,324 46	574 10	656 48	4,239 92
Totals.....	\$34,129 60	\$39,263 76	\$20,500 35	\$8,546 18	\$17,124 38	\$119,564 27

* \$3,900 00 unpaid fire bills.

MAINE FORESTRY DISTRICT

FIRE SEASON

The fire season started a little later than in the previous year, but it came on very suddenly and before the green growth had started fires were raging in Aroostook, Hancock and Washington counties. For a period of five weeks starting the latter part of April and continuing through May, there was but one day of rain in the three counties above mentioned. Had the dry spell and high winds lasted a week longer the whole northern part of the state would have been burned. The month of June and July were a relief as the rainfall was about normal. The latter part of August was very dry and fires were again numerous. The fire damage and the fire bills for this year will exceed those of any year since the organization of the Maine Forestry District, excepting the year 1911.

On April 14th and 15th, the second annual conference of Wardens took place at the State House, and the following program was carried out:

PROGRAM

Wednesday Forenoon

Commissioner and Deputy Commissioner will meet Wardens at 9.36 and 9.50 trains

10.00—Assignment of rooms at Augusta House.

10.30—Meeting in Senate Chamber at State House
Calling of the Roll

11.00—Welcome to the State House by the Commissioner

11.30—Social half-hour

12.00 Noon—Luncheon at Augusta House

Wednesday Afternoon

- 2.00—Welcome to the City Hon. Blaine S. Viles,
Former Mayor of Augusta
- 2.15—Co-operation between the Fish and Game and Forestry
Departments Hon. Willis E. Parsons
- 2.30—Improved Living Conditions in Lumber Camps
By E. M. Hamlin, Mgr. Am. Thread Co.
- 3.00—Question Box
- 4.30—Moving Pictures at Colonial Theatre

Wednesday Evening

- 7.00—Banquet at Augusta House, Music by Douglas Orchestra

Entertainment

Capt. Frank G. Armitage,
Humorist, magician, ventriloquist and entertainer

Scott and Bayrd—The Ginger Boys
Present—Original Two Man Minstrels

Thursday Forenoon

- 7.00—A Real Woods Breakfast Augusta House
- 8.30—The Commissioner and Deputy Commissioner will be
in the office at the State House to confer and advise
with the Wardens in regard to the work for each
Warden's own territory.
- 11.00—Meeting in the Senate Chamber for final talk and final
adjournment.
- 12.00—Farewell Luncheon, Augusta House

LOOKOUT STATIONS

The lookout stations did not open until a little later than usual, but practically all of the watchmen were on duty before the middle of May and the first fires of the season were reported on May seventeenth when Cooper Mt. in Washington County reported two, and Hedgehog Mt. in Aroostook County reported one. Nearly every county suffered from heavy fire damage during the season, but Washington, Aroostook, Somerset, and Hancock counties suffered from many large and destructive fires.

Attean Mt. Lookout station in Somerset County was the first station to open, this station being opened on May 7th. Nearly all of the stations were closed for the season on or around Sept. 15th and practically all of the patrolmen were laid off duty at this time also.

FOREST FIRES REPORTED BY LOOKOUT STATIONS

No. Station	Name	No. Fires
1.	Lead Mt	Twp. 28, Hancock Co. 10
2.	Pleasant Pond Mt.	Caratunk Plantation 0
3.	Sally Mountain	Attean Township 3
4.	Tumbledown Mt.	Twp. 5, R. 6, W. K. R. 1
5.	Squaw Mt.	Twp. 2, R. 6, E. K. R. 7
6.	Snow Mt.	Twp. 2, R. 5, Franklin Co. 6
7.	Bigelow Mt.	Dead River Pl., Somerset Co. 11
8.	White Cap Mt.	Twp. 7, R. 10, N. W. P. 3
9.	Spencer Mt.	Middlesex Grant, Piscataquis Co. 2
10.	Rocky Mt.	Twp. 18, R. 12, W. E. L. S. 1
11.	Center Mt.	Twp. 4, R. 10, W. E. L. S. 1
12.	Otter Lake Mt.	Twp. 3, R. 4, W. E. L. S. 17
13.	Mt. Chase	Chase Township 15
14.	Ragged Mt.	No. 4, Indian Purchase 21
15.	Kineo Mt.	Moosehead Lake 5
16.	Coburn Mt.	Twp. 3, R. 6, B. K. P., W. K. R. 4
17.	Wesley Mt.	Wesley, Washington Co. 2
18.	Depot Mt.	Twp. 14, R. 16, W. E. L. S. 5
19.	Soper Mt.	Twp. 8, R. 12, W. E. L. S. 1
20.	Round Mt.	Twp. 11, R. 8, W. E. L. S. 8
21.	Aziscoos Mt.	Lincoln Pl., Oxford Co. 1
22.	Katahdin Mt.	Twp. 3, R. 9, W. E. L. S. 0
23.	Moxie Bald Mt.	Twp. 2, R. 3, E. K. R. 2
24.	Kibbie Mt.	Twp. 1, R. 7, W. B. K. P. 6

25. Priestly Mt.	Twp. 10, R. 13, W. E. L. S.	0
26. Boundary Bald Mt.	Twp. 4, R. 3, N. B. K. P.	9
27. Williams Mt.	Twp. 2, R. 7, B. K. P., W. K. R. ...	0
28. W. Kennebago Mt.	Twp. 4, R. 4, W. B. K. P.	9
29. No. 4 Mt.	Twp. A, R. 14, W. E. L. S.	2
30. Passadumkeag Mt.	Grand Falls Pl.	1
31. Pocamoonsshine Mt.	Princeton, Washington Co.	5
32. Tug Mt.	Twp. 30, M. D., Washington Co. ...	3
33. Beetle Mt.	Twp. 7, R. 10, W. E. L. S.	11
34. Horse Mt.	Twp. 6, R. 8, W. E. L. S.	4
35. Boarstone Mt.	Elliottsville Plantation.	16
36. Jo Mary Mt.	Twp. A, R. 10.	0
37. Cooper Mt.	Cooper, Washington Co.	22
38. Musquash Mt.	Topsfield.	9
39. Green Mt.	Twp. 4, R. 18, W. E. L. S.	0
40. Little Russell Mt.	Twp. 5, R. 16, W. E. L. S.	1
41. Saddleback Mt.	Twp. 2, R. 1, W. B. K. P.	13
42. Doubletop Mt.	Twp. 4, R. 10, W. E. L. S.	0
43. Nulhedus Mt.	Twp. 5, R. 17, W. E. L. S.	0
44. Lawler Hill	Benedicta.	0
45. Norway Bluff	Twp. 9, R. 9, W. E. L. S.	8
46. No. 9 Mt.	Twp. D, R. 2, W. E. L. S.	13
47. Hedgehog Mt.	Twp. 15, R. 6, W. E. L. S.	8
48. Three Brooks Mt.	Twp. 15, R. 6, W. E. L. S.	7
49. Speckles Mt.	Grafton, Oxford Co.	1
50. Spoon Mt.	Twp. 8, R. 7, W. E. L. S.	5
51. Mattamiscontis Mt.	Twp. 3, R. 9, N. W. P.	13
52. Squapan Mt.	Twp. 11, R. 4, W. E. L. S.	8
53. Schoodic Mt.	Twp. 9, Hancock Co.	1
54. Hardwood Mt.	Twp. 9, R. 18, W. E. L. S.	0
55. Almanac Mt.	Lakeville Plantation.	0
56. Allagash Mt.	Twp. 7, R. 14, W. E. L. S.	0
57. Picket Mt.	Lang Pl.	0
58. Flagstaff Mt.	Twp. 3, R. 4, B. K. P., W. K. R. ...	4
59. Pogy Mt.	Twp. 4, R. 9, W. E. L. S.	0
60. Washington Bald Mt.	Twp. 42, M. D.	1
61. Mitchell Mt.	Haynesville.	18
62. Soubungo Mt.	Twp. 4, R. 11, W. E. L. S.	7
63. Black Cat Mt.	Twp. 1, R. 9, W. E. L. S.	13
64. DeBoulie Mt.	Twp. 15, R. 9, W. E. L. S.	1
Round Pond Mt.		

FIRES REPORTED BY PATROLMEN

Patrolman	Territory	County	No. Fires
Robt. J. Walsh	Twp. 10, R. 4	Aroostook	3
H. F. Russell	Twp. 8, R. 4 & 8, R. 3	Aroostook	4
Felix Saucier	Twp. 16, R. 7	Aroostook	1
Geo. M. Austin	Twp. 16, R. 4	Aroostook	1
Otto Hede	Twp. 16-17, R. 5	Aroostook	3
Joseph M. Labby	Twp. 11, R. 6	Aroostook	3
William Parker	Twp. 13-14, R. 16	Aroostook	1
James Smart	Twp. 16, R. 5 & 6	Aroostook	2
Maurice N. Sleeper	Twp. 7, R. 5	Aroostook	1
E. F. Bartlett	Twp. 12, R. 17	Aroostook	2
William Parker	Twp. 13, R. 15	Aroostook	1
William McKinnon	Twp. D, R. 2	Aroostook	1
			— 23
John Roberts	Air Line Road	Washington	1
			— 1
James Crawford	Twp. 9, R. 7	Somerset	1
			— 1
John H. Martin	Twp. 3, R. 1	Franklin	1
			— 1
Charles Monroe	Twp. 3, R. 12 & 2, R. 12	Piscataquis	1
			— 1
Aaron Drew	Twp. 6, R. 7	Penobscot	1
Ted Dodson	Twp. 4, R. 10	Penobscot	1
			— 2
			—
Total.....			29

CO-OPERATION WITH THE STATE OF NEW HAMPSHIRE

As in previous years, the watchmen of the Maine Forestry District were furnished with a list of watchmen and wardens in New Hampshire, with Post office address and telephone connection. They were instructed to be on the lookout for fires across the State boundary and should a fire be discovered to get into communication with the watchmen and wardens in that territory.

Patrolmen on the Magalloway River, the Valley of Big Meadows and Hammond Brooks were employed and paid jointly by the Maine Forestry District and New Hampshire Timberland Association.

CO-OPERATION WITH THE RAILROADS

The section foremen of the different railroads in the State whose divisions are in the Maine Forestry District, were commissioned as Deputy Forest Fire Wardens, and these men were called out many times during the season to help put out fires. We find that but fourteen fires were caused directly by the various railroads, and we believe that this is a fine showing for the railroads, and is emblematic of the co-operation they are giving in protecting the forests from fire.

SLASH

Early in the spring letters were written to all the Chief Forest Fire Wardens instructing them to take care of all slash in their respective territories, and we are informed by these men that in all cases where slash was left along side the road contrary to law, that it has been taken care of, either by the land owner or the operator. Letters were also written to the County Commissioners and Road Commissioners in regard to slash left along side the road in the District.

LOOKOUT INSPECTION

Mr. C. W. L. Chapman, Mr. Edwin I. Small and Mr. Frost Williams were employed as lookout inspectors for the season of 1920, and every Lookout station in the Maine Forestry

District was thoroughly inspected. Many recommendations for the good of the service were made and on receipt of the reports of each station at the office at Augusta, a copy of the report was forwarded to the Chief Warden who had charge of the station, and the warden was instructed to comply with the recommendations as closely as possible.

FOREST FIRES.

According to our records, there was reported during the past season 344 fires by watchmen and 29 fires by patrolmen. The services of outside help were required on 118 fires all of which are listed in the tabulation below. The largest fire of the season occurred on May 28th on Township 11 Range 17 W. E. L. S. Somerset County. This fire which was started on the Canadian side of the boundary by settlers clearing land, was estimated by our Chief Warden to have burned over 10,000 acres, and caused damages estimated at over \$50,000.

SUMMARY OF FOREST FIRES BY COUNTIES

SUMMARY OF FOREST FIRES BY COUNTIES.

COUNTY.	Acreage.	Damage.
Aroostook.....	7,245	\$36,275
Franklin.....	130	940
Hancock.....	2,890	1,500
Oxford.....	7	150
Penobscot.....	523	450
Piscataquis.....	175	1,008
Somerset.....	16,484	83,010
Washington.....	7,104	20,419
Totals.....	34,558	\$143,753

FOREST COMMISSIONER'S REPORT

TOWNSHIP.	County.	Date.	Acres.	Cause.	Damage.
12, R. 15, W. E. L. S.	Aroostook	May 21	30	Unknown	\$300
15, R. 15, W. E. L. S.	Aroostook	May 19	75	Brush Fire	
15, R. 5, W. E. L. S.	Aroostook	May 28	25	Fishermen	250
12, R. 17, W. E. L. S.	Aroostook	May 31	12	Unknown	120
Eagle Lake	Aroostook	May 18	100	Unknown	200
Eagle Lake	Aroostook	May 18	250	Brush Fire	500
4, R. 3, W. E. L. S.	Aroostook	May 18	70	River Drivers	250
2, R. 3, W. E. L. S.	Aroostook	May 18	10	River Drivers	30
D, R. 2, W. E. L. S.	Aroostook	May 20	4	Settlers	25
13, R. 16, W. E. L. S.	Aroostook	May 27	4	Unknown	
14, R. 16, W. E. L. S.	Aroostook	May 27	6	Unknown	
Eagle Lake	Aroostook	May 27	400	Brush Fire	2,000
15, R. 7, W. E. L. S.	Aroostook	May 27	500	Brush Fire	1,500
Garfield Pl.	Aroostook	May 22	700	Drivers	7,000
E. Plantation	Aroostook	May 26	1,000	Brush Fire	3,000
17, R. 5, W. E. L. S.	Aroostook	May 31	220	Fishermen	1,500
17, R. 4, W. E. L. S.	Aroostook	May 28	20	Unknown	200
15, R. 4, W. E. L. S.	Aroostook	May 28	200	R. R. Fire	1,000
14, R. 6, W. E. L. S.	Aroostook	May 29	300	R. R. Fire	3,000
14, R. 11 & 12, W. E. L. S.	Aroostook	May 28	250	Campers	1,000
12, R. 15, W. E. L. S.	Aroostook	May 31	4	Unknown	40
Garfield Pl.	Aroostook	May 17	200	Drivers	800
Eagle Lake	Aroostook	June 16	35	Brush Fire	150
Garfield Pl.	Aroostook	Aug. 16	1	Unknown	
B, R. 2, W. E. L. S.	Aroostook	Aug. 27	1	House	
10, R. 6, W. E. L. S.	Aroostook	Aug. 20	5	Berry Pickers	
E, R. 2, W. E. L. S.	Aroostook	Aug. 19	5	Berry Pickers	50
Nashville Pl.	Aroostook	Aug. 28	5	Carelessness	100
C, R. 2, W. E. L. S.	Aroostook	Aug. 28	1	Unknown	100
4, R. 3, W. E. L. S.	Aroostook	Aug. 30	3	Fishermen	
Glenwood Pl.	Aroostook	May 23	1	River Drivers	10
Oxbow Pl.	Aroostook	May 29	12	Unknown	150
E, R. 2, W. E. L. S.	Aroostook	May 26	1,000	Brush Fire	3,000
Nashville Pl.	Aroostook	May 27	1,800	Pulp Wood	10,000
Redington	Franklin	May 17	100	Engine	5.0
Letter D.	Franklin	May 6	3	Engine	
Crockertown	Franklin	May 30	10	Fishermen	100
Wyman	Franklin	May 31	12	Unknown	240
Wyman	Franklin	June 2	1	Sawdust Pile	
Letter D.	Franklin	June 13	5	Carelessness	100
22, M. D.	Hancock	June 16	2,500	Berry Picker	
10 S. D.	Hancock	June 19	200	Unknown	600
10 S. D.	Hancock	June 21	150	Unknown	
10 S. D.	Hancock	Aug. 5	8	Unknown	700
4, N. D.	Hancock	May 25	14	Pulp Wood	None.
32 M. D.	Hancock	May 11	30	Unknown	200
8 S. D.	Hancock	May 28	1	Bee Hunters	
22 M. D.	Hancock	May 18	1	Unknown	
4, R. 3, W. B. K. P.	Oxford	June 13	5	Carelessness	100
4, R. 1, W. B. K. P.	Oxford	July 2	2	Engine	50
Webster pl.	Penobscot	May 24	50	Pulp Crew	50
2, N. D.	Penobscot	May 26	175	Unknown	None.
2, R. S, N. W. P.	Penobscot	May 23	100	Campers	None.
Indian 3	Penobscot	May 31	1-8	Picnic Party	0
Indian 3	Penobscot	June 1	5	Cigarette	0
Lakeville Pl.	Penobscot	June 1	20	Unknown	200
Grand Falls Pl.	Penobscot	June 26	40	Cigarette	200
2, R. 8, W. E. L. S.	Penobscot	June 5	100	Berry Picker	0
Indian 3	Penobscot	June 4	1	Engine	
7, R. 6, W. E. L. S.	Penobscot	May 31	25	Camp Fire	
6, R. 7, W. E. L. S.	Penobscot	May 29	7		
2, R. 8, W. E. L. S.	Penobscot	May 23	1	Campers	
A, R. 7, W. E. L. S.	Penobscot	May 16	1	Unknown	
Big Squaw	Piscataquis	May 16	5	Engine	
Big Squaw	Piscataquis	May 18	200 ft.	Engine	
Lakeview Pl.	Piscataquis	May 16	10		
Lakeview Pl.	Piscataquis	May 17	25	Campers	100
2, R. 10, W. E. L. S.	Piscataquis	May 18	3	Match	
4, R. 12, W. E. L. S.	Piscataquis	May 28	24	Drivers	
2, R. 13, W. E. L. S.	Piscataquis	May 28	2	Pipe	
Barnard Pl.	Piscataquis	June 4	75	Fishermen	200
5, R. 13, W. E. L. S.	Piscataquis	June 14	4	Cigarette	
A, R. 11, W. E. L. S.	Piscataquis	June 25	1	Lightning	
Little Squaw Mt.	Piscataquis	Aug. 15	2 sq. rd.		
Lakeview Pl.	Piscataquis	May 16	1	Engine	80
Big Squaw	Piscataquis	May 16	5	Engine	8

TOWNSHIP.	County.	Date.	Acres.	Cause.	Damage.
Big Squaw	Piscataquis	May 16	300 ft.	Engine	
4, R. 8, N. W. P.	Piscataquis	May 17	25		
Little Squaw Mt.	Piscataquis	May 16	1	Engine	20
Gore A. 2	Piscataquis	May 19	15	Camp Fire	600
Elliottsville Pl.	Piscataquis	May 13	1-40	Auto Party	None.
4, R. 5, B. K. P., W. K. R.	Somerset	May 18	3	Unknown	
Dennistown	Somerset	May 16	8	Cigarette	100
Holeb.	Somerset	June 4	2	Lightning	
Holeb.	Somerset	May 30	1	Unknown	
W. Forks Pl.	Somerset	May 26	70	Unknown	600
W. Rockwood	Somerset	May 27	1 1/2	Brush Fire	60
The Forks	Somerset	May 29	10	R. R. Fire	200
10, R. 17, W. E. L. S.	Somerset	May 28	5,000	Brush Fire	25,000
11, R. 17, W. E. L. S.	Somerset	May 28	10,000	Brush Fire	50,000
8, R. 19, W. E. L. S.	Somerset	May 30	1,200	Brush Fire	4,800
4, R. 5, B. K. P., W. K. R.	Somerset	July 29		Unknown	
Highland Pl.	Somerset	May 6	12	Unknown	1,500
4, R. 7, B. K. P., W. K. R.	Somerset	May 27	175	Unknown	750
Moscow	Somerset	May 31	1	Unknown	
Moscow	Somerset	July 13	1	Unknown	
Cooper	Washington	July 18	300	Blueberry Fire	1,000
6, R. 1, N. B. P. P.	Washington	July 18	1-8	Fishermen	None.
6, R. 1, N. B. P. P.	Washington	June 2	1-8	Unknown	None.
10, R. 3, N. B. P. P.	Washington	May 31	1	Engine	
10, R. 3, N. B. P. P.	Washington	May 18		Camp Fire	
10, R. 3, N. B. P. P.	Washington	May 19	5	Engine	5
Wesley	Washington	May 19	500	Unknown	100
Pl. No. 14	Washington	June 4	20	Unknown	200
Grand Lake Stream	Washington	June 13	1 1/2	Cigar Stub	10
29 M. D.	Washington	June 13	75	Unknown	1,000
19 E. D.	Washington	June 27	1-100	Unknown	4
18 E. D.	Washington	May 24	4	Unknown	
43 M. D.	Washington	July 14	40	Cigarette	1,400
26 E. D.	Washington	May 24	400	Fishermen	300
30 M. D.	Washington	May 24	2,000	Berry Fire	2,000
18 E. D.	Washington	Aug. 10	1 1/2	Camp Fire	100
Hinekley	Washington	Aug. 8	125	Unknown	500
Hinekley	Washington	Aug. 22	500		
24 M. D.	Washington	May 25	1,000	Berry Pickers	10,000
24 M. D.	Washington	May 24	2,000	Berry Pickers	2,000
Beddington	Washington	May 23	50	Cigarette	1,000
Edmunds	Washington	May 23	80	Fishermen	800
			34,558		\$143,752

CAUSES OF FIRES

Lightning	3
Railroad	14
Unknown	36
Lumbering	24
Brush Burning	11
Campers	30

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EDUCATIONAL WORK

Besides the regular number of metal signs put out by this department for the last four years, a boundary sign, 20 by 28 inches, was designed. By the end of next year all roads

leading to and from New Hampshire and Canada will have such a sign.

This sign reads on one side:

“YOU ARE NOW ENTERING THE STATE OF MAINE
PLEASE HELP US TO PROTECT OUR FORESTS FROM
FIRE. FOREST COMMISSIONER.”

The reverse side reads:

“YOU ARE NOW LEAVING THE STATE OF MAINE
YOU HAVE BEEN CAREFUL WITH FIRES IN OUR
FORESTS— THANK YOU—COME AGAIN.
FOREST COMMISSIONER.”

FEDERAL CO-OPERATION

The co-operation of the United States Forest Service under the Weeks Law was continued under the same agreement as last year, but the funds this year were used to pay the salaries of some watchmen and some patrolmen. The following tabulation will show the amount of money received from the U. S. Forest Service and the amount expended by this department under the different headings:

UNITED STATES DEPARTMENT OF AGRICULTURE—FOREST SERVICE.

Report of Expenditures on Watersheds of Navigable Streams, State of Maine, to Dec. 31, 1920.

KIND OF EXPENDITURES.	STATE.		FEDERAL.	
	Number.	Amt. of expenditures (salaries, travel and other charges.)	Number.	Amt. of expenditures (Salaries only.)
<i>State or Federal.</i>				
Collaborator.....			1	\$12 00
Lookout Watchmen.....	64	\$16,206 63	22	6,080 75
Patrolmen.....	50	14,510 85	28	1,072 50
<i>State only.</i>				
Fire wardens, rangers, etc.....	38	\$19,765 05		
Fire fighting.....		15,555 90		
Construction work (lookouts, telephone lines, etc).....		41,444 30		
Administration charges.....		7,313 79		
Miscellaneous charges.....		4,767 75		
Total to December 31, 1920.....		\$119,564 27		\$7,165 25

PERMANENT IMPROVEMENTS

Steel towers were erected on the following stations:

Station	Watershed	Height in feet
Schoodic Mt.	Machias	24 feet
Green Mt.	Penobscot	48 feet
*Little Russell Mt.	Penobscot	48 feet

*By the changing of Green Mt. station from the East to the West peak, and by using Nulhedus Mt. station, it seemed advisable to discontinue Mucalsea Mt. station, and erect a permanent steel tower on Little Russell Mt.

On account of the heavy expenses because of forest fires the erection of steel towers on the following stations could not be completed:

Station	Watershed	Height in feet
White Cap Mt.	Penobscot	24 feet
Rocky Mt.	St. John	48 feet
Hardwood Mt.	St. John	60 feet
DeBoulie Mt.	St. John	12 feet

Four Ford automobiles were bought for the following Chief Wardens: Frank P. Conley of Greenville Junction, and John B. Comber of Caratunk, in the Kennebec Watershed; Grover C. Bradford of St. Francis in the St. John Watershed; and Thomas Griffin of Millinocket in the Penobscot Watershed. One Ford truck was bought and placed at Bingham where the Storehouse is located.

It was the intention of the department to erect ten camps but on account of the heavy expenses this work will have to be done in 1921.

During the Spring 80 miles of telephone lines were built and 30 new telephones installed.

STATION MAPS

Out of the 14 panoramic maps which were sketched in 1918, Washington Bald Mt., Priestly Mt., and Soubungo Mt. maps could not be finished during the winter of 1919-20, but

they will be ready for the fire season of 1921 together with those sketched this summer, which were Otter Lake Mt., Little Russell Mt., Speckles Mt., Green Mt., and new maps were also made for Aziscoos and Schoodic Mts. for the reason that the steel towers that were erected there changed the view from these stations. Early next spring a total of 54 stations will have been equipped with these panoramic maps.

MISCELLANEOUS

At present the Maine Forestry District has 64 Lookout Stations and 40 of these are equipped with steel towers. The District has 80 camps; 875 miles of telephone lines; and according to the last inventory filed in this office by the Chief Wardens the Forestry District owns 233 telephones, 1726 shovels, 74 canvas pails, 2574 galvanized pails, 1705 mattocks, 1175 grub hoes and axes, 525 spades, 30 canoes, 6 motor boats, 11 automobiles, 2 bicycles and 54 pairs of binoculars.

LOOKOUT STATIONS AND EQUIPMENT.

NAME.	TOWNSHIP.	Tower.	Height Tower.	Pano-ramic Maps.	Binoc-ulars.	Tele- phone mileage.	Trail Mileage.	First Aid Kits.	Guns	Ali- dades.	Tables.	Camps.
ST. JOHN WATERSHED.												
Hedgehog Mt.	15, R. 6	Steel	24 ft.	x	x	$\frac{1}{2}$	$\frac{1}{2}$	x	x	x	x	14 x 12
Three Brooks Mt.	15, R. 6	Steel	45 ft.	x	x	$\frac{1}{7}$	$\frac{1}{4}$	x	x	x	x	18 x 18
Depot Mt.	14, R. 16	Steel	60 ft.	x	x	3	2 $\frac{1}{2}$	x	x	x	x	14 x 20
Rocky Mt.	18, R. 12	Steel	48 ft.	x	x	13	13	x	x	x	x	16 x 20
Priestly Mt.	10, R. 12	Wood	20 ft.	x	x	12	6	x	x	x	x	12 x 13
Soper Mt.	8, R. 12	Wood	20 ft.	x	x	12	3 $\frac{1}{2}$	x	x	x	x	12 x 12
Allagash Mt.	7, R. 14	Wood	20 ft.	x	x	10 $\frac{1}{2}$	7 $\frac{1}{2}$	x	x	x	x	12 x 14
No. 9 Mt.	D, R. 2	Steel	36 ft.	x	x	9 $\frac{1}{2}$	9 $\frac{1}{2}$	x	x	x	x	11 $\frac{1}{2}$ x 9
Squapan Mt.	11, R. 4	Wood	26 ft.	x	x	6	3	x	x	x	x	14 x 16
Norway Mt.	9, R. 9	Steel	24 ft.	x	x	33	4 $\frac{1}{2}$	x	x	x	x	12 x 14
Round Mt.	11, R. 8	Steel	48 ft.	x	x	10	12	x	x	x	x	14 x 16
Hardwood Mt.	9, R. 18	Steel	60 ft.	x	x	2 $\frac{1}{2}$	2 $\frac{1}{2}$	x	x	x	x	.....
Otter Lake Mt.	3, R. 4	Steel	48 ft.	x	x	9	9	x	x	x	x	.....
DeBoulie Mt.	15, R. 9	Steel	12 ft.	x	x	9 $\frac{1}{2}$	.....	x	x	x	x	12 x 14
Fourteen	.....	10 S-4 W	.....	12	10	137 $\frac{1}{2}$	77 $\frac{1}{2}$	9	12	10	10	12
PENOBSCOT WATERSHED.												
Mitchell Mt.	Haynesville	Wood	30 ft.	x	x	$\frac{1}{8}$	$\frac{1}{2}$	x	x	x	x	16 x 16
Ragged Mt.	Indian, No. 4	Steel	48 ft.	x	x	8	4 $\frac{1}{2}$	x	x	x	x	12 x 12
Mattamuscontis Mt.	3, P. 9 N. W. P	Steel	48 ft.	x	x	15	15	x	x	x	x	10 x 12
Boarstone Mt.	Elliottsville	Wood	.....	x	x	1	2 $\frac{1}{2}$	x	x	x	x	12 x 16
White Cap Mt.	Bowdoin College Grant	Steel	24 ft.	x	x	33	5	x	x	x	x	12 x 12
Doubletop Mt.	3, R. 10	Steel	24 ft.	x	x	3	3	x	x	x	x	2 x 14
Little Russell Mt.	5, R. 16	Steel	48 ft.	x	x	1 $\frac{1}{2}$	1 $\frac{1}{2}$	x	x	x	x	.....
Nulhedus Mt.	5, R. 17	Steel	60 ft.	x	x	1 $\frac{1}{2}$	8	x	x	x	x	12 x 16
Green Mt.	4, R. 18	Steel	48 ft.	x	x	1 $\frac{1}{2}$	1 $\frac{1}{2}$	x	x	x	x	.....
Mt. Chase	Mt. Chase	Steel	12 ft.	x	x	10	2	x	x	x	x	12 x 12
Spoon Mt.	8, R. 7	Wood	30 ft.	x	x	10	9	x	x	x	x	18 x 15
Horse Mt.	6, R. 8	Steel	12 ft.	x	x	3	11	x	x	x	x	12 x 14
Beetle Mt.	7, R. 10	Wood	.....	x	x	25	25	x	x	x	x	14 x 14
Center Mt.	4, R. 10	Steel	12 ft.	x	x	20	6 $\frac{1}{2}$	x	x	x	x	14 x 14
Spencer Mt.	X, R. 14	Wood	14 ft.	x	x	10	10	x	x	x	x	12 x 14
Soubougo Mt.	4, R. 11	Steel	12 ft.	x	x	2	2	x	x	x	x	8 x 24
Passadumkeag Mt.	Grand Falls Pl.	Steel	35 ft.	x	x	13	4	x	x	x	x	12 x 12
Black Cat Mt.	1, R. 9	Steel	48 ft.	x	x	1-3	1-3	x	x	x	x	14 x 20
Eighteen	.....	13 S, 5 W	.....	17	13	158	111	14	15	15	17	16

LOOKOUT STATIONS AND EQUIPMENT.

NAME.	TOWNSHIP.	Tower.	Height Tower.	Pano-ramic Maps.	Binoc-ulars.	Tele- phone Mileage.	Trail Mileage.	First Aid Kits.	Guns	Ali- dades.	Tables.	Camps.
KENNEBEC WATERSHED.												
Pleasant Pond Mt.	The Forks Pl.	Steel	36 ft.	x	x					x		12 x 12
Moxie Bald Mt.	Bald Mt.	Steel	12 ft.	x	x	6	6	x	x	x	x	12 x 14
Coburn Mt.	3, R. 6, W. K. R.	Steel	24 ft.	x	x	4	4	x	x	x	x	12 x 16
Kineo Mt.	Day's Academy	Steel	64 ft.	x	x	2	2	x	x	x	x	9 x 12
Squaw Mt.	Big Squaw	Steel	12 ft.	x	x	9	9	x	x	x	x	14 x 16
No. 4 Mt.	A, R. 3					5						
Boundary Bald Mt.	2, R. 3, N. B. K. P.	Wood	12 ft.	x	x	12	2½	x	x	x	x	12 x 14
Attean Mt.	Attean	Wood	12 ft.	x		1½	1½	x	x	x	x	14 x 14
Kibbie Mt.	1, R. 6, W. B. K. P.	Steel	48 ft.	x	x	11	11	x	x	x	x	12 x 14
Williams Mt.	2, R. 7, W. K. R.	Steel	48 ft.	x	x	8	4½	x	x	x	x	12 x 14
Bigelow Mt.	Bigelow	Steel	16 ft.	x	x	4	4	x	x	x		8 x 10
Snow Mt.	2, R. 5, W. B. K. P.	Steel	24 ft.	x	x	2	2	x	x	x	x	12 x 16
Tumbledown Mt.	5, R. 6, W. K. R.	Steel	24 ft.	x	x	12	2	x	x	x	x	12 x 16
Flagstaff Mt.	Flagstaff Pl.	Steel	48 ft.	x		5½	1		x	x	x	
Fourteen		11 S, 2 W		13	11	82	55½	11	12	13	13	11
ANDROSCOGGIN WATERSHED.												
Aziscoos Mt.	Lincoln Pl.	Steel	24 ft.	x	x	2½	2½	x	x	x	x	12 x 18
Speckles Mt.	Grafton	Steel	36 ft.	x	x	2½	2½	x	x	x	x	12 x 12
West Kennebago Mt.	4, R. 4, W. B. K. P.	Steel	24 ft.	x	x	3½	3½	x	x	x	x	16 x 16
Saddleback Mt.	Sandy River Pl.	Steel	36 ft.	x	x	10	4½	x	x	x	x	16 x 18
Picket Mt.	Lang Pl.											
Five		4 Steel		4	4	18½	13	4	4	4	4	4

LOOKOUT STATIONS AND EQUIPMENT.

NAME.	TOWNSHIP.	Tower.	Height Tower.	Pano-ramic Maps.	Binoc-ulars.	Tele-phone Mileage.	Trail Mileage.	First Aid Kits.	Guns	Ali-dades.	Tables.	Camps.
ST. CROIX, MACHIAS ETC., WATERSHED.												
Schoodic Mt.	No. 9, S. D.	Steel.	24 ft.	x	.....	6	1	x	x	x	x	10 x 12
Musquash Mt.	Topsfield.	Wood.	36 ft.	x	.....	3½	1½	x	x	x	x	16 x 14
Pocomoonshine Mt	Princeton.	Wood.	58 ft.	x	x	2½	2½	x	x	x	x	10 x 17
Wesley Mt.	Wesley.	Wood.	55 ft.	x	.....	4	.....	x	x	x	x	.....
Tug Mt.	No. 30 M. D.	Wood.	36 ft.	x	x	2	2	x	x	x	x	13 x 15
W. Bald Mt.	No. 42 M. D.	Wood.	55 ft.	x	x	17	17	.....	.....	x	x	14 x 18
Lead Mt.	No. 28 M. D.	Steel.	36 ft.	x	x	2½	2½	x	x	x	x	15 x 15
Cooper Mt.	Cooper.	Wood.	48 ft.	x	x	½	½	x	x	x	x	.....
Almanac Mt.	Lakeville Pl. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nine. ....	.....	2 S, 6 W	.....	8	5	34½	27	7	7	8	8	6

OUTSIDE OF THE MAINE FORESTRY DISTRICT

FIRE SEASON

The lookout stations on Agamenticus and Ossipee Mountains were opened during the last week of April, and the watchmen were kept on duty until the last day of September. Thirty-six fires were reported by the watchmen on Ossipee Mountain and twenty-six by the watchman on Agamenticus Mt. The salary of these men was paid by the United States Forest Service under the Weeks Law agreement.

In July we started the erection of a forty-eight foot steel tower on Cedar Mountain located in the town of Parsonsfield, and also the erection of a camp for the accommodation of the watchman, and started building a mile of telephone line on that mountain. This work was completed the first week in September. Another forty-eight foot steel tower was erected on Pleasant Mountain in the town of Denmark. Here a camp was also erected, and over three miles of telephone line was built. This work was done by our construction crew, and they worked under the supervision of Harvey D. Granville of Parsonsfield.

The Selectmen of the town of Rumford wrote this department during the summer that they would like to have a lookout station established on Zircon Mountain which is located in Milton Plantation. If an appropriation can be obtained from the incoming Legislature we believe that it would be a good move to establish a station on that mountain. A lookout station there would cover the territory which is not covered by either Pleasant Mountain in the town of Denmark, or Speckles Mountain in the town of Grafton, and would serve as the connecting link between the Maine Forestry District and the organized towns.

FOREST FIRES

The damage by forest fires in the organized towns has been much less than in the Maine Forestry District. The rainfall which in the towns was about normal helped greatly toward keeping down the fire expense. Also the establishing of more lookout stations in the territory outside of the Maine Forestry District has helped wonderfully in the stopping of forest fires because of the early spotting of the fires from the various towers, and the fires have been put out before they had a chance to spread and do much damage.

FOREST FIRES OUTSIDE OF THE MAINE FORESTRY DISTRICT, 1920.

Town.	Date.	Acres.	Cause.	Damage.
Poland.	May 17	1	Unknown.	\$3,000
Greene.	May 29	100	Unknown.	2,000
Poland.	May 17	25	Carelessness.	250
Van Buren.	May 10	1,920	Clearing Land.	10,000
New Canada.	May 24	75	Clearing Land.	300
Dyer Brook.	May 17	100	Burning Slash.	?
Dyer Brook.	May 30	75	Unknown.	1,000
Ashland.	May 29	300	Clearing Land.	300
Portage Lake.	May 28	100	Unknown.	?
Wallagrass.	May 17	125	Unknown.	1,000
Castle Hill.	May 27	8	Unknown.	9,000
Haynesville.	May 23	1	Matches.	19
Standish.	May 19	25	Unknown.	100
Madrid.	May 16	13	R. R. Fire.	300
Madrid.	May 15	20	R. R. Fire.	500
Madrid.	May 16	40	R. R. Fire.	200.
Orland.	May 30	25	Fisherman.	?
Southwest Harbor.	June 1	300	Fishermen.	1,000
Manchester.	May 17	1	Unknown.	?
Manchester.	May 17	1	Unknown.	?
Augusta.	April 19	25	Lunch Fire.	50
Washington.	May 19	60	Matches.	100
Waldoboro.	May 17	150	Clearing Land.	500
Waldoboro.	May 19	8	R. R. Fire.	500
Byron.	May 18	100	Match.	15
Brownfield.	May 19	207	House Burning.	1,000
Millinocket.	Aug. 5	1	R. R. Fire.	?
Hudson.	June 28	1	Engine Sparks.	5
Lincoln.	May 31	15	Unknown.	150
Lee.	May 26	25	Unknown.	200
Monson.	May 28	20	R. R. Fire.	50
Monson.	May 28	17	Lunch Fire.	25
Bowerbank.	May 16	5	Engine Sparks.	100
Bowerbank.	May 17	10	Engine Sparks.	None.
Medford.	May 15	50	Cigarette.	200
Lincolntonville.	May 15	40	Burning Pasture.	3,000
Baring.	May 6	160	R. R. Fire.	None.
Talmadge.	June 4	11	Cigarette.	50
Baring.	May 31	300	R. R. Fire.	1,000
Baring.	May 27	500	Unknown.	3,000
Calais.	May 11	300	Unknown.	3,000
Lebanon.	Aug. 24	3	Unknown.	100
Springvale.	July 28	3	Berry Pickers.	None.
Springvale.	June 20	21	R. R. Fire.	100
Springvale.	May 20	1	Unknown.	None.
Berwick.	May 6	5	Accidental.	50
Wells.	May 7	5	Unknown.	None.
		5,245		\$42,155

SUMMARY OF FOREST FIRES.

COUNTY.	Acres.	Damage.
Androscoggin.....	126	\$5,250
Aroostook.....	2,704	21,610
Cumberland.....	25	100
Franklin.....	73	1,000
Hancock.....	325	1,000
Kennebec.....	26	50
Knox.....	60	100
Lincoln.....	158	1,000
Oxford.....	300	1,015
Penobscot.....	40	355
Piscataquis.....	86	375
Waldo.....	40	3,000
Washington.....	1,262	7,050
York.....	20	250
	5,245	\$42,155

CAUSES OF FIRES.

Lightning.....	0
Railroads.....	12
Unknown.....	16
Lumbering.....	0
Brush Burning.....	7
Campers.....	12

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REPORT OF SLASH INSPECTOR

Beginning the 17th of May, the work of slash inspection was carried on throughout the entire season, and during this period over 6,600 miles of Maine roads and railroads were inspected, and the parties responsible for slash, such as owners of portable mills, light and power companies, etc., were notified to clean up dangerous slash.

The Ford supplied by the Department made it possible to cover much more territory than could otherwise have been reached, and also carried a very large number of the warning signs, which were left at favorable places along the entire route covered.

Early in the season the boundary signs were placed on the roads leading into the state from New Hampshire, and later the roads from New Brunswick were posted in the same manner.

The new railroad signs were placed in the stations along the route covered by the slash inspector, and a large number of the Slash Law signs were also posted in dangerous localities.

Much of the worst slash in York, Lincoln, Kennebec, Washington, Cumberland, Androscoggin, Waldo, Hancock, Franklin,

Lower Somerset and Piscataquis was located and steps taken to have it cleared up during the Fall rainy season.

One of the bad features in connection with this work seems to be the general misinterpretation of the law by land owners and men who operate portable mills. Many of them seem to think that if the slash is piled back fifty feet from the road that they have complied with the law.

This impression needs to be corrected, as piling back the slash is simply storing up trouble for the future. It should be burned at the first favorable opportunity, this being the only way to permanently protect the surrounding timber. The work of slash law enforcement is the best form of forest fire insurance, is vitally necessary, and anything which can be done to make it more effective is decidedly worth while.

Another season it will be well to make a test case of one or more of the flagrant evaders of this law, by sending in a crew to clear up the slash and fining the man responsible for it, according to the provision in section 53. At present there has never been a test case and I feel that it would greatly facilitate the work if it was known that refusal to obey the law would be followed by prosecution and the added expense of having the Forestry Department clean up the slash.

A large portion of the fires which yearly occur in Maine can be traced to their origin in a pile of slash, and some of the pictures taken this summer during the work of inspection give a graphic idea of the danger that menaces every community which is lax in cleaning up the dead brush that borders its highways and railroads.

I feel that much has been accomplished this summer along the lines of fire prevention outside the Maine Forestry District, and that another season there will be less trouble, due to the fact that many who had never had the law called to their attention previously are well informed on the subject now.

The splendid signs put up all over the State along the highways, where automobile parties cannot fail to see them, are the most important part of the educational campaign being carried on by the Department, and several hundred of them were distributed at points where they would do the most good, during the work of inspection.

PUBLIC LANDS

NATIONAL FORESTS

We turned over to the State Treasurer this year the sum of four hundred twenty-four dollars and ninety-two cents, (\$492.92). This money was received by this department from the United States Forest Service and represents twenty-five percent of the receipts received from the revenue from the National Forests and is to be turned over by the State to the County of Oxford where this land is located. The National forest of this state contains about 29,000 acres.

SCHOOL LANDS

In accordance with Sec. 15 Ch. 8 R. S. the School or Public Lots in Township 3 Range 11, Piscataquis County, containing in all one thousand acres, were located under an agreement entered into by the State and the owners of the township, the Great Northern Paper Co. John C. Hutchinson of Bangor represented the department and William Hilton represented the Land owners.

Township No. 41 Middle Division in Hancock County was divided by the owners and three school lots containing 320 acres each were selected and located. The commissioners appointed by the court were James W. Sewall, Joseph A. Loble and Howard B. Moore.

The lines around the public lots in Township A, Range 5 known as Molunkus Plantation were resurveyed and this work was done by M. A. Weston of Monarda.

Some work was also done on the lines of the Public Lots in West Forks Plantation by C. C. Stewart of Bingham, and Moose River Plantation by E. A. Piper of Jackman.

The work which was begun on School Lots in Wallagrass and St. Francis Plantations was completed and we hope to be

able to make settlements with the claimants of those lots before the end of this year.

Permits to cut timber have been granted on the School Lots on the following plantations: Leavitt, Macwahoc, Nashville, Caratunk, Glenwood, Sebois, Winterville, Hamlin, Dead River, Lang, Drew, Molunkus and Cyr. These permits were given under authority given the Land Agent by Sections 6 and 7 of Chapter 8 of the Revised Statutes.

INDIAN TOWNSHIP

Under authority given the Forest Commissioner by Section 44 of Chapter 144 of the Public Laws of 1919, a permit was given to E. B. Draper to cut on Indian Township for about 2,500,000 feet of pine, spruce, hemlock, fir and cedar. This permit will run until May 1, 1921.

REVENUES

This Department has on hand at this time \$27,958.50 collected for stumpage and rental, and there still remains a few bills to be collected and in accordance with Section 2 of Chapter 8 of the Revised Statutes the entire amount will be turned over to the State Treasurer.

WHITE PINE BLISTER RUST

INTRODUCTION

The Maine Legislature of 1919, provided for Blister Rust Control in Maine for the years 1919 and 1920, an appropriation of \$5,000.00 for each year, so that the funds for this year became available January 1, 1920.

Field work was begun on May 17th, when two scouts, with previous experience in the work, were detailed on a preliminary survey of some six towns in the heart of the white pine region of York County. They were instructed to look very carefully for indications of the disease on Pine, and also to determine which of the Towns examined had the largest percentage of white pine standing at the present time. The idea being to concentrate the eradication work where it was most needed, and to reduce insofar as possible traveling and incidental expenses for the crew work.

The scout found no infection on pine in any of the Towns, and the Town of Hollis was found to contain the highest percentage of standing white pine of any of the Towns examined. It was therefore selected for eradication. Crew work was started on this area June 1, and continued until September 15, 1920.

An effort has been made to secure local co-operation from owners of white pine lands, and a special letter had been sent under date of April 15, 1920. This letter was addressed to the owners of white pine in Maine. It particularly called their attention to the menace of the disease, and solicited their co-operation in the eradication work about to be undertaken by the State and Federal Government.

Since, previous to this time, no local co-operation had been obtained in Maine, special emphasis was placed on this letter, and it was sent to all owners of white pine, timberland

owners in general, Postmasters, and other State officials and it was also published in all of the newspapers of the State.

The full text of the letter was as follows:

TO OWNERS OF WHITE PINE IN MAINE

Your attention is called to the desirability of protecting your white pine stands from the Blister Rust. A Bulletin (No. 4) recently published by the American Plant Pest Committee, gives the latest available information on this subject. It may be secured on request from the Forest Commissioner, Augusta, or from the Forestry Department at Orono.

The Blister Rust is apparently progressing rapidly, and if you want to protect your stand of white pine, you should destroy the currant and gooseberry bushes within 200 to 300 yards of them. Fortunately this disease is unlike the chestnut bark disease, inasmuch as it does not spread from pine to pine, but requires an intermediate stage on currant or gooseberry to complete its life cycle. You are urged to pull up all wild and cultivated currants and gooseberries on your property, if they are near your white pine.

The larger the tract to be worked, the less will be the average cost per acre and therefore it is to the advantage of owners with adjoining places to have the work done at the same time. Also the larger the area cleaned of these bushes, the more thorough the protection. After pulling or digging up the bushes, they should not be left on the ground, because they are likely to take root again. The root system, and especially the crown of the roots must be removed or vigorous sprouts will be sent up. Only systematic work will be really effective. We now have trained men and experienced crews for this work.

If you or any of your friends own a stand of white pine and cannot eradicate the wild currants and gooseberries without outside help, the Federal and State Government will assist you. The only cost of the work will be borne cooperatively, the Federal Government paying one-half, the State one-fourth, and you the remaining fourth. In other words, for one-fourth of the cost you can have the currants and gooseberries removed from the vicinity of your white pines so long

as the present Federal and State appropriations last. The State and Federal funds are limited and those who apply first will receive the first attention. This offer may never again be renewed; and is good only until recalled.

For further information, and for filing application for the work, address John M. Briscoe, Orono, Maine, in charge of the field work, Blister Rust Control, or Forrest H. Colby, Forest Commissioner, Augusta, Maine.

As a result of this letter, but one request was received during the entire season for co-operative work. This was from a non-resident, who owned a summer place in North Waterford, Oxford County, Maine, where no blister rust has been found to date.

When the State Agent called to make arrangements for the eradication work, the place was closed. Neighbors stated that it had been closed up all summer, and no information could be obtained as to the plans or present abode of the applicant, and so no further action was taken in the matter.

Efforts were also made to have the Town of Hollis take some part in the eradication expenses, but nothing was done during the present year by them. Several of the prominent men in this Town, however, expressed their desire to have the work continued and completed next season, and offered their services to aid in securing an appropriation for that purpose at the Town Meeting in the Spring of 1921.

The white pine survey was continued where it was dropped at the end of the field season last year. The Town of Eliot was first completed, and then the Towns of South Berwick and North Berwick. About 50% of the Town of Wells was also mapped during the present season.

Mr. H. P. Andrews, and Mr. I. McKechnie were employed on the mapping work from June 1 to Sept. 1, and Mr. P. S. Turner returned to this work in August. Mr. S. D. Connor, of Exeter, N. H., also assisted on the mapping work, so that in all four men were employed for the greater part of the season. It was very difficult to secure properly trained men for this work, and we were not able to make the progress that we had hoped for on this project. The men that we did secure did excellent work, and their daily average of acreage covered was over one square mile.

Prints of the maps made will accompany this report and are a part of it.

ORGANIZATION

The same general overhead organization was continued as in previous years. The administration of the work was in the hands of the Forest Commissioner, Mr. F. H. Colby. He appointed Mr. Neil L. Violette of Augusta, Deputy Forest Commissioner, as Federal Collaborator; and John M. Briscoe of Orono as Agent in charge of the field work; and Mr. M. E. Watson of Sanford as Clerk.

Practically the same co-operative agreement was entered into with the Bureau of Plant Industry, of the United States Department of Agriculture. This agreement is effective to December 31, 1920. By this agreement, for each dollar expended by the State, an equal amount would be allotted to the State from the Federal appropriations from Blister Rust Control. For simplifying the administration of this allotment, it was agreed that only wages should be paid from the Federal funds, and all expenses and other miscellaneous items from the State funds.

Mr. E. C. Filler, Plant Pathologist, was in charge of the whole New England district, and a central office was established at 1955 Massachusetts Avenue, Cambridge, Mass., where all of the records of the work were sent daily and where the monthly and semi-monthly reports were compiled, and sent out to the State Agents, in charge of the field work. An especial expression of gratitude and appreciation is due to Mr. Filler for the prompt and business like way in which all of his part of the work was handled, and for his hearty support and co-operation in every part of the work during the entire season.

At the beginning of the season it was decided to employ only local labor on the eradication work in so far as possible, and this year no difficulty was encountered in getting good men in the eradication area. The following men were employed on Blister Rust Control during the Season of 1920.

Abbott, Bradley B.	Hollis Center, Maine.	July 6 to Sept. 8
†Andrews, Harold P.	Winterport, Maine.	June 22 to Aug. 31
Burnham, Virgil A.	Hollis Center, Maine.	June 2 to Sept. 15
Carle, Leon A.	Hollis Center, Maine.	June 2 to Sept. 15
Cayouette, Francis J.	Augusta, Maine.	June 1 to Sept. 15
†Connor, Solon D.	Exeter, N. H.	Aug. 2 to Sept. 20
†Curtis, Daniel S.	Brunswick, Maine.	May 17 to Aug. 31
Curtis, Gray H.	Brunswick, Maine.	June 17 to Aug. 31
*Dow, Frank.	Augusta, Maine.	June 1 to Sept. 15
Hanson, William E.	Hollis Center, Maine.	June 9 to Aug. 20
Hobson, Ralph W.	Hollis Center, Maine.	July 6 to Sept. 15
†Kimball, Guy H.	Waterboro, Maine.	May 18 to Sept. 15
Lawton, Dwight L.	Hollis Center, Maine.	July 6 to Sept. 15
*Lambert, Arthur J.	Augusta, Maine.	June 7 to Sept. 15
†McKeechie, Ishmael.	Sanford, Maine.	June 23 to Aug. 31
Smith, Milton A.	Hollis Center, Maine.	July 7 to Sept. 15
Smith, George.	Hollis Center, Maine.	July 7 to Sept. 15
†Turner, Perley S.	Portland, Maine.	Aug. 23 to Sept. 23
Watson, Myron E., Clerk.	Sanford, Maine.	June 1 to Sept. 15

† Scouts.

‡ Mapmen.

* Crew foremen.

A field office and headquarters was established at 100 Main Street, Sanford, Maine, it being centrally located between the towns where eradication and mapping work was in progress.

Rates of pay for all branches of the work were in accordance with the standard established and approved by the Bureau of Plant Industry, and charges against Federal funds were paid through Mr. Chas. A. Gibson, 1955 Massachusetts Avenue, Cambridge, Mass.

The crew Foremen, Messrs. Dow and Lambert were both men who had been on the work before and had experience on the eradication crews and in handling men. That they were very efficient and successful in their part of the work is shown by the reports of the Federal Inspector, the figures for thoroughness of eradication average for the season something over 96 per cent.

This year the men on the eradication crews were for the most part local men, from the Town of Hollis, the only exceptions being Gray Curtis of Brunswick, whose father was one of the crew Scouts, and F. J. Cayouette, of Augusta. They were, on the whole, by far the best men that we have ever had on this work. They showed great interest in the work and a willingness to abide by all the rules and regulations in regard to hours of employment and half-time for rainy weather. With the exception of a few days in July, the weather caused little serious interference with the work until during the first half of September, which proved to be

as rainy as is customary in this region; and caused some dissatisfaction with the men, who were anxious to get to more permanent and profitable employment.

SCOUTING

We were very fortunate in securing two excellent Scouts in Mr. D. S. Curtis and Mr. G. H. Kimball, both of whom had also been on this work during previous seasons and understood the disease and the methods of field work. They had experience both in eradication work, and in scouting. During the season they covered about 10,283 acres for eradication purposes, besides the preliminary survey of the six Towns at the beginning of the field season to determine where the eradication work had best be located. Over 80 per cent. of this area was eliminated from the areas that the crews covered, and the cost per acre was consequently much reduced for the Town as a whole. Where only occasional ribes were found, they pulled them up and destroyed them as they proceeded, but where any abundance of the plants were found, the crews were sent in on the areas to cover them grid-iron fashion.

White cheese-cloth strips were used to designate the areas where crew work was required, and the Foremen were taken to the plot and shown in person where the limits of the areas were located, and what parts of them needed particular attention.

No new infections on pine were discovered by any of the men on the work in Maine until late in August, when one of the numerous lots of specimens sent to Dr. Colley, Pathologist, at the Bureau of Plant Industry, was identified by him as being infected with blister rust. In his letter of September 2, to the writer he states: "The specimens which you referred to are certainly infected with the blister rust, although the blister rust cankers have been partially invaded by a secondary fungi. From what you say, (viz. that there was a large flowering-currant covered with the rust in the telial stage near-by. I should imagine that a good many other specimens might be found in which secondary fungi had perhaps completely suppressed the blister rust. In some of

these cases the definite blister rust cankers are, as you know, quite difficult to recognize."

This particular infection was found incidentally by Mr. I. McKechnie, one of the mappers. It was on the place of Mr. Fred Staples, North Berwick, D. R. No. 1. The finding of this particular infection brought Mr. McKechnie the five dollar prize which had been made as a standing offer during the entire season for anyone on the work who could discover new infections on pine anywhere in Maine.

The infection noted by Mr. Detwiler on his trip this summer, near Lewiston, is not a new infection, it having been found and recorded by Mr. W. A. Barrus, the Federal Inspector, in company with the writer, during the summer of 1917. The request at that time was to leave it for further observation by the Bureau.

While the infection on ribes was quite generally distributed, it did not seem as heavy or as universal as during the previous seasons.

The results of the publicity campaign carried on by both the State and the Federal Government, are beginning to be felt in the reduction in the number of currant and gooseberries, and the absolute prohibition of bringing in new planting stock of any kind of ribes from outside the State, has aided in reducing materially the number of such plants. These, in their usually more or less exposed sites, may be considered as considerably more of a menace than the presence of the wild ribes in the woods.

That the general public is becoming better informed on the nature of the disease and the regulatory measures, is evidenced by the increasing number of inquiries on the subject received at the University through its various departments. Many people, both residents and non-residents have written in asking whether or not it is necessary or advisable for them to destroy their cultivated ribes, also for advice on preventing infection of white pine.

The distribution of the new circular with colored illustrations has been very useful in this direction, and it has filled a place of its own in the field of general public education. The preliminary scouting methods, as outlined by Mr. E. C. Filler

at the end of the last season, were used in the scouting work this year with complete success.

Careful inspection of the areas eradicated at Kittery Point, Brunswick, and Alfred, showed that there were no new infections on pine in any of these areas, but the area of diseased pine at the Brunswick-Bath area was found to be considerably larger than the demonstration tract which was eradicated there during the seasons of 1918 and 1919. This would indicate that the eradication on these areas had been successful, at least in so far as it prevented the further spread of the disease locally, but how far the diseased pine may have spread infection to surrounding ribes is undetermined.

Check plots on the above areas revealed no ribes left from former eradications.

On account of the lack of new pine infections and the present indications that the disease is not spreading with any alarming rapidity in Maine, it has been difficult, and indeed impossible to arouse any enthusiasm in local co-operative work in eradication. All efforts along this line have met with complete failure.

There is a general feeling among the owners of white pine, that the State and Federal authorities are on the lookout for any dangerous outbreak of the disease, and are in the meantime carrying on all of the scientific and experimental work that the occasion demands.

ERADICATION

Eradication work for the season of 1920 was concentrated in the Town of Hollis, situated in the northern tier of Towns in York County, between Limington and Dayton, just north-east of Waterboro, and with the Saco river as its northern boundary.

This town contained a higher percentage of white pine than any of the nearby towns examined by the scouts in the preliminary survey at the opening of the field season, and was therefore selected for the work.

Besides pure stands of white pine, there were the usual mixed stands of pine and hardwoods, and in the northern part of the Town, considerable areas of Pitch Pine type, occurring on dry, sandy flats.

More than 10,000 acres were eradicated in this town during the season of 1920, but this does not cover more than about 50 per cent. of the total area. Some 8,000 acres were thrown out by the scouts as unnecessary for crew work. The remainder of the area scouted was afterwards covered in crew formation.

Two scouts and two crews were employed on the work for the whole of the field season, the make-up, and personnel of the crews is given elsewhere in this report.

Daily checks were made by the crew, weekly inspections by the State Agent, and semi-monthly inspections by the Federal Inspector, Mr. W. O. Frost, in charge of the New England section. The results of these checks showed a high degree of efficiency and thoroughness, as will be seen by the following figures, taken from the latter's reports to the Cambridge office after some of his inspections in Maine.

FIGURES FROM INSPECTOR FROST'S REPORTS

DATE.	Ribes pulled by crew.	By Inspector.	% Insp.	% Crew.
July 7.....	1,056	60	5	95
July 14.....	736	17	3	97
Aug. 3.....	1,039	18	2	98
Aug. 31.....	184	8	5	95
Aug. 31.....	84	4	4	96
Total average	% crew.....	.....	.....	96

Area checked over by the State Agent showed as high, if not a higher general average than those taken by Mr. Frost, ranging from 95 per cent. to 100 per cent. mark in many cases, while the daily checks were always continued until the 100 per cent. mark was attained.

A total of 177,424 ribes were destroyed during the field season of 1920.

The eradicated areas totaled 10,283 acres. The average number of ribes found was 17.3 per acre, with an average time of .72 man-hours and a cost of .377 per acre.

Experiments carried on by Cheyney of Minnesota would seem to indicate that the most effective method of eradication

consists in cutting off the roots with a sharp adz or grub hoe, since it has been found that only roots exposed to sunlight ever sprout, and it requires less care to eradicate the ribes in this way completely than to pull them, as has been the customary method in the past.

The only precaution that must be taken in using this method is to be sure that no portion of the crown of the plant remains.

Even after ordinarily careful eradication by pulling, the leaf surface is so reduced as to practically eliminate any menace from the disease.

No compensation was paid for any ribes destroyed during the season, and no claims for any such payments were received. Most of the work was confined to the eradication of wild ribes, and the infection on these was general after the middle of June.

In order to stimulate much local interest in the eradication work, it will be necessary to discover more pine infections than have come to light during the past two years. It is the opinion of the writer that the actual damage done by the disease, where it is found, will have to be demonstrated more forcibly than it has been in the past. On the Kittery Point area, while many of the small pines are dying, and larger trees have been retarded in their growth, it has been necessary for the writer to accompany several parties on an inspection of the tract in order for them to be able to discover it at all, although it is within a stonethrow of the highway. And this is, admittedly, one of the worst infections that have been found, and so far as we know the oldest in the United States. Certainly within the past four years, its boundaries have not been extended in the least, and the progress of the disease on the infected trees is slow.

Until such time as it can be shown that the Blister Rust is a more serious public menace than we have so far found it to be in Maine, it seems that the initiative in eradication work may with safety be left in the hands of the owners of white pine, particularly the owners of young growth and plantations. These should be given every possible aid and assistance from the State and Federal authorities, in the way of information and advice; but if the radius of infection from ribes to pine is as short as was indicated at the last

conference, it is a local problem and well within the reach and means of the average woodland owner to protect his growing stock from infection from Blister Rust.

Provision should also be made for scouting and keeping on the lookout for new infections on pine, and for the inspection of nursery stock and plantations of young white pine. Check plots could very profitably be made on the areas at Alfred, Bath, Brunswick, and Kittery Point, as well as at Hollis, where there is a possibility that an appropriation may be made by the Town at the next Town meeting for continuing the eradication work there during the season of 1921, and completing the eradication in that Town. Nothing definite can be known about this, however, until next March; and since the State appropriation from the Legislature lapses December 31, 1920, we will be obliged to defer further work until after the passage of another bill by the Legislature of 1921, providing funds for the continuance of the work. Such an appropriation will be asked for, with the consent and advice of the Bureau of Plant Industry, and it is to them, that we shall look, not only for their usual co-operation; but also for their aid and assistance in securing the passage of such a bill.

NURSERIES

The Department of Horticulture took charge of the inspection of nurseries in Maine, in connection with inspection for other fungus and insect pests. Our inquiry for the data on this year's work brought the following letter from Mr. Frank H. Dudley, State Horticulturist:

Augusta, Maine, October 1, 1920.

Prof. John M. Briscoe,
Orono, Maine.

Dear Prof. Briscoe:

Yours of September 28th at hand, and in answer will say that we have not found any new infections of the White Pine Blister Rust this past summer. The report of a year ago covers all of our finding to date.

I believe that the present quarantine is about as good as could be had if we are to allow any white pine to come in at all.

At the present time I have no recommendations to make.

Very truly yours,

FRANK H. DUDLEY,

State Horticulturist.

At the beginning of the season, it was decided by the Forest Commissioner that no permits for ribes would be issued, and that permits for white pine would be issued only when they were to be shipped from nurseries where a thorough inspection was assured. During the entire season fifteen permits were issued, and this stock was from two sources only, Keene, N. H., and South Framingham, Mass. These were as follows:

SPECIAL PERMITS, 1920, FOR BRINGING WHITE PINE INTO MAINE

Issued by the Land Agent and Forest Commissioner, Augusta, Maine

No.	Date.	To.	Place.	For.	From.
1	Mar. 27	Sokokis Lumber Co.	Kezar Falls.....	50,000	W.P. seedl. Keene Fy. As.
2	Mar. 27	H. C. French.....	Rumford Center.....	200	W.P. trans. Keene Fy. As.
3	Apr. 1	Frank S. Piper.....	Kezar Falls.....	1,000	W.P. trans. Keene Fy. As.
4	Apr. 1	Frank T. Wentworth.....	Kezar Falls.....	1,000	W.P. trans. Keene Fy. As.
5	Apr. 3	T. Clifford Eastman.....	Fryeburg.....	5,000	W.P. trans. Keene Fy. As.
6	Apr. 3	R. P. Hazzard.....	Gardiner.....	350	W.P. trans. Am. Fy. Co.
7	Apr. 9	Paris Mfg. Co.....	South Paris.....	4,000	W.P. trans. Am. Fy. Co.
8	Apr. 17	S. G. Etherington.....	Biddeford.....	20	W.P. trans. Am. Fy. Co.
9	Apr. 9	R. A. Wing.....	Livermore Falls.....	2,000	W.P. trans. Am. Fy. Co.
10	Apr. 26	F. H. Morse.....	Waterford.....	2,000	W.P. trans. Keene Fy. As.
11	May 7	J. M. Haynes Est.....	Jackman.....	30,000	W.P. trans. Keene Fy. As.
12	May 14	J. M. Haynes Est.....	Skinner.....	10,000	W.P. trans. Keene Fy. As.
13	May 21	Brown & Company.....	Oquosoc.....	20,000	W.P. seedl. Keene Fy. As.
14	Aug. 26	Joseph Trott.....	Bath.....	50	W.P. trans. Am. Fy. Co.
15	Sept. 22	Wm. Draper Lewis.....	N. E. Harbor.....	20	W.P. trans. Am. Fy. Co.

Totals..... 70,000 seedlings
55,640 transplants

125,640 plants in all

Besides which there were shipped to various parts of Maine, the following White Pine stock from the State Forest Nursery at Orono:

48,500 seedlings
43,950 transplants

92,450 plants in all

Inasmuch as white pine planting stock was being shipped from the State Forest Nursery at Orono to all parts of the State, it was thought to be only a reasonable and rational policy to permit the shipment from other nurseries into Maine, of stock free from the disease, in so far as nursery inspection could determine it.

The demand for planting stock, and particularly for White Pine has been constantly growing, and the present capacity of the State Forestry Nursery at Orono is not equal to the demand made upon it, so that if the planting of this species is to be continued as rapidly as the owners desire, it is necessary to procure a part of the supply of planting stock from outside sources.

It is hoped that more liberal appropriations will be made by the next Legislature for the extension of the nursery work in Maine, so that we may eventually grow all of the stock necessary for local planting within the State.

Of the 218,090 white pine plants that we have record of as being planted during the season of 1920, 92,450 came from the State Forest Nursery, and 125,640 from outside sources as above enumerated. This shows that new plantations of white pine covered an area of about 200 acres, and that owners are not prevented from establishing new plantations of this species on account of the menace of blister rust.

Warning notices and full descriptive matter on the disease have been sent to every planter, and prospective planter in the State.

EDUCATION

With out doubt, the best and most successful single piece of general public information on the subject of the white pine blister rust, is the circular compiled under the direction of Dr. York. This circular was published co-operatively and was illustrated in natural colors. It was written in a way to appeal to the general public, and all technicalities were avoided. By the general distribution of this circular in Maine, we feel that we have not only reached a much larger number of people with information on the disease; but that they are better informed on the subject than they have been by former publications.

Besides the distribution of this circular, close co-operation was established with the County Agents, both by correspondence, and in conference; and they were kept at all times posted on the disease and its occurrence in Maine.

Lectures were given at the University of Maine to all of the Forestry and Agricultural students, and to a number of others outside of these special courses.

A very excellent series of lantern slides, illustrating all phases of the disease was obtained by purchase through the kindness of the New York Conservation Commission at Albany, N. Y. These have been used to illustrate talks and lectures on the subject, and if it were possible to purchase a portable lantern for showing these slides they could reach a much wider field of usefulness.

Particularly in the southern part of Maine, the value of the young stands of White Pine is fully realized by the owners, and they are very anxious to protect them from any damage that would defer their maturity or decrease in any way their financial value; but they are not going to spend any money unnecessarily on such protection, and they have so far failed to realize the danger of delay in eradication work.

There is still a rather sceptical attitude on the part of the general public both as to the abundance and the widespread distribution of ribes, and also as to the method of regeneration of the disease.

Bulletin No. 4 of the American Plant Pest Committee was given general distribution. This report is a review of the work done in 1919, and a summary compiled by Mr. S. B. Detwiler gives the work accomplished in each of the states, and a general summary of the whole situation for that year. Copies of this report are still available, and will be sent to applicants free on request. A new bulletin of the same sort will doubtless be published after the fall conference of the blister rust workers, which is to be held in Boston, November 5 and 6, 1920, and it should receive the widest possible distribution throughout the State.

MAPPING

By mutual agreement at the beginning of the season, the White Pine Survey was continued along the same lines as last

year. This work was outlined in detail in last years report (1919) and no radical changes were made in the work during the present season.

Four men were employed on the work, and they did most excellent and satisfactory work, covering in all an area of some 78,859 acres, or about 123.2 square miles, all of which was in York County. The Town of Eliot was first completed, this having been only partially done during the field season of 1919. Messrs. Andrews and McKechnie completed this town and also completed the Towns of South Berwick and North Berwick. Messrs. Conner and Turner completed about 50 per cent. of the Town of Wells from about the middle of August to the middle of September, when they were obliged to resign in order to return to resume their studies at their respective Universities.

Instead of making detailed estimates of each tract in each individual lot and for each type, a general estimate was made by taking numerous sample plots for each of the types mapped, and finding the average stand per acre for each type. These average figures to be applied to the total areas for that type as determined by planimeter from the finished maps, and a compilation of this data will be made as a supplement to this report.

The date set for the fall meeting will not give time enough for us to complete the office work on the maps in time to have the total tabulations ready in advance, and the finished prints for each of the maps will follow together with this data.

For the mapping work, the cost of the making of maps, tracings, prints, etc., as well as the expenses and salaries of the map men, a total of \$1250.59 was expended during the period from June 15 to September 23, 1920, as follows:

Wages of map men, appointed as Agents, B. P. I.	\$750.83
Expenses of map men board, lodging and supplies	499.76
	<hr/>
	\$1,250.59

During this period a total area of 78,859 acres was covered and mapped, making the cost average of \$10.15 per square mile, or .015 per acre.

This was a considerable reduction in cost over last year, when the area covered was not as large, and the cost per acre was a little more than .02 per acre.

FINANCIAL SUMMARY

During the season of 1920, from May 1, to October 1, the sums shown in the following schedule were expended on all branches of this work.

SUMMARY OF EXPENDITURES, 1920

MONTH.	WAGES.		EXPENSES.		Total.
	Federal.	State.	Federal.	State.	
May.....	\$92 00			\$126 07	\$218 07
June.....	1,066 60	\$75 00		980 11	2,121 71
July.....	1,679 10	75 00		835 92	2,590 02
August.....	1,839 31	75 00		1,032 42	2,946 73
September.....	803 17	37 50		459 66	1,300 33
Totals.....	\$5,480 18	\$262 50		\$3,434 18	\$9,176 86

SUMMARY OF EXPENSES ONLY BY PROJECTS:

MONTH.	Admin- stration and Super- vision.	Eradica- tion.	Field Data.	Educa- tion.	Miscel- laneous.	Total.
May.....		\$83 20			\$42 87	\$126 07
June.....	194 68	23 82	91 78	164 05	505 78	980 11
July.....	136 23		281 75		417 94	835 92
August.....	265 05	102 47	416 56		248 34	1,032 42
Sept.....	150 80	56 21	218 84		33 81	459 66
	\$746 76	\$256 70	\$1,008 93	\$164 05	\$1,248 74	\$3,434 18

Plus wages paid by State..... \$262 50

Total expenditures by State to October 1, 1920. \$3,696 68

Unexpended balance on hand October 1, 1920.... 1,303 32

Total appropriation for 1920..... \$5,000 00

RECOMMENDATIONS

No new laws are required at this time in Maine, and the continuance of the work will depend on the appropriations made by the next Legislature which convenes in January, 1921, all of our funds for this purpose lapsing December 31, 1920. A bill for \$5000 as during each of the past two years will be presented.

The Federal co-operators promised to do advance scouting for the disease on pine during the remaining time this year, and it would seem that more accurate and detailed data on the spread and present occurrence of the disease on pine would be essential to further work along the lines of eradication and local co-operation in Maine.

The writer would recommend that the pine survey be continued and that more men be employed on this work during the next field season so as to complete, if possible, the remainder of York County at least.

This work might be greatly hastened by the use of aerial photography, and it would be most desirable if some agreement could be made for the co-operation of the Aviation Branch of either the Army or Navy to have this work put forward on a much larger scale and at a much more rapid rate by the use of the advanced methods of type mapping made possible by the use of air planes, or hydroplanes. There are a number of good bases possible for the latter in Maine, and such maps would be of great advantage to every phase of the work.

Respectfully submitted,

JOHN M. BRISCOE,

Orono, Maine, Oct. 28, 1920.

State Agent.