Clear-Cutting of Pulpwood Lands¹

By J. D. GILMOUR, M. C. S. F. E., Director.

Anglo-Newfoundland Development Co., Ltd.

In 1920, the Anglo-Newfoundland Development Co., Ltd., laid out 24 six-acre sample plots in one contiguous rectangular area of 144 acres. The intention was to base experimental cuttings on these plots, and to watch results.

Every plot was carefully cruised and mapped, and cutting was confined entirely to trees that were marked for cutting.

The following lines of experiment were chosen:

- I. Methods of cutting.
 - (a) Clear-cutting
 - (b) Clear-cutting in groups
 - (c) Clear-cutting in strips
 - (d) Leaving carefully-selected apparently wind-firm seed trees
 - (e) Diameter limit cuttings
- II. Methods of slash disposal.
 - (a) Burning during winter logging
 - (b) Lopping tops during logging
 - (c) Leaving tops untouched

The whole area was cut over in 1920-21, and, every marked tree was taken out. A careful record was kept of the cut from each plot and of the logging cost per cord.

In November, 1925, a study of the "blowdown" that has occurred since the time of logging was made. These figures apply to six-acre blocks. Blocks numbered 7, 8, and 9, on which clear-cutting in groups was practised, had three acres left standing; the bal-

ance was logged. Blocks 10, 11, and 12, are examples of clear-cutting in strips, but on these, three strips were logged out of five; in other words only 2.4 acres were left standing on each of these blocks, and the figures for "blowdown" apply therefore to these 2.4 acres.

Reckoning five seasons since logging, the last column in the table shows the number of cords blown down per acre per year.

The largest amount of "blowdown" results from clear-cutting in groups and strips. In all cases, however, "blowdown" probably exceeds the annual growth, which means anyway that five seasons growth (and more) has been wasted. As "blowdown" is still continuing, it is a question how many more years' production will be thus wasted before a new balance is attained.

In 1925, four one-acre average sample plots were laid out in a burned area near the plant at Grand Falls. This area was logged for white pine in the '90's and in 1903 was burned over by a severe fire. Every tree was killed except small "islands" in a few swamps. The pine stumps are charred on top for 1" to 1½" deep. The soil is class I to II forest soil, bowldery and sandy loam, and it appears that the humus was mostly consumed by the fire, and many bowlders exposed.

Stand Per Average Acre in 1925 on Land Burned 1903

Species	Number of Trees				Seedlings below		Total
	Diameter	Breast-high	1"	2"	3"	4"	
Bl. Spruce	463.3	186.3	109.3	29.9	5.2	1307.9	2201.9
Balsam Fir	62.5	13.0	5.2		1.3	1028.1	1110.1
Wh. Pine	3.9		2.6	1.3		20.8	28.6
Larch	438.6	31.2	1.3			1743.9	2215.0
Aspen	126.2	83.3	42.9	18.2	3.9	61.2	335.7
Wh. Birch	162.7	89.8	16.9	5.2	1.3	167.9	443.8
Totals	1257.2	503.6	178.2	54.6	11.7	4329.8	6335.1

¹Communication to the Canadian Society of Forest Engineers. See also "First Step in Forest Management," by J. D. Gilmour, Pulp & Paper p. 1368, Nov. 19, 1925.

NOTE: The blocks designated by the missing numbers 1-6 and 19-20 inclusive were clear-cut and therefore do not affect this table.

"Blowdown" on Sample Blocks

Block No.	Treatment in Brief	Slash— Disposal	No. Cords	No. Cords	No. Cords	No. Cords
			Cut	Stand- ing Nov.	"Blow down" by Nov.	"Blow- down" Per acre
(6 Acres)			1920/21	1925	1925	Per Year
7	Clear cut alternate Acres 50% Logged	None	71.63	46.44	7.02	.47
8	do	Lopped	63.49	39.72	16.26	1.08
9	do	Burned	121.19	33.54	30.06	2.00
10	Clear cut alternate strips 132' wide: 60% Logged	Burned	119.79	20.04	11.93	.99
11	do	Lopped	82.05	23.42	6.07	.51
12	do	None	99.28	25.20	8.50	.71
13	6" Dbh. & Upwards cut	None	161.46	13.32	5.10	.17
14	Seed-trees left	None	141.63	19.68	6.66	.22
15	9" Dbh. & Upwards cut	Lopped	32.65	72.42	9.90	.33
16	8" do	do	87.60	65.10	7.74	.26
17	7" do	do	91.15	52.56	7.38	.25
18	6" do	do	65.85	22.85	9.12	.30
21	8" do	None	55.20	32.22	12.72	.42
22	9" do	do	29.19	60.78	9.72	.32
24	6" Dbh. & Upwards cut	None	67.11	11.76	8.28	.28
23	Seed trees left	Burned	100.36	19.92	14.94	.50