



TAROL

The TRUE SPECIFIC
of COUGHS, COLDS
BRONCHITIS
WHOOPIING COUGH

TAROL is a tried remedy, prepared scientifically, composed of choice ingredients approved by the Faculty of Medicine, a remedy whose reputation is well established and sanctioned by numerous cures. It is, therefore, the remedy you should use for the prompt cure of

COUGHS, COLDS, BRONCHITIS

and other ailments of the respiratory organs.

"TAROL" is composed of the following medicaments, all highly recommended by the faculty of medicine for the prevention, relief and cure of diseases of the Throat, Bronchi and Lungs; Cod Liver Oil, Pine Tar, Ipecac, Wine of Antimony, Syrup of Tolu, Saccharose.

Dr. Ed. Morin's Cardinal Pills Purify and Enrich the Blood.

ON SALE EVERYWHERE

DR. ED. MORIN & CO., LIMITED

MONTREAL, P. Q.

You Can Get the Nicest Kind of FISH Here

We make a specialty of choice Fish, including Salmon, Halibut, Boneless Cod, Salt Cod, Salt Salmon, and any other Fish procurable.

WESTERN BEEF in the finest marketable condition is also a strong feature with us. Please give us a call at **OUR NEW STORE, McCULLUM ST.**

L. GROSSMAN & SON

SAFETY FIRST

Nothing is more important to the Fur Shipper than doing business with an Honest, Reliable—Responsible—Safe Fur House.

"Ship to Suburb" the largest house in the World dealing exclusively in American Raw Furs, where you will always receive an Accurate and Liberal Assortment, the Highest Market Prices and the Best Service. Efficient, Speedy, Courteous service.

Write for the latest edition of "The Fur Shipper's" containing valuable market information you must have.

A. B. SHUBERT, Inc. 25-27 WEST AUSTIN AVE. Dept. C-1, CHICAGO, U.S.A.

MAKE YOUR DOLLARS FIGHT AT THE FRONT.

BUY **DOMINION OF CANADA** **THREE-YEAR** **WAR SAVINGS CERTIFICATES**

\$ 25.00 FOR	\$21.50
50.00 "	43.00
100.00 "	86.00

INDIVIDUAL PURCHASES LIMITED TO \$150.

FOR FULL PARTICULARS APPLY AT ANY BANK OR ANY MONEY ORDER POST OFFICE

FINANCE DEPARTMENT OTTAWA

JAN. 9, 1917

Sleighs and Pungs

---ALSO---

Logging Sleds

LOW IN PRICE

Repairing and Painting Promptly Done

CANADIAN GEAR WORKS LTD.

Telephone 122 Newcastle, N. B.

Classification of Crown Lands in New Brunswick

Advantage of Survey Work Set Forth by Prov. P.Z. Caverhill of Crown Land Department--Determining Growth on Lands is Big Problem

Ottawa, Jan. 17.—The classification of the Crown Lands of New Brunswick was the subject of a paper read before the Commission of Conservation in session here yesterday afternoon by Mr. P. Z. Caverhill, Chief Forester of New Brunswick, who is in charge of the survey work being done in that province. Mr. Caverhill's paper was a most interesting one, replete with information regarding the wonderful timber resources of New Brunswick. He traced the work that had already been done, pointing out the advantages that would result following the far-seeing policy adopted by the Government of that province in taking hold of this problem.

Chief Forester Caverhill in his paper declared that the fire rangers and scalpers in New Brunswick were to be walled into one permanent force to submit detailed reports on all fire and bug killed areas; to inspect and report on all logging operations and to in every way keep the Crown Land Office in touch with actual changes in the field conditions. The paper pointed out what had been done in regard to the survey of agricultural lands, the object in this being to direct future settlement in the province. Mr. Caverhill's paper in full follows:

Classification of Crown Lands.—The classification of the Crown Lands of New Brunswick is the outcome of a movement that has been growing for a number of years. The Crown Lands of the province comprising 7 1/2 million acres, of which 2 1/2 million are under license as the chief source of provincial revenue, and the value of the lumber industry is second only to agriculture, having at the present time a value in excess of \$15,000,000.

Many changes have taken place with the development of this lumber industry. White pine, which during the first half of the 19th century was our important timber tree, the export of this species alone in 1815 being over 400,000 tons, has nearly depleted. Hemlock, a few years ago valued only for its bark, is hard to get at \$12 to \$14 for M. for the round log. On spruce it was found necessary to reduce the diameter limit from 18 ft. to 13 ft.—9 in. Thousands of acres of good timber land had been taken up under the pretence of agricultural development, only to be abandoned, after cultivating attempts at clearing and cultivating and after the occupant had burned, possibly, thousands of acres of good timber. These signs of the gradual depletion of forest land led to a movement to definite knowledge of the condition of the public domain, and a classification of the land as to whether it was chiefly suitable for farm or timber.

The first concrete step taken towards the classification was in 1906, when the Public Domain Act was passed, authorizing a survey of the Crown Lands, estimating the timber thereon, the annual growth, and cost of logging, also delineating the lands suitable for agricultural development. The act also provided for the calling of a convention in the interest of forest protection. This convention met in February of the following year. It seems, however, that funds were not available to carry out the survey, and the net result of this step was the establishment of the Forest School in connection with the University of New Brunswick.

The act of 1913 renewing the timber license made provision for the classification at present being undertaken but for a time only desultory attempts were made to carry out the provisions for classification, and it was not until last spring that field work was actually started.

Objects of the Survey.—As defined by the act, the objects of the survey are:

1st.—To report with as much detail as possible upon the extent and quantity of the timber, estimating the quantity of lumber and the reproductive capabilities of the forest area.

2nd.—To estimate as accurately as possible the annual growth of timber upon each area or tract.

3rd.—To report upon the accessibility of the timber on each section, estimating the cost of logging on the different areas, and the cost of stream driving to point of manufacture.

4th.—To report the location of lands deemed suitable for agricultural purposes, distinguishing them from other lands that might be regarded as especially suitable for the growth and reproduction of timber.

In order to obtain these objects it was decided that a four per cent. survey was the most desirable. This consists of running strips through the timber at one hundred rod intervals, measuring the timber (two rods on both sides along each strip, tallying the trees by diameter classes) and species. In order to obtain data of the soil, holes were dug at each hundred rods along those strips, and notes on the character and quality of the soil taken.

The making of a contour map was considered, but as a large portion of our Crown Lands is either gently rolling or level, a low contour interval would be necessary in order to show any detail. In dense spruce stands, of which our New Brunswick woods are largely composed, it is impossible for the topographer to trace and plot the contour for any great distance on either side of the line, and it became necessary to

either run strips at much closer intervals than we are doing, or offset from the line frequently, either of which would add materially to the cost of the survey.

Very few points other than on the railroads have definitely determined elevations, and the obtaining vertical control, would require extensive traverses from points of known elevation, also adding to the cost.

A topographic map of sufficient accuracy to permit of the laying down of roads and the planning of an operation from the information contained therein would probably cost 15c per acre under our conditions, varying from that figure to 25 or 30 cents per acre in the west, where the country is more difficult.

Topography in New Brunswick.—Topography in New Brunswick does not bear the same relation to the logging operation as it does in the west, where it is frequently the determining factor in the method of logging, and upon the topography depends whether or not we can use horses, hooky engines with fore and aft roads, or have to resort to the more complicated, overhead, or sky line methods of taking out the timber.

On almost any of our sites horses can be used, and topography affects only the haul and to some extent the stream driving. A topographic map, therefore, would be of little service to the department in carrying its future timber policy or in the valuation of the Crown Land, and we decided we were not justified in making the additional expenditure necessary to prepare one.

The main ground plan is made by running primary control lines, and traverses of drivable streams, portage roads, etc., these control, being about 2 1/2 miles apart, and tied together every 5 to 10 miles. Where straight base lines are used we follow old timber block lines. This divides the area into rough blocks or divisions, irregular in shape and area, but some times in rectangular blocks. The interior of each block is mapped from notes taken along the strip. All control work is checked so that the maximum error of closure is less than two per cent, and this is distributed throughout the traverses. Strip lines are tied to the base lines with an error not greater than four per cent.

The timber estimate is made by tallying all merchantable trees for a width of four rods along each strip, the tally sheets being so arranged that the timber is shown separately by species and diameter classes on each eight rod, of the strip. This permits the showing in detail of the character of the stand and the type. From this tally the estimate is made from local volume tables, changed according to locality, and constantly checked by measurements of all available down trees.

At the same time notes are taken on condition of the stand, cost of logging and condition of the stream for driving.

Determining Growth Hard Problem.—The determining of the annual growth is possibly our hardest problem. We need to know as closely as possible what the actual growth per year is, as it will tell us what the results of our present system of management will be, and by a comparison with the potential growth of that site or with the growth of similar sites under different systems of management, we can determine what steps are necessary in order that we may derive the greatest financial benefit from our timber lands.

Our forest land is largely covered with a stand of many aged mixed species; trees growing under all sorts of conditions, and these conditions constantly changing; as for example when logging is conducted on an estate the light and soil exposure conditions, under which the remaining stand exists, may be entirely changed.

A white spruce measured seven years after logging showed an increase of 125 per cent. in the increment. But, while individual trees show this rapid increase, much of the forest capital is removed with the logging, and the net result in any but our over-clocked second growth stands will be a falling off in the yearly increments.

From our field sheets we were able to construct by averaging a large number of acre strips an average model acre showing average conditions for any particular type; this gave the average number of trees by diameter, class per acre of the different species, average height, and contents, by species and diameter.

The growth per cent. obtained by boring into a large number of trees with an increment borer and ascertaining the diameter growth for five year periods for the past twenty

years. The trees were taken at random, and recorded by types and diameter classes. Later all trees of a diameter class on any particular site and type were averaged together, it being assumed that if sufficient trees were studied an average could be obtained, which would represent the average of that diameter class throughout the site. The growth per cent. was then obtained for this average tree, and the per cent. applied to the model acre.

This year we made only a beginning on growth studies, making borings in spruce, fir, pine and cedar. In all some 2,500 trees were used, and the results showed a growth per cent. of from 6-10 of base per cent. for cedar over 12 inches in diameter, to 2.5 per cent. for white pine of 8 inches in diameter, or from 30 to 75 board feet per acre per year.

Next year it is my intention to supplement these figures by much more detailed studies, and it is hoped that we will arrive at a very close approximation of the actual growth. Classification of Agricultural Lands.

Perhaps one of the most important features of the survey is the classification and delineation of the agricultural lands, the object being to direct future settlement to localities where there is the greatest opportunity for successful farming and to prevent the denuding of purely timber land under the guise of clearing for agricultural purpose.

The success of failure of any agricultural community depends on four factors:

1st. climate; 2nd. soil; 3rd. personal; 4th. social.

Climate.—The climate in New Brunswick is generally favorable to agricultural pursuits; the winters, though long and severe, are followed by warm, pleasant summers with plenty of rainfall; vegetation showing a remarkably fast development, although late spring and early fall frosts limit the range of field crops to those developing and maturing in a little over three months.

Soil.—The soil is the factor with which this survey is chiefly concerned and is next to climate the most important in limiting agricultural development. In the classification of soils on an agricultural basis, two primary things have to be considered:

1st.—Topographical character. Soil on gentle slopes or up to a sustained slope of eight to ten per cent. is tillable; slopes to fifteen or twenty per cent. are suitable for grazing. Steeper slopes, soils broken up by ledges or boulders, are unsuitable for any agricultural development.

2nd.—Physical character of the soil. The physical character of the soil determines its moisture and fertility holding capacity, as well as to a large extent the cost of bringing area under crop, and it is more important than soil fertility, because fertility may be increased or destroyed by the manner in which the clearing and cropping is done, but the texture cannot be changed.

Soil is of Five Types: We have divided our soil into five types on this physical basis. They are, Clays, clay loams, sandy loams, sand soils and swamp soils.

The clay soils are composed almost entirely of clay with their humus contents. They are heavy, often wet, and without drainage, will frequently bake when under cultivation. Clay loams are lighter soils, containing a heavy percentage of clay, some sand and humus. They are usually well drained, easily worked, and form our most desired soil, as they do not need the initial expense for sub-drainage required by the heavy clay soils.

Sandy loams are like same as clay loams, but here the sand predominates; consequently while we have fair fertility holding capacity, especially if we have a more compact sub-soil, these soils are liable to respond quickly to periods of drought, and the crops become burned. Owing to the easily worked nature of the soil and the early warming up in the spring, they are desirable for intensive cultivation, but can be classed only as fair to poor for general field crops.

Sand soils consist of sands, or very light sandy loams with sand substrata. They exist extensively on the Miramichi, and constitute what is termed the hungry or leachy uplands of the coal measures. Owing to their open, porous nature, all fertility is washed down below plow depth, and they lack both plant food and moisture. While they can be farmed under inferior cultivation with corn (Continued on page 3)



Every Barrel, Just Like Every Other Barrel

BEAVER FLOUR

is because the flour is always the same. It is milled from blended wheat, Ontario fall wheat, strengthened with western spring wheat. Being blended in exact proportions, Beaver Flour is always the same in strength and quality; and always gives the same results, no matter what or when you bake.

It will be a change for the better when you change from western wheat flour to Beaver Flour, milled from blended wheat.

DEALERS—write us for prices on Feed, Coarse Grains and Cereals. 202 THE T. H. TAYLOR CO. LIMITED, CHATHAM, Ont.

BAKE MORE QUICKLY AND USE LESS FUEL

A new heating principle with numerous distinctly new features. In all old style Ranges heat cannot go into the Oven until the fire burns up well enough to allow the dampers to be closed.

In the high Oven Range the Oven is heated with the very first kindling because it is in the direct path of the flames so it becomes ready for baking very quickly and requires less fuel to finish baking. Heat in this range travels the natural way UP no forcing down of the heat and smoke.

EVERY WOMAN SHOULD SEE THIS RANGE AT

B. F. MALTBY

STOVES, FURNACES, RANGES HEATING and PLUMBING
PHONE 121

THE ROYAL BANK OF CANADA

INCORPORATED 1869.
LIABILITIES AND ASSETS

Capital Authorized	\$ 25,000,000
Capital Paid-up	11,800,000
Reserve and Undivided Profits	13,236,000
Total Assets	234,000,000

HEAD OFFICE, MONTREAL

340 Branches in Canada and Newfoundland
37 Branches in the West Indies

LONDON, ENGLAND: NEW YORK CITY:
Bank Bldg., Princess St., E. C. - Cor. William and Cedar Sts.

BUSINESS ACCOUNTS CARRIED UPON FAVORABLE TERMS
SAVINGS DEPARTMENT AT ALL BRANCHES

SAFETY DEPOSIT BOXES

In the Bank's Steel Lined Vault, rented at from \$5.00 per annum upwards. These boxes are most convenient and necessary for all possessing valuable papers such as Wills, Mortgages, Insurance Policies, Bonds, Stock Certificates, etc.

Newcastle, N. B., Branch — E. A. McCurdy, Manager

MEXICAN ENVOY TO FRANCE AND HIS FAMILY

Don Luis Quintanilla, Mexican Charge d'Affaires to France, has arrived in New York with his family, en route for France via Spain. Don Luis' family consists of Senora Quintanilla, four daughters and four sons. Senora Quintanilla was born in France, the daughter of the late Pedro del Valle, who was a naturalized American. Don Luis said that conditions in Mexico, hitherto rapidly approaching a normal condition. "The elections, which have just begun," he said, "will be completed by April 1, and it is a foregone conclusion that General Carranza will be elected constitutional President."

—N. Y. H. Special

After Every Meal

WRIGLEYS

The Flavor Lasts