FOREST MANAGEMENT IN ONTARIO.

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THE SUBJECT of "Forestry Practice or Recent Developments in Forest Administration in Ontario," which you suggested I deal with, covers rather a large field for a non-technical forester. Due, however, to the diversified services rendered and the various ramifications of administration, I prefer to treat the subject under the caption, "Forest Management in Ontario," and to give in a general way an abbreviated history of our activities. Accusations frequently made are to the effect we have no forestry practice in Ontario—no forest policy, even do not know what we have in the way of forest resources. However, while I have not had the opportunity of studying technical forestry or of doing field work as you gentlemen have, one does over a period of 35 years, by being associated with a department dealing with forests and lands, water powers and river driving, construction and control of dams, the building of roads and the placing of settlers, gain considerable knowledge and experience, which, implemented by more than an early taste of hard bush life and sawmill labours, undoubtedly broadens the vision and justifies one's observations. Furthermore it is my firm conviction that the everyday contact with both the operator and the forester gives one a firmer understanding of the interests of the former and the ideals of the latter, or a more balanced conception of the possibilities of forestry than would otherwise be the case should one be working only with one of either group.

I am happy to state that during the past 15 years a gap that has existed between the forester and the lumberman has been not only materially narrowed, but sympathetically bridged. Either the lumberman is more forestry-minded, or the forester more economy-conscious. No doubt it is some of both, and as this condition improves, so, in my opinion, will the practice of forestry advance.

The popular and common conception of forestry seems to be reforestation. Reforestation has its place, but should not be regarded as the cure-all to forestry problems. In the last financial statement of the Province the total estimated Potential Revenue Resources are \$691,250,000. Of this amount \$578,250,000 represents the value of our forests, or 84%. I therefore feel justified in my belief that the forestry problem of Ontario lies in the proper administration of these resources comprising 120 millions of acres of forest land under organized protection.

In dealing with the forested area of the province there are certain essential needs for any administrator,—First, a knowledge of the conditions with which he is dealing. In the ten-year period between 1920 and 1930 over two-thirds of the forested area of the province was examined. Latterly this work has been less active, but each year sees considerable information added to what we already have. During the past year and a half over 3,000 square miles have been reported on by officials of the Department of Lands and Forests. Through a recent arrangement with one of the Pulp and Paper Companies, the Department will have access to the maps and field data covering several thousand additional square miles.

While the information secured from certain surveys is not intensified as to details, yet it is sufficient upon which to estimate the forest resources of the province, to lay down regional boundaries of uniform forest conditions and to determine age, class conditions or the percentage of mature and immature timber.

Forest utilization surveys, contact with lumber, pulp and paper associations, statistical records and departmental dealings with those engaged in woods operation all provide a means for establishing the relationship between resources and the demand for these resources. The Department has already completed utilization surveys for the Sudbury, Timiskaming and Cochrane districts and for Peterborough County.

A second set of factors all-important in the administration of timber lands is the local and general economic conditions. Lack of local markets and even of any markets for certain individual timber types and heavy transportation costs limit the degree to which our forests may be utilized. We cannot impose conditions upon an operator that will bankrupt him. Any restrictions that will increase costs to the extent the business will not yield a fair profit are not sound, and those that inevitably lead to bankruptcy are suicidal. You might say the Crown is justified in making expenditures for the sake of future returns. There is logic in this, but only to the extent there is money available. The basic principle of thrift inculcated in our minds and upon our hearts years ago, viz: "try to pay as you go," should not be out-moded in the business of natural resources.

Many of those who are most prone to criticize the Department in its administration would appear to have lost sight completely of the economic factors. They seem to believe that all that is necessary is to copy European practice and land it in the laps of operators and by legislation demand it be carried out. No thought is taken of the operators' problems—his operating costs, competition with other producing centres, freight rates, wage schedules,

labour conditions and the standard of living, and, by the way, wages in Ontario compared, say, to certain of the Scandinavian and other countries. It takes considerable study to understand the underlying reasons for a producer of lumber in Ontario having to compete with lumber produced from the Atlantic to the Pacific. Nevertheless he does. Underlying principles of the structure of freight rates require to be explained by an expert, but even he at times is hopelessly at a loss.

Bush labour in certain parts of the province is paid according to a schedule of wages established by the Department of Labour. Other sections are not under such a strict obligation. While certain of them do pay practically the same wage as set in the schedule, the tendency is towards a lower one, thereby setting up unnecessary and at times disastrous local competition.

Forest products in respect of production and value are no different from any other commodity. Both local and world-wide conditions affect them. Substitutes for lumber have their effect, although the annual requirements for wood substance and the many chemical transformations possible are steadily causing an increase in the demand for wood.

Certain of these observations may sound like obstacles in the way of forestry practice. I do not wish you to regard them as such, but only wish to point out there are many imperative factors to be condensed in adopting measures for improving forest conditions.

We can suggest and try to adopt forestry measures only if we have reasonable assurance the effort will be safe and not jeopardized by our greatest enemy, Fire. The Department since 1917 has concentrated on forest fire protection. Even after twenty-five years of intensive educational and active efforts we still have fires, and I believe we shall continue to have them. It would undoubtedly be financially ruinous to provide for all emergencies and hope to control all fires over some 120 million acres. As now organized the field organization in the province, with its equipment, can be expected to cope with average or normal hazards, just as we can expect the city fire brigade to handle normal situations. When an abnormal situation, super-induced by acts of God, has to be faced we necessarily suffer a considerable loss, but in this unfortunate respect we are not alone, the devastating effects of the fire demon having been felt in a more or less emphasized measure in many of the world's forested countries.

A few days ago there came into my office a copy of E. C. Manning's talk before the British Columbia legislature. In essence he was pleading for more money to effect better fire protection and provide for other forestry work. He stated that 98% of Ontario's revenue from her forests

was spent on the forests. This was an average over the past five years. However, during the past five years the department has suffered a couple of deficits. A check over the period for the last ten years discloses that the department spends 85% of its forests revenue in connection with forest administration and protection. Since the season 1928-29 to 1937-38 there was collected from forest activities \$24,808,000.00, and in the same period there was spent \$20,981,000.00. These figures are entirely outside of those dealing with the Lands Branch, Surveys Branch or Provincial Land Tax Branch, or any of the services other than the Forests. Thus I feel that Ontario's expenditure comes fairly close to revenue received, and no business, particularly that of the Government concerning a natural resource, can afford to operate at a loss.

The problem of expenditure largely for forest fire protection, to which I shall later on refer, is one that must sooner or later be faced. I believe our attitude towards forest fire protection must be subject to a reasonable change. For some time the Treasury has been asked for increasing amounts to handle an increased hazard brought about as a result of settlement, lumbering, mining and the general invasion of our North country by the tourist. There is a limit to which we can continue along this route. As I understand European forestry practice, this dead burden of expenditure for forest fire protection is not experienced. A principal reason no doubt is close utilization and the absence of over mature timber, in addition to which European nations have not been subject to the same fabulous spending in connection with road building and making accessible to the over anxious and not too cautious traveller areas now no longer solitudes. We have not the same opportunity for utilizing up to 80 and 90% of the forest, and therefore I feel that instead of spending all for the detection and suppression of fires, a reasonable portion of the money now spent must be diverted to other channels in an effort to remove the hazard and work along the lines of prevention. I leave that thought for your consideration.

It is here that I might venture a frank criticism against the technical forester. Not intending to offend in any way, I venture the opinion that he is a little too prone to believe that his successful progress is in direct ratio to the amount of money he spends. This tendency or attitude of mind luckily is noticeably displaced by one of regimented caution when his responsibility includes that of finding revenue for his expenditures.

There is no doubt in my mind but that the practice of scientific forestry in Ontario will continue to make progress. My hope is that it may be gradual and therefore the more lasting.

The three principal tools we have to work with are:—

- (1) Personnel
- (2) Legislation
- (3) Our system of selling timber.

It goes without saying that forestry success of any undertaking depends greatly upon the organization and personnel available to carry it through. In forestry much of the onus rests upon foresters and the extent to which they are willing to apply themselves to the different problems and work towards their solution. At the present time there are thirty-seven capable technical foresters with wide field experience on the regular staff of the Department. Besides this number, there are some twenty-five trained foresters in the employ of forest industries in Ontario. I think there are six of the Pulp and Paper Companies who employ foresters or woods managers. At any rate the bush operations on almost twenty-five million acres of leased lands are under the guidance of foresters.

Forestry matters of more national concern, such as the determination of the mechanical and physical properties of wood, and forest entomology, are being ably handled through the Department of Mines and Resources at Ottawa. These services have always been available and are not duplicated by the Provincial Government. Active co-operation is being effected between the Dominion and the Province with regard to such problems as the Spruce sawfly, bud worm and other such pests. A program has recently been projected for continuing on an intensive scale with Ottawa the study of the Spruce bud worm and its apparently extensive attack on the Jackpine of North-western Ontario, where a survey will be undertaken this coming summer.

In the matter of forestry education substantial grants are made each year to the different Universities in Ontario. The University of Toronto has the only Faculty of Forestry in the Province, and in pursuance of an arrangement the Province loans its forest pathologist to the Department of Botany, where certain research questions such as diseases affecting pine and spruce are being dealt with.

It is expected that more and more foresters in due time will be employed by the Provincial Government. Should the ominous war clouds hovering over so many countries and the resultant apprehension in other peace-loving countries be dispersed, and normalcy again reign, I believe Ontario would see an unprecedented development comprising the entire Forest Products Industry. In May, 1937, the department furnished two instructors to give a course in scaling to forestry students at their spring camp exercises. This

was followed by a regular examination. The results were somewhat discouraging as only two candidates were successful. Last May the course was repeated with exceptionally good results. At the present time three of these men are on the staff as assistant scalers, this being a requirement before license will issue.

In regard to legislation, this province is well advanced. All timber licenses or leases are issued subject to the following Acts and regulations made thereunder,—

- The Public Lands Act, R. S. O. 1937, Chap. 33
- The Crown Timber Act, R. S. O. 1937, Chap. 36
- The Mining Act, R. S. O. 1937, Chap. 47
- The Veterans' Land Grant Act, Ont. Statutes 1901, Chap. 6
- The Provincial Forests Act, R.S.O. 1937, Chap. 38
- The Forest Fires Prevention Act, R.S.O. 1937, Chap. 325
- The Forestry Act, R. S. O. 1937, Chap. 39
- The Mills Licensing Act, R. S. O. 1937, Chap. 37
- The Pulpwood Conservation Act, R.S.O. 1937, Chap. 41
- The Provincial Parks Act, R.S.O. 1937, Chap. 94
- The Woodmen's Employment Investigation Act, R.S.O. 1937, Chap. 202
- The Forest Resources Regulation Act, R.S.O. 1937, Chap. 40.

Clause 15 of The Crown Timber Act in itself is sufficient authority for doing whatever is considered advisable in the public interest,—

"Notwithstanding anything contained in any general or special Act or in any timber license, lease, concession, agreement or other document under which the right to cut timber is claimed or exercised, the Minister shall have authority to fix the size and kind of trees and timber which may be cut on the unpatented public lands of Ontario, and on patented lands where the trees and timber thereon remain the property of the Crown, and such authority may be exercised in such parts of Ontario and for such times, and on such conditions as the Minister may direct, and any directions so given may in like manner be varied from time to time."

The method of selling timber in this province offers a splendid opportunity for the injection of cultural practices into logging. Before any area is offered for sale it is examined, the report made, which deals with quantities, the maturity of the timber, its location in reference to other timber, etc., is basic in deciding whether to offer or not. If offered the sale has its own special conditions. However, you can only inject practices if they do not upset local and general economic conditions.

No one will deny that the opportunity for forestry on forested lands depends upon the degree to which the Department and the operator understand the problems of each and both work towards a definite objective. It will only be through actual bush operations that we may proceed.

It may be of interest to note some of the more recent developments within the Department.

(1) As to Organization—In 1935 the amalgamation of the protection service with timber administration was effected. This has obvious advantages and is leading to a more permanently employed staff.

(2) The preservation of scenic values in relation to popular tourist centres. The practice is becoming general over the entire province. Crown timber along highways, around lakes and paralleling portage routes will not be sold, nor, if licensed, be allowed to be cut, if by doing so it conflicts with popular tourist routes.

Algonquin Park stands out as an example of this practice. Here, around 28 different lakes and their portage connections the timber is withdrawn from cutting for a distance varying from 100 to 500 feet. Timber along highways, if licensed, is withdrawn from cutting for 300 to 500 feet on either side and made subject to restrictive handling.

In Algonquin Park plans are made to reforest clearings made in connection with logging operations.

In Timagami a similar situation exists and throughout the Province in Quetico, the Lake of the Woods area, Lake Nipigon and many places elsewhere reservations have already been made.

In timber sales dating back for many years no cutting is allowed on islands, except where it is advisable to salvage damaged timber or in a case of emergency.

(3) The protection of immature timber

- (a) A 13" diameter limit is now specified for white and red pine.
- (b) Each sale may have its restrictions.
- (c) In Algonquin Park licenses the licensee is restricted to ties of certain diameter,

Spruce, Balsam, Cedar	—10"—18" from ground.
Hemlock and Pine	—13"—18" from ground.
Hardwoods	—15"—18" from ground.
- (d) Extensive areas of immature timber are being set aside and created into Provincial Forests or added to forests already existing.

- (e) Through refusing to sell timber growing at a sufficient rate to justify it be left standing.
- (4) Utilization:
- (a) Hewn tie operations permitted during the past eight years are being discouraged.
 - (b) By combining Jack Pine tie operations and Jack Pine pulpwood closer utilization is being accomplished. Tops and defective butts are converted into pulpwood.
 - (c) By surveys to determine the relationship between available timber resources and local requirements a more intelligent timber sales policy is being worked out. Plans are already made to accomplish this for an area of 2,500 square miles back of the Porcupine mining industry.
 - (d) A definite working plan involving the utilization of 600 million feet of white and red Pine is operating in the Timagami district. The quantity is related to the requirements of the established mills. No group is to have an advantage to the detriment of another. The cutting cycle will extend over a period of 25 to 30 years. All brush will be burned and a progressive planting program has commenced with the object of filling in where nature failed to restock.
- By brush burning the hazard is removed and the ground that would have been covered by slash for 10 to 20 years is made available for seeding or planting.
- What may be regarded as a tribute to the system of controlled operation in the Timagami Tourist area is the fact that during the 1936-37 and 1937-38 operating seasons and again this year the Faculty of Forestry of the University of Toronto have selected this section as the scene for their practical field course in the logging of white and red pine. According to those in charge of this organized field trip, Timagami offers a good opportunity for seeing up to date logging methods demonstrated along with a forestry practice designed to safeguard tourist interests and providing, through silvicultural methods, for the establishment of a second crop of pine.
- (e) A sale recently prepared involving an area of 85 square miles back from the east shore of Lake Nipigon carries special conditions. The cut will be regulated to extend over a period of

at least twenty years. A surcharge is being levied to pay for the removal of fire hazards and to carry on any work to reproduce the stand. All species including white Birch and Poplar will be utilized to 4" top.

This block is so situated that it can conveniently serve as an example of forestry practice to surrounding pulp concessions totalling an area of over 10,000 square miles, and while the sale is somewhat unique in that it contemplates and provides for a complete utilization of all species including those generally regarded as inferior and not subject to an economic turnover, I am not over-optimistic in predicting that certain parties will be found sufficiently interested in the enterprise to submit tenders.

- (f) At present we have under advisement the creation of a community forest which will involve a number of settlers within a prescribed area. The plan calls for an arrangement where bona fide settlers will be permitted, under well-defined conditions, to cut timber and pulpwood in keeping with the productive capacity of the forest embraced within the scheme.

These are spotty examples, but typical of what is going on in this province.

FOREST PROTECTION

The first forest protection legislation in Ontario, passed in 1878, provided for the establishment of fire districts and prescribed within those districts the conditions under which fire might be set out, the precautions to be taken with burning substances and the use of the protective appliances on locomotives. A penalty was also provided for infractions of the Act.

Although the legislation of 1878 contemplated a move in the right direction, it was not until 1885 that fire rangers were placed on duty, 37 men being employed that year to look after the various timber limits, these men having been recommended by the licensees upon the invitation of the Department. The total cost of this service for the season was \$7,911.00, of which one-half was paid by the licensees.

The first real effort to protect Crown land not under license was made in 1897, when 12 rangers were placed on duty on Crown land alone and paid wholly by the Department. These men were in addition to the 179 rangers on licensed lands that season.

Although certain legislative enactments were passed some years following providing for appointment of rangers and for fire hazard disposals, it was not until the disastrous fires in the Clay Belt in 1916 that public opinion awakened to a full realization of the need of advanced legislation. During 1916 the total number of men on duty, including rangers on licensed lands, was 764. The total cost of patrol to the Province was \$198,085.00 and the approximate cost of patrol on licensed lands was \$75,000.00, all of which was borne by the licensees. The total cost of fire protection for the whole Province was, therefore, \$273,085.00. The great Clay Belt catastrophe in this year, however, resulted in more advanced legislation, and in 1917 there was passed "The Forest Fires Prevention Act," which Act, with well-timed amendments, is at present in force. During this same year the system of annual fire charges was imposed. This provided that all holders of timber limits should pay in addition to all other charges applicable to their obligations an annual fee of one cent an acre and that pulp concessionaires pay one-half this amount, since the areas involved were more extensive and the holders thereof under long-term tenure were not privileged, as timber licensees were, to abandon cut-over portions. (At present all holders pay the same fee, viz. \$6.40 a square mile.)

In pursuance of the new Act, in 1917 forest protection was placed under the direct charge of the Provincial Forester, it having been previously handled by the office of the Minister.

Up until 1922 all forest protection work was directly handled from the office of the Provincial Forester in Toronto. In that year, however, the territory south of Lake Nipissing and the French River was divided into three inspectorates and the protection in these areas placed under the charge of three district foresters, one for each inspectorate and each responsible to the Provincial Forester. The district offices were located at Parry Sound, Pembroke and Tweed.

Since that time the district system has been extended, and now all that part of the Province under organized protection—over 100,000,000 acres—is under the direct supervision of twelve District Foresters.

The fire-rangin staff in 1937 totalled 1,000 men. The cost of protection was \$1,087,000.00. The staff in 1938 was approximately 1,150 men, and the cost will be proportionately higher than the previous year.

The tremendous expansion of our trunk and lateral road construction program, with the consequent increased motive traffic and tourist trade, the extensive development of the mining industry with its accompanying water power projects, involving miles of pole lines through timbered regions, the increased tracts of pulpwood being brought into productivity, all these activities, many of them still conducted in regions accessible only by aeroplane, are all potential fire hazards and have naturally contributed not only to an increase in staff, but also in fire-fighting equipment. We have at the present time 570 portable fire-fighting units, 1,500,000 feet of unlined linen hose, 1,200 tents, 9,000 pairs of blankets, 800 canoes, 109 motor trucks, 39 motor boats, together with the necessary miscellaneous equipment such as axes, shovels, cooking utensils, etc.

At the same time, permanent improvements have been constructed for communication and the housing of men and equipment. There are at the present time over 4,000 miles of permanent telephone lines, 175 steel lookout towers and approximately 1,000 buildings of all kinds.

AIR SERVICE

The Province of Ontario owns and operates the largest aerial fire fighting organization of its kind in the world. This is not a chance happening, but is due, in part, to the fact that the areas served are sufficiently well watered to permit of the use of this type of equipment with definite advantage. The Service itself was organized some fourteen years ago, primarily as a detection service, and to supplement the detection system then in effect, but it was not long until it became apparent that it could service a broader and more useful field in the transportation of men and supplies to actual fire locations.

Starting with a complement of fourteen war-time flying boats of rather limited capacity it has, insofar as departmental finances have permitted, expanded and kept abreast of developments in the aircraft field until to-day it operates a total of twenty-eight aircraft from seventeen different bases, and employs a staff of approximately eighty during the operating season. Fifteen of the twenty-eight craft referred to are transport and semi-transport types having a carrying capacity ranging from 800 to 1,600 pounds. Six of these, purchased within the last two years, are radio-equipped with two-way voice-to-voice communication, and are just about the last word the industry has to offer. Adequate reserve of power makes it possible for these ships to operate in and out of lakes which are little more than half a mile in length.

We have found through years of experience that, to conserve our timber resources and avoid the heavy expense incident to fires which reach the out-of-control stage, it is imperative that these fires not only be found in their early stages, but that suppressive action be taken while still confined to small areas. In this you can appreciate that our seaplanes play a very important part, and there can be little doubt that this speedy method of transportation has saved many a situation which would otherwise have meant incalculable loss to the province. The investment in equipment, including aircraft and improvements, is approximately \$3,000,000.

REFORESTATION

Many reams have been written, speeches delivered, and even sermons preached on the need of a revolutionary move in the direction of reforestation. Appeals in this direction have developed more rapidly during recent years because of the tragic unemployment situation. Numerous advocates believe that reforestation is the real panacea of the present days' ills of the youth, forgetting in their well-intentioned exuberance that employment in this regard to any appreciable extent in respect of engaging numbers is quite seasonal. A few weeks in the spring and in the fall in cultivation of the soil and the planting of stock is the limit as to time. Additional staff required at nursery stations for limited periods would account for an insignificant fraction of those that would hope to be absorbed.

Reforestation on a scientific basis in Ontario has been in progress 34 years. It was commenced in 1905 with the establishing of a small nursery at the Agricultural College, Guelph, under the Department of Agriculture. This was later moved to St. Williams in Norfolk County and transferred to the Department of Lands and Forests. In 1922 this division of the work was expanded by the establishing of two more nurseries, one at Orono in Durham County and the other at Midhurst in Simcoe County. Since 1924, when these two new nurseries commenced to distribute planting material, the annual output of all three has increased from 1,000,000 to 22,000,000 for 1939.

Until 1922 the distribution of trees was chiefly for planting on privately owned land, for supplementing existing farm woodlots and for windbreak planting for agricultural purposes. At that time the number of persons receiving trees was a few hundred and this has steadily increased since then until 1938 when the number reached eight thousand.

The county forest system, which provides for a county buying 1,000 acre tracts of waste land and having these managed under an agreement with the Department for a period of 30 years, was inaugurated in 1922. At the present time there are sixteen of these forests in operation by twelve counties with a total acreage of 18,227.

In 1926 reforestation work on Crown lands in Northern Ontario was commenced. Some of this was done by direct seeding; most of it has been done by forest planting. The largest area having been planted to date is the one in Kirkwood township where 5,700 acres have been reforested. The total area of all plantings of this kind is 8,263 acres. In addition to the Crown land in Northern Ontario work has been done on Crown land in Southern Ontario at the Sand Banks and at Camp Borden, which two projects include another 6,500 acres.

In addition to the foregoing the Department maintains its own seed extracting plant at Angus which has collected sufficient seed for its needs since its establishment in 1920. Farmers' woodlots are inspected and advice given to prospective planters and extensive educational work is carried on by means of lectures to service clubs, agricultural short courses and other groups.

My own personal opinion strongly favours the belief that natural regeneration rather than artificial reforestation is the primary ideal and essential requirement for the Province as a whole. The greatest menace to a successful natural regeneration is the "fire bug," which because of the weakness of human nature we shall perpetually have and must persistently combat. In Old Ontario where the settled areas in private ownership obtain and extensive tracts have been violently and flagrantly devastated in the name of agriculture, which in a great measure has not been practised, there are opportunities for the planting of stock, and it is within this field our Department has been almost exclusively confining itself. In Northern Ontario where thousands of square miles are protected from spurious settlement and the nomadic lot hunter, by inclusion in Provincial Forests Parks, and reserved zones, the same problem confronting old Ontario will never arise, thanks to the introduction of scientific knowledge and the vision of public spirited and enlightened legislators. At present our Provincial Forests and Parks comprise over fifteen million acres and with a contemplated addition of three thousand square miles, will total over seventeen million acres.

The free distribution by the Department of millions of trees annually to recipients now numbering eight thousand as herein stated must necessarily in due time be dealt with. For twenty years at great expense the Department, largely to educate the public, to make them tree conscious and to conclusively prove by actual demonstration the planting of trees is feasible and commercially advisable, has been carrying on its program. Although the secondary benefits are admitted, the Government can expect no direct revenue from such generosity, and as the beneficiaries of the system, while numbering now in the thousands, comprise proportionately a small percentage of the total population, there is some justification for complaints that the Government is in effect subsidizing a minority class where a cost charge should be imposed.

RADIO SERVICE

The Department of Lands and Forests, having been the pioneer in the installation and use of radio equipment over ten years ago in North-western Ontario as an important Fire Protection measure, found it necessary within recent years to meet the demands incident to an industrial expansion and, jealous of its own rights and conscious of the possibility of developing a public utility in the interests of the people as a whole, inaugurated a modern commercial system so that the Radio Service is now divided into two groups:

- (a) Departmental.
- (b) Commercial.

The Departmental side of the service has developed from three stations at Sioux Lookout, Goldpines (then Pine Ridge) and Woman Lake in 1928 to fifty-four stations in the summer of 1938.

These stations are used by the department as an integral part of its fire fighting activities throughout the North and North-western parts of the Province. They comprise three classes as follows:

- (a) Medium wave point-to-point.
- (b) Ultra-high frequency for observation towers.
- (c) Aircraft installations.

MEDIUM WAVE POINT-TO-POINT

Point-to-point stations are situated at strategic points—at the discretion of the District Forester—to provide communication between such points and the district headquarters. They have proved very useful in the matter of issuing instructions, ordering supplies and in the handling of a thousand and one routine matters. During the fire-fighting season of 1938 some 500,000 words were transmitted and received.

ULTRA HIGH FREQUENCY (Towers)

A special development of the radio service is the small ultra high frequency "Trans-receiver" which is used in the observation towers throughout the Province. These sets, I believe, are the only ones of their kind, and were designed and put into use by our own officials. They are inexpensive to construct, cheap of maintenance and thoroughly reliable

in operation. No operator is required as the tower observer is capable of handling the simple controls. These sets have proved valuable in the matter of taking bearings, by two or more towers, on sighted smoke. By this means it is possible to determine the location fairly accurately.

COMMERCIAL

These stations at Red Lake, Sioux Lookout, Kenora and Pickle Lake provide a very necessary communications service to numerous mining developments in this area. During the calendar year 1938 approximately 360,000 paid words were transmitted over the four above stations.

The commercial stations constitute what is probably one of the most up-to-date radio networks in the world. It is unique because the town of Red Lake is, I am informed, the largest town in the world which is wholly dependent upon radio for its means of communication. Telephone calls may be made between these points and anywhere in the world. Similarly, telegrams may be filed for any point. Such facilities that provide one of the growing permanent gold mining fields of the world with radio telephone contact throughout the globe are worthy of notice.

Special equipment is installed to facilitate efficient communication between ground and flying aircraft. Advantage is being taken of this service by the three prominent air transportation companies, Canadian Airways, Starratt Airways and Wings Limited, each of whom has, under a co-operative arrangement between the Dominion and Ontario, a frequency of its own.

The rapid growth of this air wave system of communication and the over night improvements ever pressing warrant caution on heavy investments lest so-called permanent equipment become obsolescent prior to a normal amortization period. With this in view the Ontario Government made an agreement with the Marconi Company, experts in designing and operating systems in various parts of the world, whereby the Company installed the operating equipment at the four central commercial operating stations mentioned under a revenue participating arrangement.

While the Department is keenly interested in the anticipated success of this dual system, it must be admitted that Forest Fire Protection, the primary purpose for which the radio was introduced, must remain the paramount consideration.

CONSTRUCTIVE SUGGESTIONS INVITED

In concluding this hurriedly arranged summary of the activities of the Department of Lands and Forests it may not be out of place to point out that this Department has, under varying names according to its scope and functionings, been in legal existence for 112 years. Originally the Crown Lands Department, in turn the Department of Lands and Mines, Lands, Forests and Mines, and now Lands and Forests, conceived and in due time gave birth to the Colonization Roads, Game and Fisheries, Department of Northern Development and Department of Mines, all of which are now sheltered under special Departments of the Government Service.

During this span of over a century the Department has had thirty-three different individual Commissioners or Ministers to guide its destinies, and it has been my privilege to have served under 11 of them.

In its administrative functions its traditional policy, instilled in the minds of its officials, has been to invite and encourage suggestions and criticism of a constructive character. It is natural that we all cannot see eye to eye in the institution of measures and the application of the spirit and letter of statutory enactments and the regulations arising therefrom. The only condition we attach to criticism is that it be fair and just, and to be so it must necessarily emanate from a responsible source, freed from personal

prejudices, be based not upon silly insinuations and misrepresentations, but upon facts and reason. Some one has said "They are next to the Gods whom reason and not passion impels."

Time these days is altogether too precious to listen to pedantic utterances of book absorbing worms whose alleged academic wisdom or proud scholasticism sneers at common sense opinion of those practical minds, whose expert training and long and useful field work under diverse conditions amply justify the confidence I have in them. And in trying to accomplish my task in serving the public in the work of forest administration I much prefer to be guided by those practising their chosen profession in the field than by those preaching their theories from a soap box in the forum or uttering egotistical self-assertive ideas over the radio under an innocent and well-intentioned sponsorship or in the name of our democratic friend, "freedom of speech."