CIHM
Microfiche
Series
(Monographs)

ICMH
Collection de
microfiches
(monographies)

Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

Technical and Bibliographic Notes / Notes techniques et bibliographiques

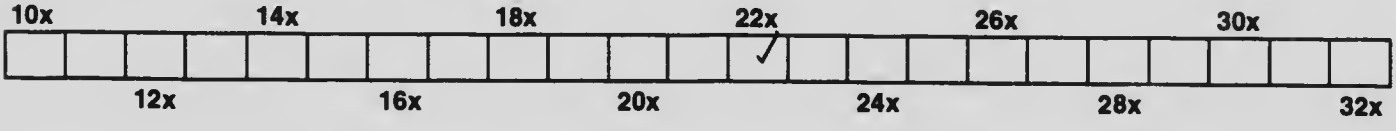
The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

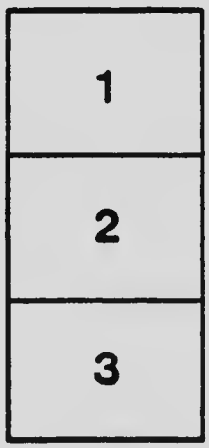
- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☐ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☐ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments / Commentaires supplémentaires:

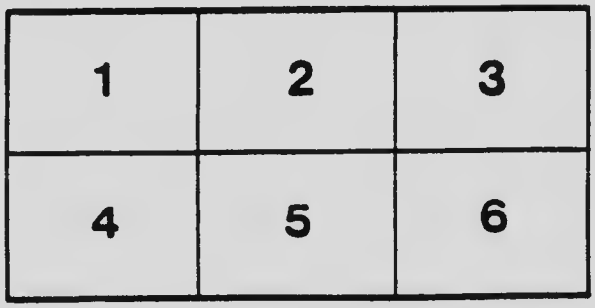
L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☑ Showthrough / Transparence
- ☐ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary material / Comprend du matériel supplémentaire
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- ☐ Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below / Ce document est filmé au taux de réduction indiqué ci-dessous.







Canadian Pulp and Paper Association

Bulletin Number Twenty-five Issued May 15th, 1920

GOVERNMENT RESTRICTIONS UPON THE USE OF PULPWOOD CUT FROM THE CROWN LANDS OF QUEBEC, ONTARIO AND NEW BRUNSWICK

A Reply to Arguments Advanced Before the House Committee on Foreign Affairs at the Hearings in Washington on the Underwood Resolution Respecting the Exportation of Pulpwood from Canada.

THE Underwood Resolution, approved by the United States Senate, and favorably reported to the House of Representatives by the House Committee on Foreign Affairs, providing for the appointment of a commission of five to consult with the Dominion or the Provincial Governments of Canada with a view to securing the unrestricted right to export from Canada, pulpwood cut upon the Crown lands in Quebec, Ontario and New Brunswick, is based very largely upon a misunderstanding of conditions in Canada.

The text of the resolution in itself shows a complete ignorance of the underlying facts. Most of its statements are at utter variance with the Canadian point of view. This is not at all surprising when considered in connection with the arguments put forth by certain special interests before the authorities at Washington and which have since received wide publicity in the press of both countries.

Perhaps the most fallacious of all the statements advanced by some of those appealing for the passage of the Underwood Resolution is that which has led the uninitiated to infer that the so-called "embargo" upon the exportation of Canadian pulpwood is in any measure responsible for the present situation in regard to the supply of and demand for newsprint paper. It is assumed by many that Canada has quite recently put a stop to the exportation of unmanufactured pulpwood, the result being that the paper mills of the United States

dependent upon this country for the bulk of their raw material, have suddenly and unwarrantably been deprived of pulpwood, thereby reducing the output of newsprint paper and creating the condition of so-called famine which now exists. These are not the facts. In reality Canada has never placed an "embargo" upon the exportation of pulpwood. Only the Dominion Parliament has power to enact such legislation and none has been enacted or contemplated. Certain of the provinces, however, foreseeing the time when their supply of pulpwood would become exhausted, if permitted to be exploited without restriction, and being desirous, furthermore, of building up and encouraging the pulp and paper-making industry within their own borders, did create regulations requiring that no pulpwood should be permitted to be cut from their Crown Lands except for the manufacture of pulp or paper in the Dominion. The British North America Act gives to these provinces complete sovereignty over their natural resources. These regulations are not of recent origin. They were adopted more than ten years ago. They have no immediate bearing upon the present paper situation, the American mills being in full operation as they have been during all the years the regulations have been in force. They are neither discriminatory nor confiscatory in their character. They apply to all holders of timber leases alike—Canadian, American, British, Belgian and all others. They are based upon provisions contained in the original leases under which the several provincial governments reserved the right to make such future regulations as they saw fit for the control of the lands and the use of the forests contained thereon. The courts have already passed upon and upheld their validity. The contentions of those who assert the invasion of their alleged vested rights by reason of them are without foundation.

It was but natural that the private interests concerned should take advantage of the present situation in the paper market to press their alleged grievances upon the Government of the United States and to urge that Government to take measures for their relief. In doing so they have, of course, restricted themselves to one side of the case only, and unfortunately, have, in so doing, departed from the facts in some instances and have given an altogether one-sided, erroneous and distorted view of the circumstances and conditions covering the question of Canada's supply of pulpwood and of the various provincial regulations governing its uses. The purpose of the present pamphlet, which is based upon

official information combined with the most authentic data obtainable from official and other sources, is to correct some of the mis-statements made before the Committee in Washington and to place Canada's side of the controversy in a truer, and, consequently, a more favorable light.

It is, of course, clearly understood that the existing regulations do not affect the exportation of pulpwood cut from lands in private ownership. These exports, for many years past, have averaged around one million cords annually, and provide approximately one-fifth of the annual pulpwood consumption in the United States. The exports of pulpwood to the United States had increased in 1918 to over 1.3 million cords. Neither do the regulations affect the export from Canada of manufactured pulp, of which 473,849 tons went to the United States in 1917, this comprising approximately one-ninth of the pulp consumption of that country. Nor, again, do they affect the export of newsprint, of which, during the same year, 533,112 tons went from Canada to the United States, this comprising nearly four-fifths of Canada's production of newsprint. In 1919, the Canadian export of newsprint to the United States had risen to 624,304 tons, or approximately one-third of the newsprint consumed in and exported from the United States.

It may be in order here to remark that United States exports of newsprint to other countries amounted in 1919 to 110,295 tons. The argument made before the Committee in Washington sets forth that 63,000 tons can be accepted as the minimum by which production and importation of newsprint fell below consumption in the United States. It must be obvious that if a little over half of the exports of newsprint to other countries had been retained and utilized in the United States, no serious shortage of newsprint in that country would have occurred. As a matter of fact, there is, of course, a world-wide shortage of newsprint, as of most other articles of human consumption, due to war conditions, and prices have risen to much above those of pre-war times. American manufacturers of newsprint have, quite naturally, sold in the best market, where not otherwise obligated by contracts, and some exports have resulted.

The figures quoted are from census statistics. They show clearly that, with the door wide open to the importation from Canada of pulp and newsprint, and with a greatly increased Canadian production in prospect, neither the paper manufacturers, as such, nor the publishers, have anything to fear

from the natural and proper desire of the Canadian provinces to benefit industrially by the manufacture within their own borders of the raw material from the greatest natural resource of which they are possessed.

That the provinces are well within their legal rights in restricting the use of pulpwood cut from their Crown lands seems unquestionable. The point at issue is whether the restrictions are reasonable and necessary for the legitimate protection of the public interest of Canada. That both angles of this question should be answered in the affirmative is the Canadian contention.

The cutting of raw pulpwood for export involves no permanent industrial development. The home manufacture of pulp and paper, on the other hand, means the building of factories, the employment of skilled labor, the development of new towns, the growth of cities, scope for increased immigration, better home markets for agricultural and manufactured products, the increased investment of domestic and foreign capital, and the increase of national prosperity in general. There is also the question of the conservation of Canada's pulpwood resources to maintain the industrial plants already established and to induce the establishment of others in the future. The necessity of providing permanent supplies for the industry requiring so great an investment of capital is also an important factor and necessitates conservative forest management. Many millions of dollars of United States capital are already invested in the pulp and paper industry in Canada. This will be jeopardized, together with much native capital, unless the continuity of supplies of raw material can be adequately maintained.

It is admitted that many of the United States manufacturers of woodpulp are in need of increased supplies of raw pulpwood, in view of the established fact that, as a result of destructive logging and in the absence of adequate fire protection, the pulpwood forests of the Eastern States are rapidly approaching exhaustion. The conclusion does not necessarily follow, however, that it is reasonable to expect the provinces of Eastern Canada to make the enormous sacrifice that would be involved in foregoing the home manufacture of their Crown land pulpwood, in order to make up for past negligence by the States and by the timber owners there in not protecting or conserving their timber lands in order to maintain their productive capacity.

Some of the United States pulp mills undoubtedly still have available supplies of raw material for many years to

come. Others, presumably, must ultimately either go out of business or transfer West or to Canada, except insofar as they may be able to get supplies of pulpwood from Canadian lands in private ownership. The lumber industry has had to migrate from New England to the Lake States, thence to the South, and now to the Pacific Northwest. In the almost complete absence of forestry practice in the Eastern States, it is logical to expect that at least a part of the pulp and paper industry must in the long run, migrate also. There are great opportunities for the manufacture of pulp and paper in the States of the Rocky Mountain region and of the Pacific Northwest. If lumber from these regions can be shipped for consumption in New England, as is now being done, surely the high prices prevailing in the pulp and paper industry will also justify similar shipments. The industry is already established in the Northwest and its further development there on a large scale can not be other than merely a matter of a little time.

It should be noted also that United States interests requiring supplies of pulp are now planning on the erection of additional pulp mills in Eastern Canada, as well as in Labrador. These developments, with others in prospect, may be relied upon to supply the requirements in the course of a little time. As a matter of fact, so far as Canadian pulpwood must be depended upon, it is to the advantage of the paper mills, the publishers and the general public in the United States that it should be manufactured into pulp in Canada. So far as the publishers and the public are concerned, their immediate interests would be equally well provided for if the process of manufacture in Canada were carried to the point of actual production of newsprint, as is already being done on a large and increasing scale. Some of the owners of pulp mills, as such, are, of course, inevitably affected. The Federal Trade Commission of the United States is on record as stating that the cost of converting pulpwood into paper is much less in Canada than in the United States.

Canada is now the second best customer of the United States for goods manufactured in that country. In fact, the existing exchange situation, so seriously unfavorable to Canada, is at least largely due to the fact that Canada buys a much greater quantity of goods in the United States than she sells there. There is, therefore, no inherent anomaly or impropriety on the part of Canada in desiring to increase as much as possible the value of her exports to the United

States, and this must mean the greatest possible production of manufactured articles. There is, further, no logical or proper basis for resentment on the part of the United States because of such a feeling by Canada.

The Underwood resolution stresses the point that United States holders of pulpwood licenses in Canada have, by virtue of the later imposition of restrictions upon raw pulpwood, been caused hardship, great and irreparable injury being done them, by making valueless their large investments and by depriving them of the property interests of the wood to which they had been conveyed all property rights; also, that the wood standing and growing upon the 10,000 square miles of licensed Crown lands in Quebec held by these United States interests, if available for the use of such interests would be "sufficient in annual yield to relieve the present scarcity and prevent threatened exhaustion of pulpwood in the eastern part of the United States, to lower the cost of the raw material of the American newsprint industry, and to stabilize the price of newsprint paper to the consumer, besides assuring an additional supply of raw material that would justify investments for increased production, and affording the relief needed while awaiting the results of a national policy of forest conservation and reforestation."

To this it may be answered that the restrictions complained of have not, as a matter of actual fact, deprived United States investors of their investments in Canada; they simply require them, as a matter of provincial policy, to carry the raw material through at least one stage of manufacture, namely, into wood pulp or lumber, etc., within Canada. Stumpage values have so greatly appreciated that the holder of any such license could, if he wished, readily realize a large profit upon his investment, by sale. Or he can provide for manufacture of the pulpwood into pulp or paper in Canada, as many United States concerns have done or are doing, including the International Paper Company, the chief complainant.

As has been stated, it is only the owner of a pulp mill dependent upon Canadian raw pulpwood, who is adversely affected to any serious extent, and he still has the privilege of competing for some part of the million cords of pulpwood cut annually from privately-owned lands in Canada and exported to the United States, as well as for United States pulpwood on the open market, in addition to supplies from his own lands, if he still has any such containing pulpwood.

It should again be emphasized that the restrictions do not in the slightest degree, decrease the amount of pulp or newsprint available for use in the United States, and therefore do not affect either the paper manufacturers as such, the publishers or the general public. In fact, manufacture within Canada of Canadian pulpwood into wood pulp is distinctly to the advantage of the manufacturer of newsprint who also owns a pulp mill in Canada, because of the lower costs involved in such manufacture within the Dominion. Not only does the United States now receive the product of nearly all the Crown lands acquired in Canada by United States interests before the restrictions became effective, but a vast amount besides from Crown lands not so held, in addition to a very large proportion of the product of lands in private ownership. The question is whether a certain part of this pulpwood shall be manufactured into pulp while it is still in Canada, or not until after it has reached the United States The charge of extreme general hardship and of decreased supplies and increased costs for the United States, by virtue of the restrictions, is therefore without substantial foundation.

At the Washington hearing, it was generally agreed that at least a very large factor in the present inadequacy of the newsprint supply is the excessive demand for advertising space in the newspapers. Some of the publishers traced part of this enlarged demand to the operations of the excess profits tax, the implication being that many concerns were largely increasing their expenditures for advertising in order to reduce the amount of war taxes payable to the Federal Government. So far as this may be the case, the probability would seem that it is more or less of a temporary condition, which will readjust itself in the course of a little time.

There is no record available of the shortage having been traced at the Washington hearing in part to the exports of newsprint from the United States to other countries (45 per cent greater in ~~value~~ tonnage in 1919 than in 1916), or to delay in the movement of pulpwood, pulp and paper from Canada to the United States, caused in part by disturbances of transportation due to labor unrest, and in part by the fact that there are in the United States many thousands of Canadian freight cars, the return of which to Canada had been sought with only indifferent success.

Neither, apparently, was reference made at the hearing, to the fact that, so far as New York mills are concerned, the local shortage of pulpwood is partially due to the provision

in the State constitution that no timber shall be cut within the Adirondack forest preserve, comprising 1,767,000 acres, which contains great quantities of material suitable for pulpwood. This great area is entirely withheld from exploitation, for park purposes; the people of the state having witnessed the devastating effects of lumbering followed by repeated fires, which have been responsible also for the destruction of so much of the pulpwood forests in other parts of the country as well as in Canada.

It seems quite clear, however, that the excess of demand for newsprint over the supply available, is, after all, not so much due to actual shortage of raw material, as to the limitations of productive capacity of the pulp and paper mills. Generally speaking, they have been running to capacity, but there are not enough of them to turn out the quantities demanded. This, however, is a condition which is in process of being corrected.

So far as pulpwood supplies in the United States are concerned, it has been stated on good authority that they are sufficient in the Northeastern and Lake States for twenty years. Before that time, very considerable quantities of undersized material now growing on cutover lands will have become available. Should an adequate national policy of forestry finally be adopted, applicable to the Eastern States, the situation will gradually right itself and dependence upon Canadian supplies will gradually become less. While the immensity of Canada's pulpwood resources has been strongly emphasized of late, sight should not be lost of the fact that, after all, the United States has four to five times as much standing timber as has Canada and further that other species of timber than spruce and balsam can be used in the manufacture of newsprint.

Again, there are large supplies of pulpwood on Crown lands in Newfoundland, from which pulp or paper can be manufactured there for export to the United States or elsewhere. Large areas of these lands are for sale and are thus available, when required, to help tide over the United States until its proposed national policy of forestry shall have become effective.

The possibility of greatly increased development of the pulp and paper industry in the Western States and Alaska has already been mentioned.

It has been suggested in some quarters that if the restrictions upon the use of Crown lands pulpwood from Eastern Canada are not lifted, the United States might exercise

coercion by placing an embargo upon the shipment of coal and sulphur from the United States to Canada. The pulpwood provinces are without coal resources. They import large quantities from the United States, practically a ton of coal being required in the manufacture of each ton of paper. Sulphur is also an essential ingredient in the manufacture of paper, and comes mainly from the United States, though supplies are also available in Italy and elsewhere. The effect of such an embargo upon United States paper manufacturers, publishers and general public should be considered. Such action would necessarily cripple, at least temporarily, the manufacture of pulp and paper in Canada, and exports of these articles to the United States would necessarily be greatly decreased, if not shut off, for lack of production, quite without any action by the Canadian Government. This would mean an era of greatly reduced supplies in the United States, with correspondingly inflated prices, and all in order to enable a small group of United States interests to manufacture a comparatively small amount of Canadian pulpwood into wood pulp in the United States instead of in Canada.

The Situation in Canada

If the facts of the Canadian pulpwood situation were anywhere near as represented in the argument presented at Washington, there might conceivably be some basis for the claim that the restrictions on Crown land pulpwood ought to be lifted, at least to some extent. However, there is no such relationship.

In that argument, the discussion covers Quebec, Ontario and New Brunswick, but goes into particular detail with reference to Quebec. It purports to set forth the United States viewpoint, but does not indicate what may be the Canadian viewpoint. A full discussion is obviously in the interest of all concerned, as tending to remove unjustifiable and unnecessary friction and feeling on both sides.

The fundamental assumptions and the calculations upon which the argument in question is based, are so impossible as to carry their own refutation to the minds of any persons who are in any way familiar with the pulpwood situation in Eastern Canada. It is, of course, greatly to be regretted that the extremely roseate view of the Canadian situation set forth by the argument does not accord with the facts.

The argument sets forth that the 44,800,000 acres of licensed Crown lands in Quebec contain an estimated average stand of 5 cords to the acre, thus giving a total stand on these licensed lands of 224 million cords of wood. At an estimated

annual growth of 4 per cent, the annual growth on the licensed Crown lands would thus amount to 8,960,000 cords. Using the same basis of computation the entire Crown lands of Quebec, licensed and unlicensed, comprising 121,600,000 acres, would, at 5 cords per acre, contain a total stand of 608 million cords. At a growth rate of 4 per cent there would thus be a total annual production of 24,320,000 cords which, according to the statement referred to, could be cut and removed without reducing the size of the forest or its value to the province. It is further set forth that should Quebec consent to lift her restrictions on Crown land wood, licenses of the more remote limits would be purchased at large bonus prices per square mile, and a provincial Crown timber revenue of $24,000,000 per year might be attained. It is argued also that labor in Quebec would share in the large expenditures that would be required to improve the rivers, build preparing plants and harvest the pulpwood in the enlarged operations.

The statement is also made that the same computation would apply with equal force to Ontario and New Brunswick, Quebec having been selected as the example on account of its proximity and its great forest wealth.

The further argument is advanced that, "it is a well-known fact that the cutting of the mature timber in a forest, thus opening the woodlands up to sun, light and air, promotes the growth of the standing trees." If all these assumptions are correct, the question may properly be asked why the extensive pulpwood areas in the Eastern States do not now contain a stand of 5 cords per acre, growing at the rate of 4 per cent per annum. The answer, of course, is that logging has been carried on in a destructive way, and fires have followed the logging operations, completely destroying the productive capacity of the land over vast areas, and greatly reducing it on a large proportion of the remainder.

The same conditions of destructive logging have, as a matter of fact, obtained in past years over very large areas of forest in Quebec, Ontario and New Brunswick, and fires have here also taken their tolls and rendered great areas entirely or relatively barren. It is only during comparatively recent years that there has been any actual restriction upon methods of conducting logging operations in Quebec and New Brunswick, and there is even yet no such restriction in actual effect in Ontario. Not until about seven years ago was there any real beginning toward adequate fire protection in Quebec; in New Brunswick, there was no effective protection from fire previous to four years ago, and the work of forest protection was never

organized on anything approaching an adequate basis in Ontario previous to three years ago. Even yet, forest protection lacks very much of being really adequate in any province of Canada. It is, therefore, literally true that until comparatively recent years, the same destructive conditions were operating in the forests of Eastern Canada that have now so nearly wiped out the former splendid forests of the Eastern States, and they are still operating in Canada to far too great an extent for the welfare of Canadian forests.

It must further be borne in mind that the areas of forest in Eastern Canada which are reasonably accessible to existing means of transportation have, to a very considerable extent, been culled over, or logged out, during the period since the earliest settlement of the country. The original stand has thus, by cutting and by fire, been reduced to a very material extent. Probably not less than one-fourth of the balsam in Quebec and one-third of the balsam in New Brunswick has been destroyed by the budworm during the past ten years.

A growth rate of 4 per cent is assumed in the argument submitted to the Committee at Washington. Reference is there made to "the generally accepted estimate of an annual growth of 4 per cent of a scientifically lumbered forest." It may be sufficient at this point simply to remark that, viewing the situation as a whole, there is no such thing as a scientifically lumbered forest of any material extent anywhere in Eastern Canada, as there has also been nothing of the kind in the Eastern States. What might be the rate of growth on a large area of pulpwood lands under intensive scientific forestry practice has yet to be demonstrated. The practice of forestry is, as has been stated, still in its veriest infancy on Crown lands in Quebec and New Brunswick and is non-existent in Ontario. Reliance is placed for the most part upon diameter-limit regulation, which has been repeatedly shown to be ineffective in maintaining the productive capacity of mixed forests, particularly where only the valuable conifers are logged, leaving the less valuable hardwoods to take the ground in constantly increasing proportion. Most certainly, there is no basis for the assumption of an average growth rate of four per cent throughout the entire Crown land area of Quebec, Ontario and New Brunswick.

With regard to the diameter limit system of regulation, Prof. H. H. Chapman, of the Yale Forest School, writing in the American Lumberman for July 10, 1909, said:

"In deciding on the amount and kind of timber to leave standing, the owner may have in mind only the second crop. In this case he will

remove all his old timber and large sizes, leaving only the smaller diameters, and might attempt the operation on the basis of a diameter limit high enough to secure a reserve of the size desired. But there are decided objections to this method, even from the standpoint of the second crop. A diameter limit ignores the two main factors which will give value to the second crop—soundness and ability to grow. It also ignores the matter of distribution or spacing of the trees left, upon which growth in the next period largely depends, and it tends to leave large blank areas which will not seed up, so that the seedling crop is not fully secured. The results of cutting to a diameter limit must therefore be very disappointing and the value secured at the end of twenty years must fall far below the results which might be secured on the same area, leaving the same amount of timber standing, providing an intelligent system of selection is used in the first cutting."

Along the same line, the following is quoted from an address entitled "Logging to a Fixed Diameter Limit in the Adirondack Forests," by Dr. H. P. Baker, then Dean of the New York State College of Forestry and now Secretary of the American Pulp and Paper Association:—

"The theory on which the idea of cutting to a rigid diameter limit is based as ordinarily advanced is that there are in every forest a lot of half-grown trees which in a short time will produce merchantable timber. Those of you who are familiar with the Adirondacks do not need to be told that in our virgin forests there are many trees below the usual diameter limit which may be very old and which if left exposed to wind and light might not stand windfall or live, to say nothing of growing in diameter, through the period until the next cutting. Again, there are many trees just above the fixed diameter limit which may be growing rapidly and which, if left until the next cutting, would put on a very large amount of timber and be much more valuable than at the time of cutting.

"Growth conditions in a virgin forest are always unsatisfactory. That is, a virgin forest is not a profitable forest. The struggle for space and light is often tremendous with the resultant retarding of growth or resultant occupation of the soil by wrong species. Prof. Edwin F. McCarthy of the N.Y. State College of Forestry, while Acting Director of the State Ranger School at Wanakena, made several hundred complete stem analyses on the Proulx Cuttings near Cranberry Lake, in 1914. These analyses showed that the average spruce trees of that section of the Adirondacks require 100 years to reach five inches in diameter, breast-high, while the same trees are about 200 years old at maturity. That is, in the virgin forest the struggle through which the undergrowth goes is too intense and it takes too long a time for the spruce to reach a minimum size and instead of it taking 200 years for the Adirondack spruce to reach maturity it should, on a proper carrying out of the selection system, be brought to maturity in from 80 to 120 years, depending upon soil and situation.

"This brief statement as to the advantages and disadvantages of fixed diameter limit I hope has left clearly in your minds the fact that it is the fixed or rigid diameter limit which has proven itself to be out of place in forest practice in this country. Necessarily, as long as the selection system is used there must be a selecting of the trees to be taken from

the forest at the end of each cutting period, but progress in forestry is meaning the application of a trained as well as a common sense elastic diameter limit. (Guess-work in a sense is chief disadvantage of fixed diameter limit.) There is everywhere a turning away from the rule of thumb methods in forestry to a greater use of the personal judgment of trained men and it is resulting in a very satisfactory working out of the selection system, where that is used.

"In marking to-day the individual tree is considered in all its relations. It is quite essential that we maintain a balance between the amount cut and that left in the forest. This balance need not be maintained over small areas but should be considered carefully over considerable areas. That is, in the taking out of injured, suppressed or stunted trees below a theoretical limit, the ranger or forester should leave enough of the firm and thrifty trees above the limit to counter-balance those trees which he removed and which were below the limit, and to do this properly he must use judgment resulting from both training and experience in marking the trees."

These quotations are given simply to show that adherence to a rigid system of diameter limit regulation, such as is for the most part in effect on Crown lands in Quebec and New Brunswick, does not by any means constitute really advanced forestry practice. This is no reflection upon the provinces of Eastern Canada, of which Quebec is the most advanced, followed by New Brunswick. Ontario will no doubt make a beginning in the near future. Economic conditions restrict the rate at which the practice of forestry methods may be made effective, besides which it takes time to secure and develop an adequate staff of competent foresters and to build up, by patient research in the forest, a body of scientific knowledge upon which can be based a set of regulations for each type or condition of forest, and which shall at the same time be correct from the scientific viewpoint and practicable from the viewpoint of the operator. At the present time, merely a start has been made in gathering such specific knowledge, through research by the provincial Forest Services of Quebec, New Brunswick and Ontario, the Dominion Forestry Branch, the Laurentide Company, the Riordon Pulp and Paper Company, the Bathurst Lumber Company, the Abitibi Power and Paper Company, the Spanish River Pulp and Paper Company, and the Commission of Conservation of Canada. The latter organization is co-operating in this work with the Forest Service of New Brunswick and with the several commercial companies mentioned.

Great emphasis is laid in the argument made at Washington, upon the statement by Premier Gouin of Quebec that **with proper management** there might be cut from licensed

Crown lands in Quebec four times or even five times more than the one billion feet per year now being cut from such lands. The way in which this statement is used constitutes perhaps the most vital flaw in the whole line of argument advanced. An official statement issued by the Provincial Government at Quebec places the total cut from licensed Crown lands at approximately one billion feet board measure, roughly equivalent to two million cords. This, however, covers all species of timber, including spruce, balsam, jack pine, hemlock, white pine, red pine, birch and poplar and other hardwoods, whether cut for lumber, pulpwood, railway ties, square timber, poles or firewood or for other purposes. That this is quite consistent with the statement of the Premier is shown by the following extract from his address, delivered at the annual dinner of the Canadian Pulp and Paper Association, reported at page 155 of the Pulp and Paper Magazine for January 12, 1920:

"We now cut about one billion feet of timber from our forty-five million acres of leased land, and I might tell you that with proper management we might cut four times or even five times more than this quantity without endangering the future of our supply. This, gentlemen, is from the lands under license. This does not include in any way the seventy-five million acres of land which is still free and belongs to the Crown."

The interests presenting their case at Washington immediately assumed, however, that this entire amount is of **pulpwood species,** and the question might be asked as to whether the same vital fallacy extends also to their assumption as to the total contents of the stand, averaging five cords per acre over the entire Crown land area of the province. To have any bearing upon the present discussion, the estimate must obviously be limited to pulpwood species, and, more particularly, to those species which are actually being utilized on a large scale in the manufacture of newsprint. This point is discussed in the following pages.

It should be noted, further, that Premier Gouin's statement obviously refers to a possible condition in the more or less distant future, rather than to the present situation or even the immediate future. He also emphasizes the importance of utilizing the hardwoods, which is now generally regarded as economically impracticable on the more remote limits. Until the hardwoods in the mixed forests can be removed and utilized, the rate of growth of the pulpwood

species can not approach the ideal suggested, quite aside from the lack of cutting regulations based upon the local conditions on each area and the lack of an adequate force of foresters to enforce such regulations were they in existence. Further, it takes a long period of time, even under the best management, for a depleted forest to be restored to a satisfactorily productive condition. It will thus be seen that the figures of possible growth quoted from Premier Gouin's address refer to a possible future ideal which may ultimately be attained, but which have no actual bearing, or only a partial one, upon the situation as it now exists.

Pulpwood in Quebec

Let us consider now the estimates put forth as to the amounts of pulpwood timber in Quebec.

The point which should be considered in this discussion is not how much total wood volume there may be on the average acre, which is presumably the basis of the argument made before the Washington committee, but how much there is of the species which are suitable for the manufacture of newsprint. Speaking practically, this means spruce and balsam. While there are large quantities of jack pine and poplar, neither of these is a newsprint species, under existing methods of manufacture. Jack pine is used primarily in the manufacture of wrapping paper, and poplar in the manufacture of book papers.

Any reasonable discussion of the situation should also be restricted to timber which is actually accessible to existing means of transportation. It is undoubtedly true that there are large amounts of timber suitable for the manufacture of newsprint far beyond the reach of existing transportation. This is particularly the case in Ontario and Quebec.

The Provincial Forester of Quebec, Mr. G. C. Piche, estimates that there are in the entire province 360 million cords of pulpwood, including spruce, balsam, poplar and jack pine to four inches in diameter. This is based upon an area of 45 million acres of licensed Crown lands at 4 cords per acre, totalling 180 million cords; 75 million acres of unlicensed Crown lands at 2 cords per acre, totalling 150 million cords; and 6 million acres of privately-owned lands at 5 cords per acre, totalling 30 million cords. These figures must, however, be reduced in order to determine the amounts of spruce

and balsam. On licensed Crown lands, 80 per cent may, according to Mr. Piche, be assumed to be of these species, 50 per cent on the unlicensed Crown lands, and 100 per cent on privately-owned lands. This would give an estimate for spruce and balsam on licensed lands of say 145 million cords, on unlicensed lands 75 million cords, and on privately-owned lands 30 million cords, making a grand total of 250 million cords of spruce and balsam for the entire province. These are, of course, rough estimates, based upon incomplete data, but they are based upon the best information available, and there can be no possible question that they have a far better basis of fact than the figures given out in Washington, which indicate a total stand of 608,000,000 cords.

Not all of this timber is, however, accessible to existing means of transportation. Making a reasonable deduction for timber commercially inaccessible, we would have 140 million cords of spruce and balsam for licensed Crown lands, 45 million cords for unlicensed Crown lands, and 30 million cords for privately-owned lands, leaving a total of 215 million cords of commercially accessible spruce and balsam to 4 inches diameter.

If, however, we are to consider these estimates from the viewpoint of the number of years supply available, a further deduction must be made. In the first place, the province imposes a diameter limit of 7 inches upon balsam and swamp spruce and 12 inches upon all other spruce. Consequently, there is a very considerable amount of this timber, comprising the capital or growing stock, which is not allowed to be cut because of this restriction. In the second place, there is always a shrinkage between the woods and the mill, due to unnecessary waste in logging, merchantable material left uncut which will be lost because of insects, decay or windfall before the next cut, logs stranded along the shores of lakes and streams, and logs lost by sinkage during the drive. To get at the amount of timber which may actually be available at the mill, it may conservatively be estimated that a deduction of at least one-third must be made, due to these several items of shrinkage.

If such a deduction be made, we would have of really available spruce and balsam, approximately 100 million cords on licensed Crown lands, 30 million cords on unlicensed Crown lands and 25 million cords on privately-owned lands, or a total of 155 million cords.

Quebec Pulpwood

	Licensed Crown Lands	Unlicensed Crown Lands	Privately Owned Lands	Totals
	Cords	Cords	Cords	Cords
Spruce, balsam, poplar and jack pine to 4 inches diameter	180,000,000	150,000,000	30,000,000	360,000,000
Spruce and balsam only, to 4 inches diameter	145,000,000	75,000,000	30,000,000	250,000,000
Commercially accessible spruce and balsam to 4 inches diameter	140,000,000	45,000,000	30,000,000	215,000,000
Really available spruce and balsam, after deducting what cannot be cut under provincial regulations and for waste and loss in logging and driving, and for defective balsam	100,000,000	30,000,000	25,000,000	155,000,000

According to the Dominion Bureau of Statistics, the 1918 cut of spruce and balsam in Quebec for pulpwood and lumber, was nearly 3 million cords. Of this amount, 885,772 cords was exported to the United States and may be credited to lands in private ownership. Also, a considerable volume of the wood from privately-owned lands was manufactured in Canada.

Taking the situation as a whole, with 155 million cords of actually available spruce and balsam, on the basis of delivery at the mill, and a cut in 1918 of around 3 million cords, we would have, at the present time, the equivalent of 52 years supply.

Beyond this 52 years supply of available pulpwood, at the 1918 rate of cutting, dependence must necessarily be placed upon annual growth for the continuance of operations. As a matter of fact, the rate of cutting is increasing steadily, due to new developments and the extension of existing plants. In addition to the accelerated rate of cutting, it must be borne in mind that some fires will inevitably occur and that there will be serious losses from insects and decay. Balsam is particularly susceptible to attacks by the budworm and to injury by butt-rot and heart-rot. It is estimated, for example, that around 25 per cent of the balsam in Quebec has been destroyed by the budworm in recent years, as already stated.

The extension of existing means of transportation may, of course be expected to open up new sources of supply, to a certain extent. There is, however, a distinct limit beyond which this will not be commercially feasible.

Considering first the 45 million acres of licensed Crown timber lands, it is reasonable to assume that of this area, not less than one-third will consist of water surface and of land areas rendered barren and unproductive by reason of repeated fires. This would leave 30 million acres of potentially productive land. If we assume an average annual rate of growth of one-tenth cord per acre, we would have a total annual production of 3 million cords for licensed lands. This necessarily assumes the existence of efficient fire protection, which, of course, is for the most part already in existence with reference to licensed Crown lands. This rate of growth can undoubtedly be increased when it is found possible to utilize the hardwoods which occur in mixture with the conifers, over such large areas in the Province of Quebec. The hardwoods at the present are, for the most part, left uncut at the time of operation, and, by their shade and competition for soil moisture, greatly tard the growth of the young conifers beneath them. Further, the rate of growth can unquestionably be increased by the adoption of scientific methods of regulating the cut. The diameter limit method of regulation, while incomparably better than no regulation at all, is still only a make-shift and does not by any means take the place of the practice of real forestry, as already discussed.

There are reported to be 75 million acres of unlicensed Crown lands. A very considerable part of this area is beyond the reach of any existing means of transportation, and must necessarily be left out of any present consideration of the pulpwood situation. Of the remaining area of say 30 million acres which may possibly be considered to be accessible to existing transportation, not less than one-third must be deducted for water surface and areas rendered barren by repeated fires. If may, therefore, reasonably be assumed, that we will have 20 million acres of unlicensed Crown lands which are within reach of transportation and which are in a potentially productive condition. In the mature forest, which has not been cut over, the annual growth is balanced by decay, so that no material increase in volume takes place. If, however, the area is intelligently cut over, and fires are kept out, there should be a material annual increase in the volume. Owing to the more northerly location of these lands, the rate of growth will be slower than on the licensed Crown lands.

We may, therefore, assume roughly an average volume growth of one-twentieth cord per acre per year, which would total one million cords per year of available wood from unlicensed Crown lands. It must be repeated that this will become a net growth only under intelligent operation, coupled with effective fire protection.

There are 6 million acres of privately-owned lands. These are in the southern portion of the province where conditions for growth are most favourable. If we deduct one million acres for water surface and barrens, we have 5 million acres of possibly productive lands left. Assuming a growth rate of one-fifth cord per acre per year, we have a possible net increase of one million cords per year.

In connection with the question of the rate of growth, it may be noted that the United States National Conservation Commission report, issued in 1909, estimated that the yearly growth of woods in that country did not average more than 12 cubic feet or a little over one-seventh cord per acre. This report stated also that one-fourth of the standing timber is lost in logging, and that from each 1,000 feet of timber, which stood in the forest, an average of only 320 feet is used. This percentage of loss is, of course, very materially decreased in the case of pulpwood, although it would still apply to lumber production in Canada, the same as in the United States.

In British Columbia it has been estimated that growth is taking place at the rate of 100 board feet per acre per year, or approximately one-fifth cord, assuming 500 board feet as equivalent to one cord.

While the studies which are under way by the Commission of Conservation of Canada have not yet progressed far enough to justify a final conclusion as to the rate at which growth is taking place, it may at least be said that these investigations would, by no means, justify the assumption of a rate of growth more rapid than one-tenth cord per acre per year over the very large areas of licensed Crown lands. While there is, therefore, no adequate basis for the assumption made, it may at least be said that no one else has sufficient data to prove that the estimated rate of growth is too low. It should be borne in mind that this volume production is for spruce and balsam only, the hardwoods not being taken into consideration, since they are not pulpwood species from the viewpoint of newsprint production.

It must be remembered further that forests are by no means in the most favourable condition to make a sustained growth after cutting, quite aside from the presence of

over-shadowing hardwoods over very considerable areas of our pulpwood lands. This is due to the fact that, as the studies of the Commission of Conservation have shown, there is not a proportionate representation of the lower diameter classes of trees, below merchantable size. Because of the suppression by the over-topping conifers and hardwoods, so large a number of the seedlings and pole-sized trees have been killed out that, after logging, not enough of the next-smaller trees are left to take the places of the ones cut. As a result, a long period of careful handling will be necessary to restore the forest to a normal productive capacity. During the interval, the rate of volume production must necessarily be comparatively low.

On the basis of the foregoing discussion it might be possible, under proper management and protection, to realize an annual growth of 3 million cords on licensed Crown lands, one million cords on unlicensed Crown lands, and one million cords per on privately-owned lands, making a total of 5 million cords per year of accessible and available spruce and balsam in the entire province of Quebec.

Volume growth is often calculated from the viewpoint of percentage of the existing stand or capital stock. From this viewpoint, there is no known basis for assuming an average volume production throughout Quebec at a greater annual rate than around two per cent. If we apply this percentage to the 215 million cords of commercially accessible spruce and balsam, as indicated in the foregoing table and discussion, we would have an annual production of 4.3 million cords of spruce and balsam. To secure an annual production of 5 million cords on lands accessible to existing means of transportation, it would be necessary to assume growth at the average rate of 2 1-3 per cent. Neither the studies of the Commission of Conservation nor any other known data would justify the assumption of a higher rate than this, over the very large areas involved. An average rate of growth of 2 1-3 per cent is, as a matter of fact, more likely to be over the mark than under it. It will thus be seen that, from this viewpoint, the probable annual growth checks closely with the calculations above made on the basis of average volume production per acre per year.

It can not be too strongly or too many times emphasized that this volume production does not, in the mature virgin forest, become actual net production until the harvesting of the crop is begun through the removal of the larger trees by

logging, and unless such logging is carried on with some regard to leaving the area in a condition to produce something of value.

The object of this extended discussion is to show that the extremely optimistic assumptions of the argument made in Washington are not within the bounds of reason, and that any such wholesale increase in the rate of cutting as is advocated could only result in disaster to the province and to many of the industries and communities dependent upon the forest.

The proponents of the Underwood resolution stated in their argument at Washington that, "The owners of the Canadian paper mills can have no ground for complaint if the commission provided by the Underwood Resolution succeeds in its labors, for they have already secured boundless limits of woodlands which provide not only for the indefinite supply of their mills at present capacity, but for as great an expansion as can be expected in the next generation."

While this may be true with regard to some concerns, it is by no means true of all in either Quebec or Ontario and still less true in New Brunswick. Already, mills in New Brunswick and Ontario are shipping spruce and balsam timber from Quebec for manufacture in those provinces, and some concerns in New Brunswick are taking up additional limits in Quebec with a view to manufacture in New Brunswick. Other companies will unquestionably be compelled to secure additional limits on lands now unlicensed, as well as to purchase licensed lands from present holders, if their mills are to have adequate supplies of raw material. All the provinces can unquestionably utilize their remaining raw material for home manufacture, and need to do so in the legitimate interest of their future development.

The Ontario Situation

Now, very briefly with regard to Ontario. The following table sets forth the best information which the Commission of Conservation has been able to collect from many different sources. While confessedly it is largely a guess, it is believed with confidence that it is as good a guess as anyone can make at the present time. The opinion has, as a matter of fact, been expressed by competent authorities, that these estimates are more likely to be over than under the mark. The Commission is now engaged upon a comprehensive investigation of the extent and character of the forest resources of Ontario, but it will take not less than three years, in all probability, to complete the work.

Ontario Pulpwood

Spruce and Balsam

	Licensed Crown Lands	Unlicensed Crown Lands	Privately Owned Lands	Totals
	Cords	Cords	Cords	Cords
Entire estimate	85,000,000	140,000,000	25,000,000	250,000,000
Commercially accessible to existing transportation	80,000,000	40,000,000	25,000,000	145,000,000
Really available, after deducting for waste and loss in logging and driving, and for defective balsam (diameter limit regulations not in effect)	55,000,000	27,000,000	18,000,000	100,000,000
In case the T. & N.O. Railway is extended from Cochrane to James Bay, the last previous figures might become	55,000,000	65,000,000	18,000,000	138,000,000

The 1918 cut of spruce and balsam in Ontario, for pulpwood and lumber, was, as nearly as can be determined from the Census Bureau statistics, slightly over 1,116,000 cords. This includes quantities consumed or produced in the province, as well as exports. Additional pulp and paper plants are being established, and extensions to some of the existing plants are under way, so that there is every reason to expect that very shortly the cutting of spruce and balsam will be at the rate of 1.5 million cords per year or more.

At the 1918 estimated rate of cutting, Ontario's really available spruce and balsam would be equivalent to 90 years supply, and the situation would be by no means discouraging, taken as a whole. When, however, the rate of cutting for pulpwood and lumber combined is increased to 1.5 million cords annually of spruce and balsam, the further establishment of new plants should proceed only with the greatest caution and after the most careful survey of the whole situation. This would represent only 67 years supply of wood accessible to existing transportation and really available, after deducting for loss and waste in logging, driving, and for defective balsam. It must be remembered that most of the spruce and balsam now being cut for pulpwood is from 100 to 200 years old or more; also, that there is a heavy loss from windfall in the undersized timber, after logging. In very many cases of heavy cutting, a second operation may not be worth while until from 40 to 60 years have elapsed.

If a possible growth rate of two per cent be assumed upon 145 million cords of commercially accessible spruce and balsam, there would be indicated a possible production of 2.9 million cords per year, which, of course, would leave room for a great expansion of the industry beyond what is under way at present.

In case the T. & N.C. Railway is extended from Cochrane to James Bay, it has been estimated that an additional 55 million cords of pulpwood might be made available, raising the total estimate of commercially accessible spruce and balsam in the province to 200 million cords. This at 2 per cent would produce 4 million cords of annual growth per year, of which advantage could be taken were logging to be so conducted as to leave cut-over lands in a productive condition. There is, however, as yet no technical forestry supervision whatever as to cutting operations on Crown lands, in contrast with both Quebec and New Brunswick, where the provincial Forest Services, under trained foresters, are in charge of the supervision over logging operations.

As has been pointed out with reference to Quebec, **there is no net volume increment in the natural mature forest, growth being balanced by decay.** In other words, nature instead of man harvests the annual crop, through insects, fungi and windfall. It is only through the adoption of an adequate plan of control of methods of logging that advantage may be taken of the actual growth, for the benefit of man, on a permanent basis. If destructive methods of logging continue in effect, the productive capacity of the land will be greatly decreased, and if fires are not kept out, it will be entirely destroyed over great areas, as has already taken place to an alarming extent.

The exports of pulpwood through Ontario ports to the United States were in 1915, 202,239 cords; in 1916, 149,745 cords; 1917, 161,652 cords; and 1918, 199,421 cords, the great bulk of which was spruce and balsam. A large proportion of this is no doubt from settlement lands in process of clearing. Not all this material was cut in Ontario, the Customs returns showing only point of exit from Canada. The amount cut in Quebec and exported through Ontario ports can not be determined from any records available. This point applies of course to New Brunswick as well.

A further point with reference to future growth is that large areas of pulpwood lands in Northern Ontario, as well as in Northern Quebec, are being cleared up for settlement, and will never again produce a crop of pulpwood timber. This

process of crowding out the forest will increase in future years. Also, a large area of timber land in Central and Southern Ontario is not a material factor in the production of pulpwood, other species predominating, such as white pine, red pine, hemlock and the various hardwoods.

New Brunswick

The entire Crown lands area of New Brunswick amounts to approximately 7,500,000 acres. From this figure, a deduction of perhaps 2,000,000 acres must be made for the large barrens, the condition of which is due for the most part to repeated fires, supplemented by poor drainage. This would leave an area of 5,500,000 acres, most of which may probably be termed forest land. The area of Crown land actually under license to cut timber during 1919 was 6,332,000 acres. This certainly includes a considerable area of water surface and barrens, so that we may conclude that the area of actual forest land is around 5,500,000 acres, checking with the figure above deduced. There are practically no areas of unlicensed Crown timber lands in the Province.

It is estimated that this 5.5 million acres of Crown lands may contain 20 million cords of spruce and balsam. In this connection, it must be remembered that there are considerable areas of hardwood lands containing little or no spruce and balsam; also that the Crown timber lands have been logged over to a greater or less extent from the period of early settlement and that fires have caused heavy damage to the stand.

Of settlement lands containing timber it is estimated that there may be within the province 2,500,000 acres. These lands are accessible to transportation and have, for the most part, been heavily cut over for many years past. The amount of spruce and balsam on these lands may be approximated at 4 million cords.

There are approximately 4,500,000 acres of privately-owned timber lands, mostly held by commercial concerns. These lands may contain 12 million cords of spruce and balsam.

Spruce and Balsam in New Brunswick

Estimated

	Licensed Crown Lands	~~Unlicensed Crown~~ Settlement Lands	Privately Owned Lands	Totals
	Acres	Acres	Acres	Acres
Areas	6,332,000	2,500,000	4,500,000	13,332,000
	Cords	Cords	Cords	Cords
Spruce and balsam, ~~millions of cords~~	20,000,000	4,000,000	12,000,000	36,000,000
Really available spruce and balsam, after deducting what can not be cut under provincial regulations and for waste and loss in logging and driving and for defective balsam	14,000,000	3,000,000	9,000,000	26,000,000

Thus, we have within the province approximately 12,500,000 acres of lands more or less covered with forest, and containing probably around 36 million cords of spruce and balsam. This is an average stand of 2.9 cords per acre for the entire area, and is believed to be within the bounds of reason.

The 1917 cut of spruce and balsam for lumber and pulpwood was approximately 1,250,000 cords, as nearly as can be determined by the Census Bureau statistics. In 1918, it was decreased to 987,000 cords. At the 1917 rate of cutting, the existing supplies of timber would be sufficient for less than 30 years. At the decreased rate prevailing in 1918, there would be supplies for 36 years, assuming that the entire estimate will be available at the mill. If, however, deductions be made, as in the case of Ontario and Quebec, for Crown timber over the diameter limit prescribed, for waste in logging, loss in stream driving, and merchantable material left uncut that will be destroyed by insects, decay and windfall before another cut, there are but 26,000,000 cords of really available spruce and balsam on the basis of scale at the mill. This, at the 1917 rate of cutting would represent but 21 years supply, which would be extended to 26 years at the reduced rate prevailing in 1918. It thus appears that the pulpwood situation in the province of New Brunswick is in a much more critical state than is the case in either Ontario or Quebec.

Of the 987,718 cords of spruce and balsam manufactured within and exported from New Brunswick in 1918, 374,040

cords was pulpwood, of which 263,907 cords was exported to the United States. Thus, 70 per cent of the pulpwood of New Brunswick is exported in the raw form for manufacture in United States mills, as contrasted with 20 per cent from Ontario and 45 per cent from Quebec. In 1917, the percentages of pulpwood export were: New Brunswick 61, Ontario 13.6, and Quebec 37. The pulpwood exported is of course to be credited to privately-owned lands, in addition to an unknown amount manufactured within the province.

If an average rate of volume production of 2 per cent be applied to the total estimated stand of 36 million cords, the annual volume increment would thus be 720,000 cords, which is less than three-quarters of the 1918 cut, and only 57% of the 1917 cut. Thus, cutting of spruce and balsam in the province of New Brunswick is progressing at a rate much more rapid than the estimated annual growth. This must mean inevitably than within a comparatively few years, the rate of cutting must necessarily be reduced for lack of sufficient supplies of merchantable material.

In view of the foregoing, the suggestion that the export of raw pulpwood from New Brunswick to the United States could and should be greatly increased is quite obviously not supported by any reasoning based upon facts.

Nova Scotia

The argument presented to the Washington committee makes no mention of the situation in Nova Scotia, presumably for the reason that practically all the timber land of the province has passed into private ownership. There is thus no question of the export of raw pulpwood cut from Crown lands. It may, however, be of interest to note briefly the extent to which Nova Scotia forests contribute to the newsprint situation in the United States.

The amount of spruce and balsam in Nova Scotia may roughly be estimated at 25,000,000 cords. The 1917 cut of spruce and balsam within the province, for lumber and pulpwood, was equivalent to 313,812 cords. In 1918, this had dropped to 206,846 cords. Thus, at the 1917 rate of cutting the supplies of spruce and balsam in Nova Scotia would be equivalent to 80 years supply. The forest on the mainland has been heavily cut over since the early settlement of the country, and enormous damage has been caused by fire. On Cape Breton Island, however, there are large quantities of spruce and balsam, particularly the latter, which it has not

yet been found commercially feasible to operate. This fact accounts for the large apparent supply of pulpwood species in Nova Scotia.

Notwithstanding the fact that practically all its forests are in private ownership, so that there is no legal restriction upon the export of raw pulpwood, such exports are extremely small. In 1912, the exports of raw pulpwood from Nova Scotia to the United States were 5,773 cords; 1914, 1,557 cords; 1915, 3,310 cords; 1916, 3,735 cords; 1917, 770 cords; and in 1918 there was no raw pulpwood exported. Speaking generally, the pulpwood cut in Nova Scotia is there manufactured into groundwood pulp, largely for export. There are no newsprint mills within the province.

There are no statistics available showing the exports of woodpulp to various countries, separately by provinces. Since, however, more than 90 per cent of Canada's total export of woodpulp in 1917 went to the United States, it must be obvious that the contribution of Nova Scotia to the paper making industry in the United States must be very considerable. On this basis, Nova Scotia gets the benefit of industrial development due to local manufacture into woodpulp, while the paper makers and publishers in the United States are in identically the same position as would be the case were the pulpwood exported in the raw state.

It is clearly apparent from the foregoing facts that the supply of pulpwood in Eastern Canada is neither so extensive or so inexhaustible as it has been made to appear in the statements made before the House Committee on Foreign Affairs at Washington and in special propaganda put out through the American press. On the contrary, it is certain that any relaxation of the cutting regulations and of the restrictions placed by the several provincial governments upon the use of such wood cut from the Crown limits must inevitably reduce Eastern Canada within a comparatively few years to the present status of the Eastern States in which, the Washington committee was informed, "outside of some large tracts owned by some old and large manufacturers in New York, Vermont, New Hampshire and Maine, there is not a spruce woodland tract of sufficient size to justify the erection of even a 50-ton mill."

The pr ial forest policies are justified by the law of self-preserva no less than by that of self-interest.

PAPER-MAKING MATERIALS GOING TO WASTE IN THE UNITED STATES

A Washington dispatch printed in "The Paper Mill and Wood Pulp News," New York, May 8, 1920, says:

"Washington, D.C., May 7—Secretary of Agriculture Meredith is convinced that there is a large opportunity for the Department of Agriculture to assist in the economic upbuilding of Alaska. As one means to this end, he is calling attention to the favorable situation for the establishment of paper mills in the territory, and offering co-operation by making available National forest pulpwood on terms that will provide a satisfactory operating basis.

"The secretary believes that the development of the forest and hydro-electric resources of Alaska is a practicable means of increasing the supplies of newsprint available for the United States, and thereby eventually lessening the paper shortage now so acute. The National forests of Alaska probably contain 100,000,000 cords of timber suitable for the manufacture of newsprint and other grades of paper. Under careful management, these forests can produce 2,000,000 cords of pulpwood annually for all time, or enough to manufacture one-third of the pulp products now consumed in the United States.

"The Alaskan forests, according to Secretary Meredith, also contain the second chief essential of a paper manufacturing industry—water power. While no accurate survey of water powers has been made, known projects have a possible development of 100,000 horse-power; and the department estimates that a complete exploration of the National forests in southern Alaska will increase their potential power to a quarter of a million.

"According to the secretary, the chief drawbacks which have prevented paper making in Alaska hitherto have been the large investments required for new plants, inaccessibility and lack of development in Alaska, and the transportation charges to consuming regions in the Central and Eastern States. The secretary expresses the belief, however, that these obstacles are more than offset by the present acute demand and high prices for all grades of paper; and that the near future should witness a movement of the paper industry into southeastern Alaska.

"'Alaska,' said Secretary Meredith, 'is destined to become a second Norway. With her enormous forests of rapidly growing species suitable for pulp, her water power, and her tidewater shipment of manufactured products, Alaska will undoubtedly become one of the principal paper sources of the United States. A substantial development of the paper industry in this wonderful region, combined with the inteliigent reforestation of pulp lands in the older regions, should settle forever the question of a paper shortage in the United States.' Within the last ten years, he points out, the Forest Service has brought about the sale of 420,000,000 feet of saw-timber in the National forest of Alaska. A number of areas suitable for pulp operations have been cruised and prepared for sale; and during the coming summer the survey of pulp woods will be extended in order that other desirable tracts may be brought to

the attention of manufacturers. Promising developments in paper manufacture, in fact, are now pending. The Forest Service has also investigated stream flow in co-operation with the Geological Survey, and has collected data of value to engineers in planning power developments.

"Secretary Meredith also announced that, to encourage a paper industry in Alaska, National forest timber will be offered for large installations under mutually favorable terms. The department is prepared to contract sufficient stumpage to supply paper mills for thirty years. The timber will be paid for from month to month as it is cut, obviating the necessity for large investments in raw material.

"The initial prices, based upon current timber values in Alaska, are sufficiently low to make the cost of pulp wood stumpage a relatively negligible factor to the manufacturer. On several areas which have been appraised, the spruce timber is priced at 50 cents a cord and the hemlock timber at 25 cents. These rates will apply during the first five years following the installation of the plant. Thereafter prices will be readjusted at five-year intervals if current timber values in Alaska warrant, but with equitable provisions regarding maximum rates which, in no event, will be exceeded during the earlier portion of the contract.

"'The Government owes it to Alaska to develop its resources and foster its economic growth,' said Secretary Meredith, 'and, at the present juncture, the opening up of the forests of Alaska for the development of the paper industry will supply one of the most critical economic needs of the United States to the profit and service of both Alaska and the people of the several States without in any way sacrificing or interfering with the purposes for which the forests were established.'"

In a letter to the Chairman of the Senate Committee on Agriculture and Forestry, under date of February 25, 1920, the Hon. David F. Houston, Former Secretary of Agriculture of the United States, urging an appropriation of one million dollars to be used in making a survey of pulpwoods of public domain and to prepare a plan for the reforestation of pulpwood lands in the United States, made the following statement:

"Apparently the crux of the present newsprint crisis is in a shortage of paper manufacturing facilities. The fundamental trouble, however, lies far deeper; it lies in such factors as the over-centralization of the industry in the North-East and the Lake States now being heavily overcut, with little or no provision for continued timber production and with almost total lack of development of the industry in the West and in South-Eastern Alaska where there are still large supplies of timber eminently suitable for newsprint manufacture.

"Coincident with the centralization of the industry in the North-East and Lake States, where the annual cut exceeds by two or three times the growth of the forest, there has been practically no development in either the Pacific North-West or in South-Eastern Alaska, where our largest remaining timber supplies suitable for newsprint are

located. In these regions we have spruce, hemlock, and fir, which have been shown to be as suitable for newsprint as the Eastern species. The forests of South-Eastern Alaska alone could probably supply one-half of our present newsprint requirements if means could be found for developing an industry.

"During the time that our own newsprint industry has been at a standstill the United States has become so dependent upon Canada that some consideration must be given the Canadian situation in connection with our own problem. It has been commonly believed that the supply of pulpwood in Eastern Canada is inexhaustible. There has been a remarkable expansion in the Canadian industry during the past few years, and there is every reason to believe that it will continue to expand for several years to come. Unfortunately, the more that is known of the Canadian supplies the smaller they are found to be. **The best information available indicates that at the present rate of cutting they will be practically exhausted in the Eastern Provinces in 25 years and that the beginning of the reduction in output will be keenly felt by the American consumer within a decade.** The reduction, when it comes, will be felt first and most by the American consumer. The only Canadian Province where large expansion on a sustained basis can be expected is British Columbia, and even this may not be sufficient to offset the probable decline in Eastern Canada."

Mr. P. T. Dodge, president of the International Paper Company, in an address delivered before the Inland Daily Press Association and printed in "The Fourth Estate," New York, March 13, 1920, said:

"The state of New York has an absurd constitutional provision requiring its vast forests to be held perpetually as wild forest lands. The cutting of a stick of timber is forbidden, the Forestry Department is a source of expense and the forests are not improving. Hundreds of thousands of matured trees, which should be cut and used and made a source of revenue to the State, are dying annually. There is not only the loss of this vast amount of wood, but the destruction of the younger timber by the falling trees.

"The States should make provisions for the cutting and sale of the matured timber under the control of honest and practical foresters. A large revenue could be obtained from the sale of the timber and the forest holdings increased and improved."

In the Atlantic Monthly for March, 1919, Mr. Arthur D. Little, an acknowledged authority, stated:—

"In the yellow pine belt the values in rosin, turpentine, ethyl alcohol, pine oil, tar, charcoal, and paper stock, lost in the waste are three or four times the value of the lumber produced. Enough yellow pine pulpwood is consumed in burners, or left to rot, to make double the total tonnage of paper produced in the United States."

The New York Times, of November 13, 1919, reported Mr. J. F. Kidd, of Lake, Miss., as telling the Southern Log-

ging Association, in annual session in New Orleans, that hundreds of tons of sawmill waste which could be used for newsprint and other coarse paper were being burned every day, while millions of feet of stumps and small timber in Southern cut-over lands were available for the same purpose.

"I understand," Mr. Kidd is quoted as saying, "that many small town weekly and semi-weekly newspapers have been forced to suspend publication because of the high cost of newsprint and that even some of the city dailies are having a rocky road to travel, but it seems that there is inefficiency and neglect of opportunity somewhere when raw material is being wasted in quantities with a market crying for the products which could be manufactured from it."