# THE PULP & PAPER





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# THE PULP AND PAPER INDUSTRY

# IN CANADA.

(With special reference to the export of pulpwood.)

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#### CHAPTER 1.

## THE AGE OF PAPER.

It is impossible to overestimate the importance of paper as a factor in modern civilization. If historians were to rename the crevious historical periods. our age should be labelled the age of paper. The entire structure of our civilization is bound up with the availability of large paper supplies. The highly complicated and minutely organized industrial and commercial system. the very existence of our political organizations, the maintenance of our democratic institutions, the widespread, enormous expansion of the press as the basis of our political system, the institution of popular education as the prerequisite to human progress, in short, all that constitutes modern civilization, is dependent upon a continuous forthcoming of abundant supplies of this commodity. The printed word is the enormous power that helped to build up our civilization in the past, and conditions its maintenance at present. It is the agency that transmitted the achievements and experiences of the past generations to those that followed. and made it possible for each

generation to start from the shoulders of the preceding one.

The constant interchange of human thoughts and sentiments is the basis of all communal, organized life. For centuries and ages, the speech was the only medium of interhuman communication. The transmission of ideas and sentiments from generation to generation was accomplished through oral tradition. But the invention of speech did not satisfy the inquisitive mind of mankind, and a new agency of interhuman communication - a more powerful and of a far wider range - began to be developed. Men acquired the ability to record human thought, observation, discoveries and inventions. This led up to the invention and gradual perfection of the art of writing.

It is at this stage that the accelerated advance of civilization began. The achievements and experiences of individuals and single generations were no more doomed to oblivion with physical extinction of the inventive minds. Each generation inherited the intellectual wealth of its predecessors, and could therefore more effectively continue the work of their ancestors.

To give a survey of the evolution of the recording material used in various ages of history it is necessary

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to go back thousands of years to the infant age of humanity. It is natural that the first "recorders", the primitive drawers and writers turned for their recording material to the immediate objects that surrounded them. Rocks and stone supplied the primitive artizan with his implements and tools, and served him also as a medium for his crude artistic and literary expressions. Consequently, the earliest human records are found to be made on stone. in some countries scratched or chiselled, in other written with chalkor colored ore. The earliest traces of these date back from eight to ten thousand years B.C.#(1) Later many other minerals were used. Bronze, gold, ivory plates, still later pieces of wood bamboo and bark were tried and used as recording material. Chaldeans (4000 B.C.) wrote their records in soft clay bricks. Whole libraries of clay tablets are constantly being excavated. dating from ancient Chaldea and Babylon. These materials were not very convenient. Librarians in Babylon must have used wheel-barrows in supplying the readers with the necessary references. To satisfy the growing requirement of a recording humanity a new and better material was necessary. Such a material, superior in quality and convenience

#(1) H.A.Maddox Paper, Chapt. 1.

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to all previously used was prepared by the Egyptians from. papyrus, - a tall reed growing in the Nile. It was made by peeling off the layers of the stem. laying the long ones side by side, until a strip of the desired width was obtained, then crossing them with other layers at right angles, the sheet was then gummed with a certain adhesive, dried in the sun, and then rubbed to a surface that could be written on with ink. The earliest papyrus document can be traced back to 3600 B.C. and many of them are preserved right to our present time. It is interesting to note that papyrus was used as a writing material right to the middle of the tenth century of our common era. A little later parchment was invented, manufactured from the skins of domestic animals. The Hebrews. Greeks, and Romans used it freely, and up to the present moment the traditional scrolls of the Pentateuch preserved at the Synagogues are written on the ancient material charta pergamina.

The credit for the manufacture of the first real paper belongs to the Chinese, who made paper as early as 130 A.D., using rags as their main raw material.#(1) For centuries the Chinese guarded the secret of paper-making but ultimately

#(1) R.S.Kellogg, Pulpwood and Woodpulp in North America. Page 4. probably through Chinese war prisoners, the secret leaked out and the art of paper-making was transplanted into Arabia, from there to Spain and Italy, and around the XIVth century the art was firmly established in the rest of the then civilized Europe.

Throughout the Middle Ages the production as well as the consumption of paper was insignificant. The knowledge of reading was confined to a small group of individuals. The habit of reading was practically nonexistent. Printing was undreamt of. The only way of multipying writings was by copying one copy at a time. It took almost a lifetime to reproduce a copy and this made books costly and rare. Libraries were very few, and with a limited number of volumes, and it will be no exaggeration to state that there are more books in one corner of a modern university than in all the libraries of the XII or XIIIth century together.

With no printing facilities as yet, the demand for paper was very limited and no scareity of raw material was felt. The first considerable stimulus to the production of paper was the invention of the art of printing by Guttenberg in the 1850's. This great device was the beginning of the great revolution in the entire paper industry that took

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place in the following centuries. The immediate result of the invention was an increased demand for paper, a demand that was continually growing from the XVIth century onward.

The period of Renaissance - the general revival of learning, the religious movements, the intellectual regeneration of the human spirit in the XVIIIth century, the enormous commercial expansion that followed the transoceanic discoveries, the political revolution of the XVIIIth century and ultimately the changes brought about by the industrial transformation at the threshold of the XIXth century. all these factors combined with progressing improvements in the technique of printing caused a great and rapidly growing demand for paper. Unfortunately the increased demand for paper was not accomplished by increased supplies of raw material. The available amount of cotton and linen rags - the only raw materials used at that time were insufficient to feed the paper-making establishments. The application of machinery in the early XIXth century so multiplied the productive capacity of the industry, cheapened the finished product, which still more accentuated the under supply of raw materials. The very existence of the industry was threatened. This caused much anxiety to the paper manufacturers, and a keen search for other fibres which might

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be used as a substitute for rags was going on. The year 1860 saw the utilization of Esparto Grass as a raw material, but the demand for paper was increasing by leaps and bounds. The growing market called for more and more products. Strenuous efforts were made to obtain new raw materials. Finally the keen search was crowned with success. Wood, which constitutes the bulk of the present raw material was introduced.#(1)The utilization of pulpwood began a new era in the history of the paper industry. The cheapness and abundance of the new raw material and the application of machineryp the industry paved the way for the coming of the paper age.

The industry experienced an enormous impetus in the last few decades. The concentration of population in great cities, the organization of public opinion, the formation of political parties, universal franchise, the decrease of illiteracy in the western countries, compulsory education, the penetration of the printed word into the remotest corners of the inhabited world, the growing importanteof advertising as a factor in modern commercial enterprise. the enormous

#(1) (George Mulane, in "Pulp and Paper Magazine", Jan. 1924.) It is very interesting to note that the credit for making the first sheet of paper from wood belongs to a Nova Scotian by the Name of Charles Fenerty of Sackville. He commenced to experiment in 1839, using spruce wood fibre, as a material for paper-making, and in 1844 produced paper from woodpulp, and sent a sample to the publishers of the Acadian Recorder in Halifax. 8

volume of newspapers and periodicals as a result of modern life - these are the main causes of the paper deluge in which we live. In 1860 the output of the paper industry in the United States was 127,000#(1) tons and sixty-four years after the output reached the enormous sum of eight million tons #(2) in other words, while the population of the United States was nearly quadrupled, the amount of paper products increased over sixty times. The Canadian Census of 1881 reports the value of paper products at two million. twenty-four thousand dollars and at present their value is approaching the figure of two hundred million, which even after giving due allowance to the higher purchasing power of the currency unit forty-five years ago, it still constitutes a tremendous growth. England, Germany, Scandinavian Countries, and others evidence a rapid growth though not reaching the value of North America.

Wile a hundred years ago or so paper was a luxury and a rare guest in the average home, the average person in the United States consumed over ninety pounds in 1914, and over one hundred and twenty-five in 1916, a little less than one hundred and fifty pounds in 1920#(3) and over one hundred

R. S. Kellogg op.cit. Page 5. Department of Commerce, Washington, D.C. R. S. Kellogg op. cit. Page 15. **#(1)** #(2)

<sup>#(3)</sup> 

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pounds in 1925, A similar trend upward is noticeable in the consumption of paper in Canada, amounting approximately to one hundred and thirty pounds per capita. In 1920 the per capita consumption in Great Britain was seventy-five pounds, in Germany, forty-five, in Scandinavia, thirtythree, in Japan, eleven, with Russia at the bottom of the list, with five pounds per capita. Newsprint alone was used in the United States at a rate of fifty-three pounds in 1924, and somewhat lower rate in Canada.#(1)

It is rather uncertain or even improbable that the same rate of increase will be kept up for years to come. We may even point at some new factors that may counteract and to some extent retard the rapid rate of increase in paper consumption. The use of the screen as a news-spreading and advertising agency, the perfection of radio as a cheap and very convenient medium of reaching millions of people, may arrest the development of the press, and consequently curtail the consumption. But nevertheless, all indications how that the present production has by no

#(1) R. S. Kellogg op. cit. Page 15.

means reached its climax. The demand is growing although the rate of growth may be lower that that of the last decade. The industrialization of the Orient, the decline of illiteracy in such countries as Russia, the enormous potential market for paper products in a rejuvenated China will increase the demand for paper. The paper industry all over the world is facing a new era of expansion, Canada as one of the leading paper producers with all the vast resources of raw material and power is bound to play a prominent part in the paper trade. - 11 -

#### CHAPTER II.

THE TECHNIQUE OF MODERN PAPERMAKING. #(1)

It is a far cry from a lonely tree growing in some remote corner of a northern forest to the morning newspaper placed on the breakfast table of city dwellers. A hasty buyer of dailies very seldom realizes the connection of the sheet he is glancing through with the vast forest stretches, yet<sup>it</sup> is in only a branch of a pulpwood tree, compressed to the thinness and squeezed to the flexibility of a sheet, that conveys to him a review of all the happennings in political, commercial and industrial world. Now how is this transformation accomplished, and what are the main processes involved in the conversion of a spruce tree into a smooth, thin sheet of writing or printing paper?

In order to understand the process of papermaking it is necessary to know what paper is, how it is constructed and what is the main substance that paper is composed of. Paper is a deposit of vegetable fibres co-mingled

H. A. Maddox, op. cit., Chapt. 3 - 7.
 G. S. Witham: Modern Pulp and Papermaking.Chapt. 1.
 R. S. Kellogg: op. cit. Chapt. 2.

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and felled together so as to form a homogeneous sheet. It is therefore the task of the papermaker, after getting a piece of pulpwood, to separate the fibres that compose the wood from each other and then having obtained a mass of disintegrated fibres, to put this half-stuff called pulp, under the operation of felting or matting, to form a solid sheet. The task of papermaking falls thus into two main stages, of which the first is the preparation of pulp, and then the manufacture of paper.

There are two distinct processes by which wood is converted into pulp. The mechanical method by which the separation of the wood fibres is being done by the purely mechanical process of grinding and the three main variations of the chemical method by which the disintegration of the waw material is being accomplished by the use of chemical reagents. The chemical methods are known as the sulphite, sulphate and soda processes, receiving their names from the chemical reagent used.

The mechanical process is a very simple method of manufacture. The barked or rossed wood is being pressed by hydraulic power against rapidly revolving grindstones, which break up the wood into single fibres and produce a mass of pulp suitable for the making of certain kinds of paper. This is the oldest, simplest and cheapest method - 13 -

of producing pulp. It was known in Saxony in 1844-45 and in the sixties of the last century the method was used on a commercial basis. #(1) The first woodpulp mill in Canada was built by Angus Logan & Company at Windsor Mills, Quebec, abour 1870.#(2) Since then it underwent an enormous development and the mechanical production of pulp or as it is called ground woodpulp is one of the most important branches of the paper industry in Canada, and exceeds the production of all varieties of chemical pulps put together.

Ground wood pulps or mechanical pulp is inferior i in quality to the pulp manufacutred by the chemical method. Since the many elements contained in wood that are undurable and unfit for paper-manufacture cannot be eliminated by a mechanical process, and are retained in the pulp-mass. Consequently groundwood is used only for the manufacture of paper where quality, strength and durability are of secondary importance, and where cheapness of the product is the fact under consideration, i.e. of newsprint.

The average yield per cords of pulpwood was 1972 pounds of groundwood pulp in 1924  $\frac{3}{4}(3)$  nearly a ton of pulp per cords of pulpwood.

1. **2.** S. Kellogg op. cit. Page 17. #(2) Census of Dominion Bureau of Statistics, 1924. #(3) " " " " 1924. - 14 -

There is another variety of the mechanical method, the so-called semi-chemical. The pulpwoodstick is subjected to a slight steaming before grinding which softens the woodblocks, and produces a pulp of better quality, and more flexible, which is used for the production of board and wrapping paper.

The making of chemical pulp is decidedly different from the making of mechanical pulp. The chemical processes are more complicated and expensive and accordingly the quality of the pulp obtained is far superior to that obtained by the mechanical method.

The superiority of chemical pulps is due to the fact that all the nonfibrous matter is separated and eliminated from the raw material, leaving for the paper machine a more or less pure fibrous matter or cellulose which is the real substance that composes paper. Chemical pulp gives rise, therefore, to a stronger and finer and more durable type of paper. According to the kind of chemical used in the manufacturing process, the product receives its trade nomenclature. We have therefore, sulphite, shlphate and soda pulp.

The most widely used and the most important among the chemical pulps is sulphite pulp, of which we have two varieties. the bleached and the unbleached. The logs after being barked and cleaned are conveyed into chipping machines where they are sliced into small particles about one inch long and a quarter of an inch thick, The small bits of wood, being of uniform size, are carried into digestors in which they are cooked in a liquor containing bi-sulphite lime. The purpose of this action is the dissolution and consequent removal of all constituents of woodchips, other than cellulose, which is the desired substance for papermaking. The cooked material is then washed and screened. The last process is the drying machine, and then the pulp is cut to size and baled or rolled ready to be conveyed to the paper-mill.

The use of sulphite pulp is of a very wide and varied range. It is used for the making of paper board, wrapping, book and writing paper. Sulphite pulp is also used as an ingredient in newsprint production, in proportion of 20% sulphite pulp to 10% of groundwood. It is also used in the manufacture of celluloid and the last decade witnessed the rise of a new and powerful consumer of sulphite pulp. This is the artificial silk industry which is enormously increasing and absorbing an increasing amount of that product.

The sulphite process is about sixty years old. It

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was in its experimental stage in Philadelphia in 1867. The first mill was established in Sweden seven years later.#(1) The method was introduced into Canada in 1887 by Russel and Riordon at Meriton, Ontario. After a slow development the production of sulphite pulp reached considerable proportions constituting about a third of the Canadian output of pulp, at the present.

Spruce and balsam are the two main kinds of wood used in the sulphite mills in Canada, forming 93% of the total raw material.#(2)

The yield averaged 1.010 pounds of pulp per cord of pulpwood in 1924.#(3)

The soda process is the oldest of the three chemical processes and more expensive than the sulphite method. The chemical used here is a caustic soda solution which combines with the acid components of the noncellulose parts and leaves its pure fibres. The advantage of this method is in the wider range of woods used for pulp production, hemlock being the most important kind of wood.

Soda pulp finds its chief use as a constituent in book paper. It is also used as a filler in the best classes

<sup>#(1)</sup> R. S. Kellogg op. cit. P. 27. #(2) Census of Dominion Bureau of Statistics, 1924. #(3) " " 1924.

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of magazine and writing paper and is especially valuable for contributing to a good printing surface.

The first soda pulp mill in Canada was established by the firm of Angus Logan and Company at Windsor Mills Quebec, in 1864, #(1) but this branch of industry had never attained large proportions in Canada. The production of soda pulp is largely confined to the United States and Germany.

Sulphate process isacomparatively recent modification of the soda process through substitution of sodium sulphate for the more expensive sodium carbonate. The method was first applied in America by the Brompton Pulp and Paper Company at East Angus, Quebec, some nineteen years ago. The present production in Canada is carried on in nine mills, spruce, jackpine and balsam supplying the bulk of raw material.

The yield averaged 1253 pounds of pulp per cord of pulpwood in 1924.#(2)

Sulphate pulp is largely used for the manufacture of wrapping, cover and all kinds of other paper in which strength is the most important factor, while the dark colour of the paper is of no disadvantage.

With wood reduced to pulp we can proceed to the

 $\ddot{\#}(1)$  Letter from Canada Paper Co. February 15, 1926.  $\ddot{\#}(2)$  Dominion Bureau of Statistics, 1924.

second half of the story, the scene of which is the papermill. Before the pulp is conveyed to the actual paper-machine it has to undergo a preliminary treatment known as "beating" performed in a beating-machine. The object of this treatment is a further disintegration and separation of fibres. In it the fibres are frayed and split in order to permit of better felting or interlacing in the papermachine. From the beater the pulp is conveyed for further treatment to the refining engine where the preparation of pulp is completed. At this state all the other papermaking materials are added. Clay, calcium sulphate, talc and other mineral substances are added in order to fill up the spaces between the individual fibres, to increase the compactness of paper, to produce a smooth surface, and in some cases to add whight. The process of dying in order to produce the right colour and the treatment in sizing with the object of increasing the ink resistance of the paper, is also performed at this stage before the pulp is placed on the paper-machine.

The task of the paper-machine is to combine the uniform separated single fibres, and by a process of horizontal felting and matting to shape them into the form of a sheet. The process is very simple, but the machinery is very complicated.

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There are several types of machines. the Foudrinier machine being the most widely used. The paper machine consists of the three parts known as the Foudrinier part, the "press part" and the "dryer part". In fine grade paper the pulp passes through further purification devices before it is placed on the wire. The main part of the Foudrinier machine is the broad endless belt of wire screen which is driven continuously forward. The wire is a fine mesh varying between sixty and seventy strands to the inch. The pulp, very much diluted with water, flows on the belt, and the single fibres tend to arrange themselves on the wire. forming a horizontal deposit in the shape of a sheet. In order to assist the fibres in interweaving in all directions. the wire has a slightly lateral horizontal shake. The stuff travelling on the wire is very much diluted containing almost 99% of water. It is necessary therefore to remove much of it. Various devices as brass rollers, supporting the wires, and suction boxes, placed toward the end of the wire, serve the purpose of dewatering the stuff. From the wire the material passes in the shape of a soft and tender paper-sheet to the press-part which consists of a series of press-rolls where it is further pressed and dried. From this point the sheet approaches the "dryer part" consisting of

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huge steam-heated rolls or cylinders which extract from the papersheet most of its water, leaving from 7 to 10% of it in the finished product. In finer grades of paper the product passes from here to smooth iron rolls known as calenders, which give the paper a final polish. The next home of the paper is the printing-press. - 21 -

## CHAPTER 3.

# THE RISE AND GROWTH OF THE PULP AND PAPER INDUSTRY IN CANADA.

The magnitude and importance of the paper industry in Canada warrants an independent historical study of its early rise and growth. There is a wealth of material to be collected, personal information to be gathered from contemporary people whose names are associated with the first stages of papermaking. Unfortun ately the historical aspect of the development of the industry has been neglected so far, historical material is permitted to disappear and many a valuable and interesting story of the pioneers of the industry is doomed to oblivion.

The paper industry in Canada is really a growth of the last two decades. Its originshowever go over a hundred years back. Small and insignificant were the beginnings of the industry. The establishment of the first mill in the provinces of Canada dates back to the beginning of the nineteenth century. This paper-mill is described by Mr. Joseph Bouchette, surveyor-general in Lower Canada. In describing St. Andrews, the seat of the first paper-mill, the author says;-" This village is also remarkable for possessing the first paper-mill built in the British Provinces of North America; it was commenced by a joint stock company in 1804, and in the following year business was commenced with very little prospect of success; a few years afterwards the present proprietor, James Brown, Esquire, of Montreal, took the concern upon himself and with difficulty maintained it. The principal building is about eighty feet long and is beautifully situated on a platform opposite the bridge which joins the two parts of the village and the mailroad leading to the settlement on the Ottawa." #

The circumstances leading up to the establishment of the mill are given by Mrs. Thompson in her history of the county of Argenteuil. "During the year of 1802, certain gentlemen, who were acquainted with the manufacture of paper and who had been connected with paper-mills are Newton, Upper Falls, Mass., came to Canada at the invitation of Mr. James Brown of Montreal to discuss with him the advisability of establishing a paper-mill in Canada. As these gentlemen were well acquainted with the processes

# A topographical dictorary of the Province Lower Canada. by Joseph Bouchette. London 1832. of paper-making as then existed, and as Mr. Brown had the necessary financial resources, a company was organized and a mill built."(#1)The first mill was thus a result of co-operation of Canadian capital and American craftsmanship. The company was known as the Brown Paper Mill. Another source # (2) mentions the Americans Mears, Wall and Jackson as the first paper-producers in Canada. These must probably be the American gentlemen alluded to in the previous quotation.

The second mill in Lower Canada was started in 1810 in the County of Portneuf.

The first paper-mill in Nova Scotia, known as the Acadian Paper Mill was established in 1819 at Nine Mill River, near Bedford Basin, Nova Scotia. In 1923 the owner of the mill, Anthony Holland was granted a bounty of £100 by the legislature.#(3)

Two years later(1825) Upper Canada joined the rank

# (1) J. C. Corcoran in the "Paper Industry" December 1923. # (2) Canada: Memorial Volume, 1889, P. 189. # (3) George Mullane, in "Pulp and Paper Magazine" January 1924. - 24 -

of the paper-producing provinces. The first mill in Ontario was built by James Crooks, in Crooks Hollow, at that time a great manufacturing centre for the western section of the country. The legislature of Upper Canada granted a premium of £100 for the first sheet of paper produced in this province.

At the same time another mill was built on the Banks of Don River, a few miles from Toronto. A few mills were built by the Taylor Brothers in the '40's one of which is still in existence to-day as the property of the Don Valley Paper Mills.#(1)

For many years the few mills that were established produced only coarse papers, chiefly wrapping paper.

The census of 1850-51, the oldest census available records the existence of five mills in Lower Canada and five in Upper Canada. Their size, output, capital investment are not recorded.

In 1853 James Barber built a mill in Georgetown, which is still standing on the same spot to-day as a part of the Provincial Paper Mills Ltd. The Barber Family played a prominent part in the paper industry of Canada

f(1) Handbook of the Canadian Pulp and Paper Manufacturers Association, 1920. - 25 -

Their name is also associated with the first attempts to infiroduce hydro-electric power development. The Credit River, that supplied the Barber Mill with water-power was a very unreliable source on account of its low water. In order to overcome the difficulty John R. Barber built a dam further down the river, introduced electricity and transmitted that power to the mill, It is believed that this was the first time in Canada that any electricity was distributed from water-power.#(1)The Mill was enlarged in 1858 and made rag, straw and wood paper. It consumed two and a half tons of rags a day, two hundred tons of chemicals and two thousand five hundred cords of wood per year. #(2)

The year 1857 marked the entrance of the Riordan family into the paper industry. John Riordan bought an old mill at Brantford, Ontario, and started to make wrapping paper. The undertaking however was not successful and after two years of operation abandoned.

#(1) Letter from J. F. Ellis of Barber, Ellis Ltd. to

J. H. Weldon of Provincial Mills Ltd. March 5, 1926. #(2) Memorandum of Major Grant, old resident of Georgetown. - 26 -

In 1859 the firm of Angus Logan & Co. was started. The firm at its inception had a small mill in Sherbrooke, Quebec. In 1863 they began building in Windsor Mills, and 1864 they built the first pulp mill in Canada for the conversion of wood to pulp by the soda process. #

The census for 1860-61 records only eight mills for both Lower and Upper Canada. But a notable expansion took place in the following decade, mainly due to the American Civil War, which papalyzed for a period the American industry and consequently stimulated the Canadian paper trade, and to the Confederation which opened the Maritime to the paper trade of the Upper Provinces. It is these years that brought back the Riorden family into the manufacture of paper by establishing a papermill at the old Welland Canal, Ste. Catherines, Ontario in 1863, making a ton and a half of wrapping paper a day. Four years later Riordan built a new mill, starting to produce newsprint with an output of ten tons a day. The raw materials ysed were rags and esparto-grass. The mill was for some time regarded as one of the best mills on the Continent, but owing to the expensiveness of raw materials the operation was

# Letter from Canada Paper Co. February 15, 1926.

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not profitable until the manufacture of groundwood was introduced, which happened two years later. This was the first or one of the first groundwood mills in Canada#(1) Other accounts credit Angus Logan & Co. with the establishment of the first groundwood mill in 1870 at Windsor Mills, Quebec.#(2)

The utilization of wood as a raw material revolutionized the entire paper industry. With the setting in of the wood era in the production of paper, Canada was at once marked out as one of the most potential paper producers.

The number of mill rose in 1850-71#(3) to twentyone, giving employment to over seven hundred and fifty people, producing articles of a value of \$1,071,651. A lively export trade to the United States was carried on giving a high return to the Canadian exporter.

In 1873 the firm of Angus Logan & Co. had two papermills in Windsor Mills and the business was then incorporated under the present name of Canada Paper Co. Ltd.

#(1) Memorandum from Carl Riordon of Riordon Pulp Corp. Ltd. Montreal.

#(2) Report of Dominion Bureau of Statistics. 1924.
#(3) Census of Canada.

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A groundwood mill and newsprint plant on the St. Francis River were then added. # (1)

The advance of the industry was however arrested by the severe world-wide depression that set in in 1873. The crisis swept over Canada, affected also the paper trade and resulted in many failures<sup>2</sup>. The turning point was the year 1880, and a period of uninterrupted activity and expansion has set in that lasts right up to our present time.

The census of 1880-81 records the existence of thirty-six mills, with a list of one thousand five hundred and twenty employees, with a capital investment of \$2,237.950 producing articles of a value of \$2,446,693, which means an increase of over a hundred per cent as compared with that of the last decade. It is the Census figures of this year that mention for the first time the existence of five pulp mills employing altogether sixty-eight people. The kind of pulp produced was solely groundwood.

In 1887 the sulphite process was started in Canada, brought over by Charles Riordon who spent some time in Vienna

# (1) Letter Canada Paper Co. February 15, 1926.

# (2) Canada: Memorial Volume, 1889, P. 190.

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securing from Dr. Kellner the inventor of the Sulphite Process, the right to apply his method in Canada. The first supphite pylp mill was started in 1857 at Meriton Ontario.#(1)

At the close of the century the pulp and paper industry represented already a capital investment of nearly twenty- million dollars, offering employment to over six thousand people.#(2)

The industry experienced a phenomenal growth in the last two and a half decades. Year after year new companies were formed and new plants came into existence. Capital investment, productive capacity and output were increasing at a rate of a snowball rolling down the hill. A few striking figures will convey the impression of the speed with which the industry was developing, especially in the last fifteen years.

In 1911 the census quotes the total capital invested in the pulp and paper industry in Canada at over 53.8 million dollars, the census of 1924 quotes a capital of nearly 460 nearly million dollars, an increase of EXER 900% in a period of fourteen years - a rate rapid enough even if we made due

#(1) Memorandum of Carl Riordon.

#(2) Census of Canada.

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allowance for the depreciation of the money unit. The output of pulp, sixteen years ago was 363,000 tons, that of 1924, six times as large. Production of newsprint in 1909 amounted to 150,000 tons, that of 1925, 1,522,000 tons, a tenfold increase. The census of 1911 mentions the number of 9,163 people employed in the industry, in 1924, 27,000 people are kept busy in running the pulp and paper mills, in 1913 Canada supplied less than 10% of the newsprint requirements of the United States, while at present Canada supplies nearly 44% of the total consumption of newsprint of that country.

There are several factors **s** hat brought about this remarkable expansion: in the first place the enourmously increased consumption of paper in the country to the South. It is to be remembered that the consumption of paper in the United States increased from over ninety pounds per head, in 1909 to one hundred and fifty pounds in the '20's with a tendency pointing at further consumption records. The reckless exploitation of American forests resulted in a lack of ample pulpwood resources and compelled the Americans to look more and more to Canada for their wood products. Cheap power is another essential element in the production of pulp and paper. Also in this respect Nature has been - 31 -

very generous to the Dominion, bestowing upon her encarmous potentialities, locked up in the swift streams and powerful falls of her water system. The happy combination of cheap raw materials, with inexpensive water power, backed by an industrious and thrifty population, in proximity to over one hundred million wealthy consumers did not fail to attract the necessary capital and enterprising talent.

But it is not<sup>10</sup>Nature alone that the paper industry owes its rapid growth and its present magnitude, Besides the natural factors above mentioned there are various legislative measures that have to be given due share in stimulating and quickening the process of the upbuilding of the industry. Whatever opinion one may hold as to the advisability of imposing a complete embargo on export of pulp wood at present, yet it cannot be denied that the Provincial Enactments of 1900, 1901, 1910, 1911, prohibiting the export of pulpwood, cut on Grownlands were benificial to the development of the paper industry, causing the erection of new Canadian plants and forcing some American companies to transfer their manufacturing plants over the border. #

# This subject is discussed more fully in Chapter VI, of this essay.
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Another factor of first class importance that helps to explain the phenomenal growth of the paper industry, especially that of the newsprint section is the downward revision of the tariff of the United States of 1909, 1911 and 1913, which opened to Canadians a huge growing market.# It is in those fifteen years following the Provincial restrictive measures and the tariff changes of the United States that the industry was growing by leaps and bounds.

For years the industry was confined only to the Eastern and central provinces of the Dominion, particularly of Quebec and Ontario. The Maritime Provinces, with the exception of one newsprint plant in New Brunswick, engage in the production of pulp solely.

It is during the last two decades that British Columbia has entered the field of paper production, and it was only a few months ago that the contract for the erection of the first paper plant in Manitoba was signed. With the penetration of the paper industry into the Prairie Provinces every section of the Dominion will be represented in Canada's second largest industry. #(2)

# Discussed more fully in Chapter VI. #(2) For tabular growth of the pulp and paper industry, see Appendix, Table 1.

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### CHAPTER 4.

### SURVEY OF THE PULP AND PAPER INDUSTRY OF CANADA.

"The pulp and paper industry was the most important manufacturing industry in Canada in 1924. In 1923 it displaced the flour-milling industry which had hitherto headed the list in gross value of products. The pulp and paper industry also headed the list during 1923 for salary and wage distribution, and came second with regard to capital invested and number of employees."#(1)

The importance of the industry becomes more evident when it is realized that nearly \$460,000,000 were invested in this industry. that approximately 28.000 people were steadily employed in operating the industrial establishments and that \$187,174,703 were contributed to the value of the total industrial output in 1924. It may be safely said that besides agriculture paper-making is destined to assume the

### #(1) Dominion Bureau of Statistics, Census of the Pulp and Paper Industry, 1924, Page 10.



QUEBEC	220,709,994	Dollars
ONTARIO	167,068,282	
BRITISH COLUMBIA	41,111,470	q
New Brunswick	21,127,611	4
HOVA SCOTIA	9,440,339	41

TOTAL

459,457,696 Dollars

### CAPITAL INVESTMENTS BY PROVINCE

1924

most important position in the economic make-up of the Dominion.

The industry includes two forms of industrial activity: the manufacture of pulp and that of paper. The operation in the woods with pulpwood as the product does not belong here properly, it is treated as a part of the lumber industry.

In 1924 the industry was carried on in one hundred and fifteen mills, out of which 46 were pulp-mills, 34 pulp and paper mills and 35 paper mills, distributed over Quebec, Ontario, British Columbia, Nova Scotia and New Brunswick.

### WOODPULP.

Pulp is produced in all the five provinces. The total production of pulp for 1924 was 2,465,011 tons #(1) representing the value of over \$90,000,000, a slight decrease as compared with the output for 1923, but a decided increase over the years prior to 1923. The most important kind of pulp produced is groundwood, or as it is often called, mechanical pulp, the reason being the enormous expansion of the newsprint production, which

#(1) All figures unless otherwise specified are taken from the Dominion Bureau of Statistics, Forest Products Branch. Census 1917-1924 inclusive.



Groundwood Pulp	1,427,782	Tons
Sulphite, bleached	200,764	
Sulphite, unbleached	567,271	4
Sulphate, and Soda	218,207	11
Screenings	50,777	н
Other Fibre	210	п

TOTAL 2,465,011 Tons

PULP PRODUCTION BY KINDS 1924 -

is a very heavy consumer of this particular kind of pulp. The production of groundwood pulp amounted to 57.9% of the total pulp output, sulphite pulp claimed 36.1%, leaving 11% to sulphate, soda, and other kinds of pulp.#(1)

Over 61% of the pulp produced in Canada in 1924 was made in combined pulp and paper mills for their own consumption in the manufacture of paper. Approximately 31% wase exported and the rest sold to Canadian papermaking establishments which have no pulp of their own.

It is important to note that the proportion of the pulp exported to that utilized in domestic consumption is steadily declining in favour of domestic manufacture. While in 1908- in the first year since when official figures are available - two thirds of the pulp produce left the Dominion as pulp, in 1924 only less than one third was exported as pulp, while 68.3% were worked up to the finished product in the Dominion. It is worth while remembering that there are no legal restrictions as to the exportation of pulp, and consequently this favourable change is purely and simply an economic tendency brought about by the obvious natural advantages Canada enjoys in the domain of papermaking.#(2)

- #(1) For comparative figures regarding woodpulp production since 1908 see App. table II.
- #(2) For figures regarding domestic consumption and exportation of pulp see App. table III.



GHES OWENS CO.LIMITED 1 10 LINES 1 INCH - 36 -

The actual output of pulp is a little behind the rated capapity of our pulp mills, the latter being for all kinds of pulp a little over 3,000,000 tons, while the actual output for 1924 was 2,465,011tons. The actual output of groundwood was only 74.8% of the rated capacity of the groundwood mills. The chemical pulp mills worked at 88.5% of their rated capacity. The adverse showing of the groundwood section is probably due to the fact that the pulp market does not keep pace with the notable expansion of the groundwood plants and some temporary readjustment is always necessary before the market can absorb the increased quantities of pulp.

Quebec comes first in the output of pulp, producing 47.5% of the total, followed closely by Ontario with 37.6% with British Columbia, New Brunswick and Nova Soctia behind, in order of output. Quebec also leads in the production of groundwood, (48.3%) of sulphate pulp, and soda pulp (80%) while Ontario leads in the production of bleached and unbleached sulphite pulp.#(1)

As mentioned above over two thirds of our pulp produce is manufactured in the country while the rest is exported. The principal customer of Canadian pulp is naturally the United States, purchasing in 1924 691,443 tons out of the total

#(1) For figures regarding the distribution of the industry among the provinces see table  $IV_{\bullet}$  App. - 37 -

exportable surplus of 781,983 tons, Great Britain figures with 50,000 tons, mostly mechanical pulp, and Japan importing from us 35,644 tons, mostly sulphite pulp.

The chemical pulps figure more prominently in export Out of 986,242 tons of chemical pulp produced in trade. 1924, 528,283 tons, considerably over a half of the total, were exported to other countries. while out of 1.427.782 tons of groundwood pulp only 265,083 or less than one fifth were sent abroad in the shape of pulp. The explanation lies with the tariff policy of the United States. Groundwood is being mostly manufactured into newsprint, which is admitted freely into the United States. The industry therefore enjoys a rapid expansion and is able to consume the bulk of the groundwood pulp, while the chemical pulps are mostly used in the production of finer grades paper which are barred from the United States by a high tariff wall. Owing to the restricted market for the finished product, over 50% of the chemical pulps are exported as pulp. The total value of pulp exports is over\$40,000,000 in the last four years reaching in 1925 the figure of \$47,931,905, an increase of over 7.5 million dollars over that of 1924.

The chemical pulp industry and especially the sulphite both bleached and unbleached experienced considerable

difficulties in the last few years. Scandinavian competition has been very strong. Cheap labour and underselligg threatened to undermine the market in the United States. It is however expected that with the economic recovery of most of the European countries their increased purchasing power will tend to absorb more and more of the Scandinavian surpluses slackening the pressure on the American market. Another important factor is the rise of the rayon-artificial silk industry, as a new consumer of sulphite pulp, and thought the Canadian sulphite mills with one exception are as yet unsuitable for the production for the finest of sulphite pulp used for the making of artificial silk, nevertheless it is obvious that the rise of a new wood consumer will directly or indirectly stiffen the demand for pulp and react favourably on the chemical branch of the Canadian pulp industry.#(1)

# (1) Rayon has come to be a worldwide name for artificial silk. It is a lustrous, textile fibre made by converting pure cellulose into thread-formation by means of chemical and mechanical processes. The raw material used is cotton, lately sulphite woodpulp was introduced. The use of artificial silk is rapidly increasing. Production in the United States increased from 5.8 million pounds in 1918 to 35.4 million pounds in 1923, while the total world output for 1924 is estimated at over 141 million pounds. The World Almanach. 1926. - 39 -

Quebec leads in the production as well as in the export of pulp, with Ontario close at her heel, followed by British Columbia, New Bruswick, with Nova Scotia closing the list of the Provinces. Nova Scotia is the onlyprovince that exports every pound of pulp produced. It is only recently that plans are under way to reintroduce papermaking into this province.

### PAPER.

In passing to papermaking proper the field of production narrows down to four provinces, (leaving plans under construction outside of our present consideration) Quebec, Ontario, British Columbia and New Brunswick. The bulk of the industry is situated in the two central provinces while the Pacific Province has all the requirements of a potential paperproducer through the present production is not very large.

There were thirty-five paper mills and thirty-four pulp and paper mills producing 1,718,741 tons of paper in 1924. representing a value of \$133.319.497.

About 80% of the total production is newsprint, 7.9% paperboard, over 5% of the abovementioned total tonnage consists of wrapping paper. Book and writing paper made up 3.9% of the tonnage production but because of its high average value it came second to newsprint in the scale of money value.



Quebec & }	805,594 Tons
Ontario	762,687 "
British Columbia	150,460 "
TOTAL	1,718,741 Tons

## PAPER PRODUCTION BY PROVINCE

1924



HUGHES OWENS CO.LIMITED 115 C 10 LINES 1 INCH - 40 -

All the other paper made up 2.2% of the total.

During the period 1917-1924 the tonnage production of paper has more than doubled while the money value increased from over 58 millions to over 133 millions. Book and writing paper increased by over 41% and wrapping paper by over 77%.#(1)

Newsprint forms the bulk of production in all the provinces, insome of them as high as over 90% and in none less than 75% of the total produce. Newsprint is the mainstay of the industry and it is going to remain such as long as the other kinds of paper will be shut out by a high tariff from the American market. The rapid development of the newsprint industry in Canada is a splendid illustration of the national superiority of the Canadian producer. From the moment ( year 1911) the United States abolished tariff duties on newsprint importations and profucers on both sides of the border line were placed on an equal competative footing, the American manufacturer is rapidly and steadily overcome by his Canadian competitor. This explains also why Canadian newsprint production in 1925 was 12.05% higher than in 1924, 21.61% more than 1923,

#(1) For review of paper production since 1917 see App. Table V.



Newsprint	1,388,081	Tons
Book and Writing Paper	67,934	и
Wrapping Paper	89,441	
Paper Board	135,352	n
Other Papers	38,033	41

TOTAL 1,7 18,741 Tons

PAPER PRODUCTS BY KIND 1924 - 41 -

40.8% more than in 1922, 89% more than in 1921,74% more than in 1920, while the United States mills made in 1925, only3.24% than in 1924,3.03% than in 1923,5.6% more than in 1922,24.9% more than 1921, 1.1% more than 1920.

It was generally expected that in 1925 the Canadian newsprint mills will reach the lead over the American mills. They came pretty close to it. According to the last figures Canada produced 1,522,000 tons of newsprint, while the United States production amounted to 1,530,000 tons,#(1) leaving a small difference of 8,000 tons per annum in favour of the United States. Considering, however, the new additions to the Canadian newsprint plants, it is beyond the slightest doubt that in the year 1926 Canada will be the greatest single newsprint producer on both Continents. The production figures for the three months of 1926 show already a substantial lead of Canada over the United States mills, being 429,944 tons for Canada, and 415,549 for the United States.#(2)

In othergrades of paper there has been no such expansion, because of the prohibitory tariff of the United

#(1) The Newsprint Service Bureau Monthly Bulletin, No 96-A.
#(2) Figures supplied by the Canadian Pulp and Paper Mfg.
Assn.

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States and because of the restricted home market.

To Quebec goes the first place in the rank of paper producers. Endowed by nature with vast resources and equipped with the largest water power system in the Dominion, Quebec leads in the production of pulp and paper. Out of the \$459,457,696 invested in the industry, over 220 million dollars is located within the boundaries of Quebec. Out of the total paper producing capacity of 2.242.912 tons per year, Quebec plants represent the productive capacity of 900,476 and out of a total of 1.718.741 tons of paper actually produced this province claims 805,594 and her share. Quebec is also the largest employer of labour and power within the paper industry. Out of 27,627 employees 13.532 are kept busy in Quebec mills, and of a total 797.748 H.P. 376.067 H.P. are used in this Province. Finally Quebec houses some of the biggest pulp and paper plants. Of the 115 mills reported in 1924, 49 were situated in the towns and villages of the province, some of which owe their existence to the pulp and paper establishments.

Three Rivers is becoming one of the paper centres of the Province. Here is the seat of the International

Paper Company#(1) an American concern which ope rates 24 pulp and paper mills in the United States and in Canada, with a daily output of 2000 tons of various classes of paper of which 60% is newsprint. The daily output of the Canadian plant situated at Three Rivers is 500 tons of newsprint and it is the intention of the Company to transfer the entire production of newsprint to Canada, while the United States mills will specialize in the production of those kinds of paper that enjoy the protection of the American tariff. The Company lately absorbed the properties of the Riordon Company and controls in Canada at present an area of over 9 million acres. containing a pulpwood stand, amounting to 28 million cords a stand, equal to the entire pulpwood of Nova Scotia. #(2)

Wayagamack Pulp and Paper Co. Ltd. is another large company that has its mills in Three Rivers. The firm is the largest producer of sulphate pulp and wrapping paper in the world. The daily output amounts to 260 tons of sulphate pulp and 125 tons of wrapping paper. It holds under license over 2000 square miles of timber in St. Maurice Valley. The company has entered the newsprint field in 1925 with a capacity of 150 tons per day.

#(1) This company operates in Canada as the "Canadian International ....." #(2) Details regarding location, productive capacity, and limits of the companies taken from Moody's Annual, 1925, and Financial Post, September 4, 1925. For capitalization of some of the companies see App. Table VL. - 44 -

The St. Lawrence Paper Co. with a daily output of 150 tons and the St. Maurice Paper Co. producing 275 tons per day close the list of the companies operating in Three Rivers. The latter was just recently merged with the Belgo-Canadian Co., representing now a total combined capacaty of 650 tons of newsprint per day.

Proceeding with the St. Maurice River from Three Rivers north and passing the Shawanigan Falls, the seat of the Belgo-Canadian Company we arrive at Grandmere " a perfect lattle town dropped down in the midst of the Laurentian hills." Grand-Mere is the home of the Laurentide Company operating a huge plant, with a daily output of 380 tons of newsprint, 350 tons of groundwood pulp, and 150 tons of sulphite pulp. The company controls 3100 square miles of timber and is supplied with power by the subsidiary Laurentide Power Company.

The mills of the Brompton Pulp and Paper Co. are located at East Angus. The produce of the mills includes nearly every kind of paper: 120 tons of newsprint, 30 tons of wrapping paper, 60 tons of board paper, and 110 tons of sulphite pulp, represent the daily output of the mills. The company controls 9.5 million cords of pulpwood. - 45 -

Canada Paper Co, the older companyoperating in Canade is situated at Windsor Mills, with a daily output of 45 tons of newsprint and 50 tons of groundwood.

The firm Price Brothers was originally founded in the first guarter of the XIXth century and has been in existence for over a hundred years. At present they are among the largest newsprint prodeucers in Canada. Their mills in Jonquiers and Kenogami produce 575 tons pf paper per day of which 520 tons are newsprint. In 1925 two machines with a capacity for 200 tons of newsprint were added. The company is well supplied with power and has vast timber resources at the disposal of the mills. The company's timber limits extend over 8,700 square miles, estimated to contain 45 million cords of pulpwood, sufficient to produce over 30 million of newsprint. The Domacona Paper Co. situated at Domacona produces over 200 tons of newsprint, 120 tons of groundwood and 50 tons of sulphite pulp.

St. Andrews East, the home of the first paper mill in Canada, is now the seat of the Western Quebec Paper Mills Limited, located almost on the exact site of the first paper mill. The Mills specialize in high grade paper specialties with an annual **ppoductionof 3000 tons**. - 46 -

Howard Smith Paper Mills Ltd. produce & practically all kinds of paper except newsprint. The E.B.Eddy Co. is situated in Hull, producing a very wide range of pulps and papers. Newsprint, book and wrapping and tissue papers are among the products of the company. They are also manufacturers of matches.

Ontario follows Quebec closely in the production of pulp and paper. This province leads in the production of sulphite pulp, bleached and unbleached, as well as in the manufacture of finer grades of paper, as book and writing paper, etc. Ontario produces 44.4% of the total tonnage of paper. Out of the total capital invested in the industry 36% are located in the plants of Ontario, and out of the total number of employees 35% are kept busy in the 46 pulp and paper mills of this province. The total value of the products was approximately \$60,000,000 in 1924.

The largest company operating in Ontario is the Spanish River Pulp and Paper Mills Ltd. Situtated at Espagnola, Sault Ste. Marie - the new paper centre in Ontario, and at Sturgeon Falls, provided with huge pulpwood supplies and possessing the best technical equippment, these mills produce over 700 tons of newsprint per day. The company controls 21,000 square miles of timber land, a territory equal to that of the entire province of Nova Scotia and newrly twice as much as that of the Kingdom of Belgium.

The second largest producer of newsprint of this province is the Abitibi Power and Paper Co., incorporated as such in 1914, as a successor to Abitibi Pulp and Paper Company. The newsprint mill of the company is reported to be the largest individual newsprint mill in Canada. The company ownes 6,000 acres of timber land and controls under these 2,000,000 acres. Present productive capacity is over 500 tons of newsprint per day, with plans for further expansion. The plants are situated at Iroquois Falls.

Among other producers of newsprint in this province are Fort William Paper Co. Ltd., with a daily output of 160,tôns of newsprint, Fort Frances Pulp and Paper Co., with 150 tons of daily production; the company owned by J.R.Booth with 140 tons per day, Ontario Paper Co., located at Thorold, with a daily output of 300 tons of newsprint per day, and the Keewatin Power Co. Ltd. situated at Kenora with the rate of 100 tons of newsprint per day. The combined daily output of the abovementioned seven newsprint producers is over 2000 tons per day.

The majority of the pulp and paper concerns in the Province of Ontario confine their operation to the production of various kinds of pulp and paper, other than newsprint. Interlake Tissue Mills Co. Ltd., located at Merriton, produces a wide variety of paper, to the amount of 25 to 30 tons per day. Provincial Paper Mills with plants at Georgetown, Thorold, Mille Roches and Port Arthur are producing 95 tons of book and writing paper per day. The Mattagami Pulp and Paper Company has a daily output of 150 tons of sulphite pulp, The Spruce Falls Co. Ltd., with mills located at Kapuskasing, has a production of 120 tons of sulphite pulp daily.

The third producer of pulp and paper in the Dominion is British Columbia. This province ranks second in Pulpwood resources, and third in the production of pulp and paper. In 1924 six mills were reported to be operating, yielding an output of 212,318 tons of pulp and 150,460 tons of paper. As compared with the total for the Dominion, British Columbia supplied 8.6% of the total pulp output and 8.7% of the total paper output. As high as 90.6% of the paper produce of British Columbia is newsprint. - 49 -

The obvious discrepancy between the productive potentialities in the field of pulp and paper production, and the actual, rather meagre, share in the industry is due to the geographical isolation of this province from the principal markets, and also to the topographical barriers, separating the province from the rest of the world. It is nevertheless beyond doubt that the splendid timber and water power resources of this province, and the development of the Papeific Frade will not fail to attract the necessary capital to the Province, and the very geographical distance which is considered as a handicap to the industrial development of the province, will necessitate the establishment of local manufacturing, in order to minimize the otherwise prohibitary pransportation charges.

The Maritime Provinces hardly figure in the production of paper, while the Prairie Provinces will be represented in the industry for the first time in 1926, after the completion of the first paper mill in Manitoba, at Fort Alexander.

### PAPER TRADE.

Bearing in mind the huge figures of the annual output of pulp and paper in Canada, and the rather limited domestic market, it is obvious that paper is mainly an export commodity - 50 -

In 1924 Canada exported 1,263,342 tons of paper of a total produce of 1,718,741, which means that over two thirds of the paper produce is exported, representing a value of \$99,248.497. If we add the \$40,242,972 realized from the export of pulp, the combined amount places the industry as one of the foremost exporting industries in Canada. Newsprint makes up the bulk of the exports, forming 91.7% of the total value of exported material.

The principal buyer of course is the country to the south. The steadily increasing demand for paper, coupled with just as steadily dwindling timber resources, compel the American publishers to turn more and more to Canada for their paper supplies. In 1924 the United States took 92.4% of our total exportable surplus, the United Kingdom less than 3%, Smaller amounts went to New Zealand, South Africa, Australia, New Foundland, Argentine and Japan.#(1)

It is very important to knoke the rate of growth of the Canadian industry and the growing extent of dependency of the United States on Canadian supplies. In 1913 the lead of the United States over Canada in the production of newsprint

#(1) For a review of newsprint exportation for the period of 1917-1925 incl. see App.Table VII



HES OWENS COLLIMITED 10 LINES 1 INCH - 51 -

amounted to approximately 950,000 tons, while in 1925 the difference dwindled down to 8000 tons, with a considerable lead of Canada in the first quarter of 1926.#(1) While in 1913 the United States imported from Canada to the extent of 9.9% of her total newsprint requirements, the percentage is on a continuous increase, reaching in 1925, 43.8% of the total newsprint consumption of the United States.

Besides newsprint the United States import from Canada annually, as already mentioned, 1,400,000 cords of pulpwood, and over 700,000 tons of pulp, which are equivalent to approximately 2,000,000 tons of newsprint.

The position of Canada as a principal newsprint exporter is quite assured since there is very little hope that the United States find her supplies in the European Paper producing countries. The annual surpluses of the European producers are insignificant as compared with the enormous consumption capacity of the United States: espec cially if we take into consideration the probable economic recuperation of the European paper consumers, who are likely to absorb the exportable surpluses of the European newsprint producers and accentuate the demand in the United States.

#(1) For comparative figures of newsprint production in Canada and in the United States, for the period of 1913-March 1926 incl. See app. Table VIII a few figures will prove beyond doubt the supremacy of Canada in the field of newsprint. The following is a list of the main newsprint producing countries and their approximate outputs for 1925.#(1)

> Canada 1,522,000 tons. Ħ 1,530,000 United States Ħ 560,000 Great Britain 500,000 11 Germany 210,000 11 Sweden 11 Newfoundland 210,000 17 Japan 200,000 11 190,000 Finland 11 180,000 Norway 508,400 11 Other countries 5.610.400 tons. TOTAL

Out of this total, Canada produces 1,522,000 tons, which amounts approximately to 27,1% of the total world output.

The above quoted figures represent the output of the particular countries and it is obvious that their exportable surpluses are far smaller, since they must fulfil the requirements of local consumption at first. According to the figures for 1924 Canada, United States, Sweden, Finland, Norway, Germany, Great Britain and Newfoundland exported to various countries a total of1,975,500 tons of newsprint, out of which Canada's share was 1,219,384 or

#(1) Financial Times, January 15, 1926.



United States	1,530,000 T	ons
Canada .	1,522,000	u
Great Britain	560,000	u
Germany	500,000	n
Sweden	210,000	11
Newfoundland	210,000	4
Japan	200,000	
Finland	190,000	**
Morway	180,000	
Other Countries	508,400	н
TOTAL	5,610,400	Tons

WORLD NEWSPRINT PRODUCTION (Approx.) 1925 over 61% of the total world surplus of newsprint. The United States drew from Canada to the extent of 88% of her total newsprint importations, with all probabilities that the percentage will increase in favour of Canada in the years to come.

As compared with the total export from Canada #(1) the exports of the pulp and paper industry amounted to 6.03% in 1915 rising to 14.5% of the total in 1925. The export of newsprint amounted to 2.7% in 1917, rising to 9.3% of the total in 1925.

Canada is also an importer of pulp and paper, but the importations are insignificant as compared with the export figures. The imports are largely confined to certain specialties which are not made in Canada. The total import of pulp and paper hardly exceeded the value of ten million dollars taking the Census for the last few years.

### #(1) Canada Year Book, 1924.

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### CHAPTER 5.

### PULPWOOD RESOURCES AND PULPWOOD DEPLETION.

From the discussion in the previous chapter we have seen how the pulp and paper industry rose from insignificant beginnings to the second largest industry in Canada, and how Canada achieved the rank of the largest paper exporter in the world. It is clear that this rapid development of the industry is mainly due to the vast timber resources of the country, but it is also obvious that the huge output of paper products constitutes a heavy drain on the existing supply.

For years we have been told that the forest resources of Canada are illimitable, that Nature, left alone, offsets all the losses of forest wealth. Fortunately enough this view has been discarded. It is realized already that the forests of Canada are not inexhaustible. The problem therefore arises - what are the actual forest resources of the country, what are the prospects as to the durability of the supplies, and consequently as to the permanence of the paper industry, and to what an extent the available resources can serve as a basis for further expansion. - 55 -

It is the object of this chapter to give a brief survey of the existing total and available pulpwood resources, their distribution among the provinces, and by contrasting them with the rate of total annual depletion to attempt to draw up a balance sheet of our forest economy.

In treating the problem of forest resources it is essential to bear in mind the geographical configuration of the country and a separate treatment must be accorded to each geographical region, otherwise the figures as to the extent and durability of supplies are misleading. Discussing the future of the paper industry of Quebec and Ontario, we cannot take into account the supply in the Prairie Provinces or in British Columbia, since they practically do not exist for the Central Eastern Provinces. When the resources in Quebec are depleted it will be a poor consolation for the manufacturer of this province to read about large amounts of pulpwood piled up on the other side of the Rocky Mountains. It is erroneous therefore to treat the whole union as one unit. The calculation of resources must be made along the lines of geographical division of the country.

The country may be divided into five main regions: a) Maritime Provinces, b) Quebec, c) Ontario, d) Prairie Provinces and British Columbia. In dealing with the



Quebec British Columbia Ontario Mew Brunswick Nova Scotia Alberta Saskatchewan Manitoba

131,000,000 Cords 125,000,000 11 84,500,000 \*1 26,600,000 = 20,000,000 11 26,000,000 13,600,000 9,500,000 ..

TOTAL

436,200,000 Cords

# AVAILABLE STAND of PULPWOOD

(Balgam, Spruce and Hemlock) IN CANADA

- 56 -

pulpwood resources the discussion will be confined to the three leading pulpwood species; - balsam, spruce and hemlock, since they form the pulk of raw material for the pulp and paper plants.(96.6% in 1924.#(1) )

The total stand of pulpwood (balsam, spruce and hemlock) of the Maritime Provinces #(2) leaving Prince Albert Island outside of consideration, is estimated at 62,490,000 cords, out of which only 46.6million are available at present, the remainder being inexessible, or undersized, or sparsely situated, which makes it short of commercial exploitation. Nova Scotia has about 20,000,000 cords #(3) leaving for New Bruswick 26.6 million cords, #(4). In both Provinces the coastline is stripped of woods, the bulk of the timber being situated in the interior of the country.

It is indeed alarming to what a large extent the timber areas were alienated from the Crown in these two Provinces. The easy access by sea is probably responsible for the rate of alienation. Out of a total forest area of 14,750 square miles in Nova Scotia, only 1,195 square miles remained with the Crown, while the area of 12,301 square miles or 83.4% of the total has been alienated in fee simple. #(5) Consequently

#(5) Ibidem P. 15.

<sup>#(1)</sup> Census of Dominion Bureau of Statistics, 1924.
#(2) For a tabular classification of the timber resources by kinds and provinces, see App. Table IX.

<sup>#(3)</sup> Report of the Royal Commission on Pulpwood, Canada 1924, Page 14.
#(4) Ibidem P. 28.

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86% of Nova Scotia's potential pulpwood stand is under private control, while the percentage of available pulpwood in private ownership is undoubtedly still higher.

The situation is somewhat better in New Bruswick where only 49.7% #(1) of the forest area has passed out entirely from Provincial control, and alienated in fee simple. This area contains half of the pulpwood stand of the Province with a still greater percentage of the at present available pulpwood stand.

The total annual consumption of spruce and balsam in these two provinces is expected to reach the figure of 1.6 million cords, 500,000 for Nova Scotia, #(2) and 1.1 million for New Bruswick. #(3) It seems that a simple mathematical division would determine the period of duration of supplies. But this method is too simple to be true. Two other important factors come into consideration. The annual losses caused by fire, diseases and fungi which swell the rate of depletion on one hand, and the annual increment by natural growth on the other hand. As to the annual increment no exact figures are available. The official documents do not contain any estimate as to the rate of reproduction. Mr. Elwood Wilson, chief forester of the Laurentide Co. Ltd. placed the rate of reproduction at 1.22% per annum. Raphael Zon and

#(1) Ibidem Page 29. #(2) Ibidem "23. #(3) Ibidem "33.

William Sparhawk, forest economists of the United States. estimated the rate of growth for Quebec at 1.02%, while the rate fof the total stand of Canada is estimated as ranging between 1.1% and .088% per annum.#(1) The Royal Commission on Pulpwood accepted the arbitrary rate of 1% for the Maritimes, which is borne out by the foregoing estmates of experienced foresters.  $\frac{\pi}{\pi}(2)$  Having a total stand of over 62 million cords, and with a rate of increment of 1%, the Maritime provinces are being enriched by 620,000 cords of pulpwood per annum. The annual utilization of the pulpwood species as given above amounts to 1.6 million cords, a figure nearly three times as large as the annual increment. In other words, the pulpwood species in the Maritime Provinces are consumed at a rate exceeding nearly three times the annual forest-income, let alone the tremendous losses resulting from fires, insects, epidemics, etc. In New Brunswick alone, the budworm was devouring the timber for a period of ten years at a rate of at least one million cords per year.#(3) Fortunately enough the budworm epidemic has subsided, but there are still very heavy losses caused by fire, etc. and unless more adequate protective measures are adopted, they will continue to exceed the annual increment, leaving the annual cut as a net loss to the pulpwood

#(1) Ibidem Page 65. #(2) Ibidem "25. #(3) Ibidem "38.
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stock. Acting on the assumption that fire-losses will be offset by the natural increment, a division of the available stand of 46.6 million cords by the annual cut of 1.6 million cords, gives us the period of duration extending over 29 years. Taking spruce alone the period is still shorter.

It will be seen from the foregoing that the situation in the Maritime Provinces is very grave, that the industry lives above the forest income, that the cutting alone is nearly three times as large as the annual increment, and that a complete elimination of losses resulting from fire, and other damaging factors, and an actual increase in the timber grown, are imperative if the present industry is to continue its operations on the present scale in the years to come.

The situation in Quebec is less alarming - though grave enough to warrant immediate attention. Quebec is the largest province in size of her forest area, as well as in the amount of her pulpwood supplies. The total forest areais 516, 822 square miles, which is 75% of the total land area, but only 203,125 square miles are considered as merchantable and arcessible.#(1) This area carries a pulpwood stand (balsam, spruce and hemlock) of over 282 million cords, of which only 131 million cords are available under present conditions, which however does not exclude the commercial usefulness of the remainder for some future period of additional transportation facilities. Very little

#(1) Ibidem Page 39.

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merchantable material is left in the St. Lawrence Valley. The main commercial forest is located north of the Valley, on the Laurentian Plateau.

The status of ownership of pulpwood resources of this Province offers quite a different picture from that of the Maritime Provinces. Out of the total forest area only 6.6% has been alienated from the Crown, 13.9% are licensed and leased, and it is these lands that contain the bulk of the available pulpwood supplies, 79.5% of the total area is under full and exclusive control of the Province. Of the 131 million cords of available spruce, balsam and hemlock only twenty and a quarter million cords passed out from the hands of the Grown, leaving the rest subject to the regulation measures of the Provincial Government, #(1) which is of great significance fow the development of the industry in this Province.

The amount of pulpwood consumed annually in the manufacture of pulpwood and lumber for domestic use and for export trade is around three million cords. #(2)Dividing the available stand of 131 million by the amount consumed, the industry can be supplied for 43 or 44 years. Taking the same rate of reproduction as applied to the

#(1) Ibidem Page 41. #(2) Ibidem "45. Maritime Provinces, the annual increment amounts to 2.82 million cords, which is a little short of the amount of annual **utilization**, leaving the losses caused by factors other than commercial utilization as a net diminution of the forest stock. It is necessary to point out that these losses are very heavy, three and four times as large as the annual cut.#(1)

The foremost task of the Province is therefore to introduce a most efficient system of protection and to reduce fire and other losses to the lowest possible minimum, while the annual increment by natural growth will nearly compensate the annual cut. With the adoption of reafforrestation measures, a normal expansion of the industry would be possible.

A situation similar to that prevails in Ontario, This Province, though second in the production of pulp and paper, ranks third in the extent of pulpwood resources. The forests cover 65.6% of the total area, byt 31% of the total forest area is classified as commercially exploitable under present conditions. #(2) The Ontario Peninsula is largely cleared, the main woods being located north to the Great Lakes. The total stands of the three pulpwood species is 131 million cords of which 84.5 million are available at

#(1) Ibidem Page 50. #(2) Ibidem "51. - 62 -

present. 76.4% of the forest area is kept by the Province, 20.2% was disposed under the license system, as in Quebec this is the area that contains the bulk of available pulpwood. Though it has been handed over to private concerns, the Province nevertheless exercises control as to the cutting and manufacturing requirements. Only 3.4% of the forest area has passed out into private hands with a pulpwood stand of 13.75 million cords, all of which is of course accessible.#(1)

The annual consumption of the pulpwood species is given by the Royal Commission, as 1.2 million cords per annum, but due to the considerable increase in the exports of pulpwood and domestic consumption in the last two years in this Province, the annual cut is approaching the figure of 1.7 million cords for the requirements of the pulpwood pulp and paper industry alone #2)Adding the amount consumed for other purposes the consumption of the pulpwood species may be estimated as reaching the figure over 1.8 million This has to be drawn from theavailable stand of cords. 84.5 million cords, which divided by the amount annually cut gives us a period 46 years. The annual increment, taking 131 million cords as the total stand, and applying the 1% rate of increment, thexannaix amounts to 1.3 million cords as compared to the annual cut of 1.8 million cords. #(l) Ibidem Page 52. Census of Dominion Bureau of Statistics, 1924, P. 47. #(2)

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Assuming that fire and other wasteful losses could be totally eliminated, there is still a balance left between the annual cut, and annual increment by natural growth, which represents a net diminution of the forest capital. The main problem lies therefore not only in the elimination of the parasitic consumers, but also in a curtailment in consumption, or in a policy of reaforestation which would wipe out the discrepancy between consumption and growth.

The total pulpwood stand of the Prairie Provinces (Manitoba, Saskatchewan and Alberta) amounts to 135 million cords, #(1) out of which only 49 million are available under the present conditions. The pulpwood stand of these Brovinces are only of local importance since it is not likely that it will ever pay commercially to supply the milhs located in the East with prairie pulpwood. About 87% of the forest resources are under the full control of the Dominion, an average of 2% has been disposed of under the system of licence. leaving over 10% which has passed out entirely into private hands. The annual consumption in the three Provinces is estimated as 600,000 cords which fixes the supply for 81 But again the heavy losses caused by fire and diseases years. and the annual increment by jatural growth complicates the calculation considerably. Applying the same rate of reproduction as to the other Provinces we see that the annual cut

 $\ddot{\pi}(1)$  Report of the Royal Commission on Pulpwood, 1924.

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is compensated by the natural increment and the main problem lies in protection against fire and other wastes.

British Columbia is the only Province in a fortunate position of maintaining nearly a close balance between the annual natural increment and the forest depletion including the aggregate of all losses and the amount of annual utilization.

This Province ranks second in forest wealth. The total forest area is 149,334 square miles, a territory seven times as large as the entire area of Nova Scotia. Only one fifth of the forest area is estimated as merchantable and accessible, this sharp deduction being due to the peculiar topographic features of the Province, which excludes vast tracts of otherwise merchantable timber from commercial exploitation. With a further penetration of railway lines thousands of square miles now useless will be put under commercial operation.

The total stand of spruce, balsam and hemlock is estimated as over 263,000,000 cords.#(1) After deducting the inexcessible and unmerchantable timber the still impressive figure of 125,000,000 cords remains, an amount second only to the resources of Quebec. Unfortunately the British Columbia Pulpwood resources are of no practical  $\frac{1}{7}(1)$  Ibidem Page 13. - 65 -

consequence to the main paper producing centres of the East. The Crown holds90% of the forest area#(1). 8% has been disposed of under the license system and 2% alienated in fee simple. It is further estimated that 92% of the merchantable timber is subject to Provincial regulations, and export restrictions.

The annual cut in British Columbia was estimated to 639,500 cords out of an available stand of 125 million cords, #(2) which by a simple mathematical division gives us a period of 195 years maintaining the present scale of exploitation. Though there are very serious losses caused by fire and diseases, yet they are offset by the annual increment. The problem that confronts the Province is to curtail the wastage and to expand her forest industries maintaining a balance between forest exploitation and forest income, bearing in mind the perpetuation of the wood supplies.

Summing up the situation in the Dominion as a whole it is interesting to note that the gravity of the pulpwood situation is increasing in the direction from East to West, from the Atlantic to the Pacific. The situation is at its gavest in Nova Scotia and New Brunswick. The pulpwood stand is dwindling there at a rate spelling exhaustion in two or three decades . A considerable curtailment in cutting, a

#(1) Ibidem Page 72. #(2) Ibidem " 86. complete system of protection against losses and an intensive reaforestation campaign are absolutely essential in order to avoid the disaster of forest exhaustion.

The situation is somewhat alleviated when we proceed westward to the central provinces. Quebec and Ontario, though they conduct their present forest - economy in excess to the annual income at the expense of their wood, nevertheless after having stamped out the fire losses, etc. and with a slight effort of reaforestation, commercial exploitation could be carried on at the present level with an annual cut nearly compensated by the natural increment.

The picture becomes brighter in the Prairie Provinces, where the main task is to intensify the protective measures, while the annual increment not only cover the requirements of the industry but allows room for further expansion.

Finally, British Columbia offters the most optimistic balance-sheet of her forest economy. The splendid resources and excellent reproduction conditions call fora continuous expansion of the lumber, and pulp and paper industry. The present output could be considerably increased without impairing the volume of wood capital, provided an

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effective system of protection is introduced.

In closing the discussion on the forest situation for the Dominion as a whole, the report of the Commission states, "For Canada as a whole, it may be forcibly stated that the continuance of forest production on the present scale, to say nothing of the increasing the output, is absolutely contingent upon very material reduction in the amount of losses annually suffered from fires, insects, and decay."#(1) Raphael Zon and Sparhawk arrive at a similar conclusion in their review of the forest situation in Canada. "The total annual net growth on the forests of the Dominion of Canada can not be greater than  $2\frac{1}{2}$  or more likely two billion cubic feet," while " the annual cut of all classes of forest products has been estimated at  $2\frac{1}{2}$ billion cubic feet.

" It has been estimated that the total loss from fire or other causes might possibly reach 2,500,000,000 cubic feet per annum. This together with the total cut of  $2\frac{1}{2}$  billion ubic feet would represent a drain upon the forests, amounting to 5 billion cubic feet.

"When the drain upon the forests is compared with the estimated increment of 2 or  $2\frac{1}{2}$  billion cubic feet, it would seem that depletion is from 2 to  $2\frac{1}{2}$  times greater

#(1) Ibidem Page 117.

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than growth."#(1)

Assuming however that the losses due to fire and other waste factors are eliminated, the annual cut could be fairly well met by the natural growth. The answer, therefore, to the problem for the whole of Canada is "Save the forests from fire and decay."

#(1) Raphael Zon and William Sparhawk "Forest Resources of the World", 1923, Page 504. - 69 -

## CHAPTER VI.

## LEGISLATION.

The pulp and paper industry of Canada may be cited as an example of how legislation, based on a thorough understanding of economic possibilities can be instrumental in the industrial development of a country. Economic factors are always the prime cause in the establishment of a successful industry, legislative regulation is just of a subsidiary character. It stimulates the process where development is justified by economic conditions, it quickens the rate of growth, where growth is economically possible. In the case of Canada it is abundant wood, low cost power, cheap transportation, the neighbourhood of over 115 millions of wealthy consumers, that are responsible for the success of the industry, but it is the legislative enactments. decreeing that the bulk of pulpwood must be manufactured into pulp and paper in the Dominion, instead of being exported as timber that accelarated the rate of growth of the industry.

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The existing restrictive regulations concerning the exportation of pulpwood are of provincial origin,#(1) and are applicable only to timber cut from Crown lands, but since Crown lands form about 80% of the total forest area the restrictive enactments, though limited inoperation, are nevertheless effective, covering the bulk of the available raw material.

Of the total available stands of spruce, balsam and hemlock amounting to 436.2 middion cords, 361.25 million or almost 83% are subject to manufacturing restrictions of the respective government authorities, and only 7419 million or  $\frac{\pi}{2}$ 17% are free for export. This, however, does not mean that all timber cut from private lands, with export privileges is actually exported. As the situation is now, without federal legislation, prover 4/5 of the available pulpwood is already preserved exclusively for the use of the home industry.

#(1) In the original provinces, Quebec, Ontario, the Maritime Provinces and British Columbia, and since January 1926 in Alberta, the natural resources, including Crown lands, are owned and controlled by the provincial authorities. The natural resources in Manitoba, Saskatchewan, the Railway belt, and Peace River district in British Columbia, are under federal jurisdiction.  $\frac{1}{2}(2)$  Report Royal Commission on Pulpwood, 1924, Page 94. - 71 -

The reasons that led the provinces to adopt the restrictive measures are obvious. For years and years Canada has been exporting pulpwood to feed the American paper mills, situated across the border. Since 1908 over 18 million cords of pulpwood have been exported from Canada. In 1908 over 63% of the total annual cut of pulpwood have been sent over to the United States in an unmanufactured state. The American mills having stripped their limits of pulpwood, turned to Canada for their supplies and consequently became a heavy drain on Canadian forest. Millions of cords of timber were leaving the countrywithout the compensating benefits accrued from home-manufacture.

It is therefore natural that the thought must have occurred to limit the export of raw material and to build up an industry within the Dominion, partly by attracting new capital to the industry, and partly by compelling the manufacturers of the United States, who were depending on Canadian raw material to transfer their plants over the Border, to enlarge the volume of employment in the country, and to give the country the full benefits connected with industrial development as increase of population, higher standard of living, etc. - 72 -

The first province to pass restrictive legislation The following clause was passed in 1900, #(1)was Ontario. "Every license or permit conferring authority to cut spruce or other soft wood trees. or timber. not being pine. suitable for manufacturing pulp and paper on the ungranted lands of the Crown, or to cut such timber reserved to the Crown, on lands leased or otherwise disposed of by the Crown. which shall be issued on or after the 30th day of April, 1900. shall contain and be subject to the condition that all such timber, cut under the authority or permission of such license or permit - shall - except or hereinafter provided be manufactured in Canada - it is to say into merchantable pulp and paper or into sawn lumber, woodenware, utensils, or other articles of commerce and merchandise as distinguished from the said spruce or other timber in its raw or unmanufactured state."

The restrictive policy of Ontario was followed by Quebec, by adapting an Act authorizing the Lieutenant-Governor in Council to issue regulations as to the conditions of cutting of timber on Crown lands.#(2) In 1910 the following Order in Council was issued#(3) "All timber cut #(1) Revised Statutes of Ontario, 1914, Section 29,Sch.B. #(2) Revised Statutes of Quebec, 1925, Chapt.44, Act 68. #(3) Statutes of Quebec, 1910, Ord. in Council No. 291, Section 13. on Crown lands after the first of May, 1910, must be manufactured in Canada, that is to say, converted into pulp or paper, deals or boards, or into any other merchandise of which such timber is only the raw material. The following shall not be considered as manufactured within the meaning of the present regulation. Timber simply cut into length, piled, or otherwise worked preliminary to the manufacture, deals or boards, or any other article of commerce, not waney nor board timber, nor timber in the form of poles: but timber completely squared and railway-ties are considered as manufactured."

In New Brunswick the regulations also require that soft wood timber cut from Crown lands must be manufactured into pulp before being exported. Legislations in this province dates back to 1911.#(1)

British Columbia has similar restrictions, with the provision that timber which cannot be manufactured wthin the province is exempt from the above regulation and is allowed for export.#(2) Moreover British Columbia goes a little bit further by applying certain restrictions to export of timber coming from certain private lands, subjecting such timber to the payment of a manufacturing tax

#(1) New Brunswick Acts, Chapt. 10, George V, 1911. #(2) R. S. British Columbia, 1924, Chapt.93, Cl. 86-91. - 74 -

This tax however is almost entirely rebatted if the timber is manufactured in the Province.#(1)

It is strange to note that Nova Scotia is the only Province where there are no restrictions applied to Crown lands, with the exception of one large lease in Cape Breton Island, where the timber must be peeled or rossed before it is exported.  $\frac{\pi}{\pi}(2)$  The reason is probably due to the fact that the bulk of pulpwood resources over 86% is privately owned, and any provincial measure would be so limited in its scope, that its effect would be negligible.

Similar regulations prevail also in the Prairie Provinces, issued by the Dominion Government.#(3)

The effect of these enactments were very beneficial to the growth of the industry. The rapid rate of growth in the last fifteen years following the legislative regulations was discussed in the previous chapters. The proportion of exported pulpwood to that consumed in homemanufacture, is steadily declining in favour of domestic consumption. While in 1908, as shown above, the proportion was 63.6% of exported pulpwood, to 36.4% consumed in domestic

<sup>#(1)</sup> R. S. British Columbia,1924, Chapt. 93, Cl. 58. #(2) Report of Royal Commission on Pulpwood, Page 15. #(3) Statutes of Canada, 1917, Page CLVII, ord. in Council, December 20th, 1916.

plants, the proportion is now quite reverse - 71.4% of the total pulpwood production is converted into pulp or paper in the Dominion. while only 28.6% is exported unmanufactured. Similar proportion holds true for the previous two years, which shows that the downward tendency in relation of pulpwood exports to pulpwood consumption has signs of permanence. In 1908 482.772 cords of pulpwood were used in Canadian pulp mills #(1) the amount rising prog ressively in the following years until it exceeded the three million mark in 1923, reaching 3,316,951 in 1924. while the export figure for 1908 was 842,308 cords, reaching 1924, 1,330,250 cords of pulpwood. In other words, while home consumption of pulpwood increased 586% in the period of 1908-24, the export of pulpwood increased only 58%, while the total production of pulpwood increased by 251% over the same period. #(2)

It is a rather difficult matter to determine to what an extent the recent growth of the industry is due to Legislation. Besides manufacture-regulations there were other causes favouring the growth of the paper industry in Canada. The Great War, the general industrial expansion, and commercial activity that followed the outbreak of war and the spread

#(1) Census of the Dominion Bureau of Statistics, 1924. #(2) For comparative figures of pulpwood production, consumption and export in 1908-1924, see App. TableX.



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of newspapers, and the growth of commercial advertising#(1)stimulated the Canadian Paper trade. It may even be argued that the industry would have come to Canada on the strength of economic factors solely. It is a natural tendency of an industry to be located in the proximity of the raw material it uses, aspecially where the raw material is bulky. and the cost of transportation is a serious factor in the price of the finished product. But it is also clear that may a company, planning the establishment of a new plant, or additions to the existing plants, was prompted by the existing clauses to locate them within the Dominion. However, our economic life is so complicated and interdependent, and the success of an industry is bound up withm so many interreacting factors that it is arbitrary to assign percentages of credit to the various causes involved.

The clause preventing the export of unmanufactured goods does not however prohibit the export of unmanufactured wood cut from private land. From the figures given above, it will be seen that the export figures of unmanufactured wood, although reduced relatively, have risen absolutely and are well overa million cords in the last ten years reaching the amount of **1**,423,509 cords in 1925. The prohibition of export

#(1) The close connection between newspaper advertising and newsprint production is shown by the fact that advertising in the United States increased by 86.6% in the period of 1914-1925, while newsprint consumption increased by 88.7% in the same period. The Newsprint Service Bureau, Bulletin No. 96-A. 77

of Crown timber limited the source of supply considerably and consequently accentuated the demand for timber cut from privately owned lands, which are exploited now at the rate far in accesss of their natural yield.

Since the Provincial enactments failed to prevent the exploitation of pulpwood. it is now proposed to secure the intervention of the federal authorities by enacting restrictive legislation applied to all pulpwood, irrespective of origin or ownership.

The movement for federal legislation is now new. As early as in 1897 this problem was brought up in the House of Commons.#(1) In 1907-8 the subject was hotly debated in  $Parliament_{#(2)}$ The Press took an active part, disseminating views for and against federal restriction. The provincial enactmentsmay be partly attributed to the restrictionist sentiment aroused by the discussions of that time.

In 1923 the Minister of Finance moved the following resolution#(3) :"That it is expedient to amend Section 7 of the export act, Chapter 50 of the Revised Statutes. 1906. as enacted by Chapter 30, of the Statutes of 1914, by providing that the Governor in Council may by regulation prohibit the exportation from Canadaof pulpwood, the variety.

<sup>#(</sup>l) See Hansard Debates, 1897, under "Pulpwood".

<sup>#(2)</sup> 

Ibidem under "Pulpwood". IBidem 1923, Page 4354, Amendment passed and enacted Statutes of Canada, 1923, Chapt. 46. #(3)

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kind, place of originor having the particulars of identification or ownership, or production, described in the regulations." In order to inform the government as to the pulpwood situation the Royal Commission was appointed, with instructions to make an exhaustive inquiry into the pulpwood situation in Canada, with a view to establish the pros and cons of federal restrictive legislation. The Commission examined the interested parties, gathered much of valuable information, concerning the forest resources, consumption, and depletion of timber, and helped to crystallize the main arguments of the two contesting views, federal intervention or Status Quo.

The parties favouring federal interference proposed an embargo on all unmanufactured pulpwood or the use of an export tax, the proceeds of which - if any - to be used for conservation measures, and failing both foregoing, to use the embargo proposal negotiations with the Government of the United States, for gaining tariff reductions for paper products other than newsprint. These three suggestions are given in order of preference.

The people favouring an embargo put forward two arguments, the argument for conservation, and the industrial

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argument of stimulating home-manufacture. With reference to the first<sup>35</sup> line of argument is, "that the rate of forest depletion is now dangerously high, in the sense of involving i\_mminent and certain peril of a grave handicap to the Canadian Pulp and Paper industry and a marked increase of advantage to its competitors, not in a hundred years from now, not in fifty years from now, but in ten or fifteen years or even less. Second, that the rate of depletion cannot effectively be reduced by any action that can economically be taken by the lessees of Canadian pulpwood lands.... from that it follows without further argument that the stoppage must originate in government action by the provincial or federal authorities, or by both...." #(1)

In discussing the various causes of forest depletion and suggesting methods of conservation such as protection against fire, insects and diseases, and classification of land, the pro-embargoists point at the exportation of pulpwood as a very serious drain on our forest resources. A system of conservation would be incomplete without stopping this leakage of raw material. A federal embargo on pulpwoodruns to conclusion - would cause a drop in the annual cut, diminishing the demand by approximately a million and a half cords per year.

#(1) Report of Royal Commission, on pulpwood, P.243.

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The other argument is that of encouraging the domestic industry. The United States import 23% of her pulpwood requirements. (1) With the supply cut off to that extent, a corresponding number of mill will ultimately be compelled to establish themselves on this side of the border, in order to go on with the operations. The experience derived from the provincial restrictions is used to prove the validity of such expectations. The timber kept in the Dominion by an embargo - until manufactured into pulp or paper, and then exported - it is argued - would bring about into this country a capital investment of 150 million dollars. It would give employement to 8,250 operatives, earning over eleven million dollars in wages, running 53 mills, and producing nearly a million tons of newsprint, representing a value of about seventy million dollars, while if exported as pulpwood it represents a value of about fifteen million dollars.

There is an obvious contradiction between the conservation argument and that of industrial expansion, the latter cancelling out the elements of conservation. Either the embargo will resul in cutting off the demand and help to conserve the stand of pulpwood, at a rate of 1.4 million cords per year, or it will cause the erection of new mills, stimulate the domestic demand for pulpwood, and keep up the present rate of cutting, without any conserving at all.

This contradiction is, however, met by the argument that first, it will take some time before new mills will be establish #1. Department of Connerce, Mashington, D.C. Taking the averag of pulpwood importations into U.S. for 1921-24, the percentage was 21. - 81 -

and for the fime at least actual conserving wouldd take place and secondly, in so far as new plants would come in they inthemselves represent a very important conserving factor. The opinion is advanced that while pulpwood operators simply mine their forests, have no considerable investments and consequently no permanent interest in the forest, the pulp and paper manufacturer, having invested millions in the erection and equipment of a plant, feels that his fortune is bound up with the conservation of the forest area under his control, and with the permanence of This argument is rather weakened by the fact supplies. which was bourne outby the evidence submitted to the Royal Commission, #(1) that American companies, operating their mills in the United States, but drawing supplies from their possessions in Canada, have a strong interest in conservation, since the profitableness of their investments are bound up with the permanence of the supplies, to the same extent as in the case of the Canadian manufacturer. Also the private owners of pulpwood areas who are not engaged in the manufacture of pulp and paper, but in the production and sale of pulpwood, can be expected to have the interestat of conservation at heart, since after all, it is the timber that gives value to their possessions, and out of pure commercial selfish calculation, they should wish to see their resources extended for as a long a period as possible.

#(1) Report of Royal Commission, Page 221.

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The embargo as a conservation method is further attacked on account of its limited scope of operation, and its negligible effectiveness as a real conservation measure. The existing restrictions of exportation of Grown Timber cover 80-85% of the pulpwood stand of the four Eastern Provinces of Canada. A federal embargo of private lands would therefore cover only fifteen percent of the available stand. Out of the 15% at least one third is owned by Canadian pulp and paper companies #(1)which consume their wood in home manufacture. This leaves us 10% as a maximum which could ever be exported, and a conservation measure that reaches only such an insignificant amounts of timber would fail its purpose.

The opponents of an embargo who advanced the above calculation are rather minimizing the share of exported pulpwood in the total amount of annual utilization. It is true that only 15% of the total pulpwood stand are in private hands, but the amount of timber cut from these lands is proportionally greater than that from Crown land, and that the amount annually exported forms 28% of the total cut and not 15%. And it is the annual cut for export that is important for the present consideration.

But even so, the opponents of the embargo do not see in it a measure of conservation. Conservation does not

#(1) Royal Commission on Pulpwood, P. 283.

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mean "hoarding", prohibition of cutting, it rather means wise cutting, elimination of waste, of parasitic consumers of wood, protection against fire; and since the losses caused by these factors are severalfold in excess of the amount annually cut both for home consumption as well as for export purposes, to them must we turn in search for an effective method of conservation.

By prohibiting the export of pulpwood, or impogsing an export tax, it is expected to cause the American manufacturers to transfer their plants into Canada. If such expectations are to come true there is much to be said in favour of this measure. It is quite obvicus that to turn **s** cord of pulpwood into a roll of paper in Canada, instead of exporting it as pulpwood, means so many people employed and remunerated, so many more consumers. But the point of contention is, will an embargo or an export tax bring about all these results its protagonists would like to see accomplished?

This brings us to another question. Does Canada really control the supply of pulpwood, in other words, is there no other source wherefrom the mills of the United States could draw their supplies but from Canada? Could this be established then an embargo might be a step in the right direction. - 84 -

Where a demand is keen and urgent, and such is the demand of the United States for paper products, and where the party supplying raw material enjoys monopoly conditions, and possesses all the facilities for home-manufacture, then the result of an embargo would be a stimulus to the home industry, and an increase in the output of the finished product. Instead of 1.4 million cords of pulpwood exported over the border to be converted into paper there, the process of conversion would be transferred to Canada.

The same reason<sup>in</sup> applies to the second alternative, That of imposing an export tax. If the same is intended to act as deterring exportation of raw material, the tax is to be made high enough to be prohibited and must approach practically an imbargo. If, however, the tax is meant to serve as a revenue-producing measure, the same is justified only when the burden can be shifted on the foreign buyer. In both cases a monopoly condition is essential to the working of such a measure.#(1)

#(1) The economic history of England offers a classical example of the working of an export tax under monopoly conditions. In XIIIth to XVIth century, England enjoyed practically a monopoly in the supply of wool. The adjoining manufacturing countries obtained nearly if not the whole supply of their raw material from England. An export tax under such conditions worked wonders. The articke bore a tax of over 100% without depressing prices at home, or calling another producer into the market. And every penny of it was shifted on the foreigner. Ashley: Edonomic History Page 191. Rogers: Economic and Commercial History, P. 9 and 395. - 85 -

But it is rather doubtful whether Canada enjoys a monolopy in the supply of pulpwood. The United States depend on Canadian pulpwood only to the extent of a fraction of their pulpwood requirements, while 3/4 or 4/5 of their pulpwood are drawn from domestic resources. The total stand of soft-wood timber of the United States is estimated at 1,755 billion board feet, #(1) while the stand of Canadian soft-wood is given at 892 billion board feet #(2) a little over a half of that of the United States. R. S. Kelloggin summarizing the discussion on the pulpwood resources of the North American Continent says:" Of the species which are most largely used for pulp at the present time, there may be the equivalent of 2000 million cords in North America."#(3) If we deduct from that amount the total of the most widely used species of pulpwood in Canada (875, 594, 000 cords) #(4) we get a stand of approximately 1,100 million cords for the United States. an amount larger than that of Canada, with a smaller proportion of inaccessible timber as that compared with the Canadian stand.

<sup>#(1)</sup> Raphael Zon and W. Sparhawk: op. cit.

<sup>#(2)</sup> Raphael Zon and W. Sparhawk: op. cit.

<sup>#(3)</sup> R. S. Kellogg op. cit. Page 165.

<sup>#(4)</sup> Report of Royal Commission on Pulpwood, 1924, Page 13.

William N. Sparhawk. in discussing the timber problem of the United States says: "We have nearly three hundred million acres of soft-wood, forest land, capable of producing enough timber, every year, to meet our present requirements, if even moderately well-cared for, and if intensively managed - a considerable surplus. Abour 100 million acres are still virgin forest. diminishing every At least 75 million acres of this area is now year. denuded by lumbering and fires, with no effort being made to grow timber crops upon it, and the remainder of some hundred and twenty-five million acres is more or less restocked by accidents with younger timber. It seems hardly likely that our forest can ever fail to supply sufficient soft-wood timber of the smaller sizes. such as are satisfactory for making pulp, box-boards. mine-timber, posts and similar products."#(1)The United States still possesses ample resources in the Western States. Also Alaska is sometimes alluded to as a source of pulpwood. In this connection Zon says: "There(in Alaska") will remain approximately 100 million cords of timber suitable for the manufacture of newsprint, and other grades of paper on the two national forest which will probably sustain a permanent yearly cut of two million cords of pulpwood." #(2)

#(1) Wm. N. Sparhawk, in "American Forestry", October 1923.
#(2) R. Zon, and W. Sparkawk, op. cit. Page 557.
In this connection it is to be noted that Canada supplies only 1.4 million cords of pulpwood.

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There is no doubt that the section of the American industry, especially the newsprint section would be placed in a difficult position. The alarm caused by the American manufacturers and by the public opinion in view of pending legislation. proves their dependence on Canadian source. As early as in 1907, a representative of the American Paper Association wrote as follows: "As to our need of Canadian wood, it would be extremely injudicious to make any public admission thereof. and we therefore ask that you treat what we say on this point strictly confidential. Suffice it to say that we are desirous above all things to keep open this source of aupply for such portion of our pulpwood as it is practicable and desirable to obtain from Canada, both in the interests of conserving our own forests, and of securing our raw material at the lowest possible cost.#(1) President Roosevelt in his message in 1907 said, "We are out of pulpwood." And aprotest filed with Senator Borah. Chairman of the Foreign Relation Committee, says:"It (embargo) will have the effect not only of crippling the pulpwood industry in the United States, but also of giving the Canadian manufacturers the control of our paper markets and thereby increasing the cost of every user of the printed word in the United States. Under

#(1) Report of Congressional Committee on Pulp, 1907, P.2015.

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the mask of forest conservation Canadian manufacturers are trying to force the Dominion Government to stop the exportation of pulpwood. According to official statistics of the Canadians themselves, the maximum amount of pulpwood which could possibly be exported now or in the future bears no relationship to a forest conservation policy. Yet the quantity now imported into the United States is sufficiently important for an embargo to temporarily cripple the American industry, curtail the output from our own factories and send prices soaring. That is what the Canadians seek to accomplish. They are trying to force the American operators to move their mills into Canada, where the wood would be transformed into pulp for the paper mills here. That much accomplished. the next step would be to embargo pulp, thus forcing Americans to make their paper in the Dominion territory and under the domination of the Canadian paper industry." #(1)

These quotations, though somewhat exaggerated for the sake of emphasis, indicate, however, the difficulties in which the American producer would find himself in case of an embargo. But it is the degree of the seriousness, the acuteness of the difficulty, that is in doubt. Will it watrant an immediate closing down of the American factories

#(1) Quoted from the Canadian Annual Review, 1928, P.721.

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and thus raise the Canadian output? With reference to this. the statement of the Canadian P. & P. Mfgs. Assn. says:" The American Mills which are now kept in operation by the use of Canadian pulpwood are for the most part old and of an obsolete character, which an extremely high operating cost. They are in any event being gradually abandoned or converted to other uses, as their share of the output is taken over by the newer mills; but this process is slow and will last for many years. The stoppage of their supply of Canadian wood would contribute to their finish; and since the American paper market must have the constantly increasing supply of pulp, it is fair to assume that they would be immediately replaced by new mills, of the most modern type, erected at the best available sites in Canada."#(1) To this the American paper manufacturers reply in their memorandum to the same Commission."In considering the question of whether the United States manufacturers would move their mills to Canada it must be borne in mind that the manufacturers who, it is thought, would move their mills have already made very large investments in mills, waterpowers, timber limits. and equipment in the United States. It is safe to assume that those manufacturers have in all probability expended

#(1) Report of the Royal Commission, 1924, Page 258.

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as much money for equipping and building their mills and their water powers as it would cost them to do the same in Canada. The moving of their mills to Canada would therefore either involve the scrapping of their large investments in the United States or duplicating a part or all of them in Canada.... A mill in this condition, not being permitted to use its Canadian limit, would use its present limits in the United States and acquire other limits in the United States, which supplemented by the amount of pulp now imported from Canada and from Scandinavian Countries would have sufficient waw material for an indefinite time or in any event for a sufficiently long time to make other arrangements to allow it to use its investments already made."#(1)

In reference to the stand of pulpwood available in the United States the memorandum says further:" The United States Department of Agriculture is now making a survey on behalf of the pulp interest of the United States, which indicates large pulpwood reserves in Alaska, in the States of the Pacific Coast, in the Rockies, and in the Southern States. These reserves have hardly been touched due to the fact that the industry has been concentrated. The preliminary survey indicates that there is sufficient

#(1) Ibidem P. 273.

raw material in the United States by the additional use of hardwood, by new pulping processes and the proper fire protection, careful cutting, reforestation, greater use of waste-paper, co-opdination with lumber industries, utilization of lumber-waste, and the elimination of waste in manufacture, to not only take care of the present requirements of the industry, but to take care of any probable increase." #(1)

A similar statement is found in the memorandum of the Canadian Pulp and Paper Mfgs. Assn. Discussing the alarming protest by the United States as to the crippling of their industry by the proposed embargo, the statement said:" Incidentally it may be pointed out that the United States is perfectly capable of sypplying its own pulpwood requirements from its own territory, when Alaska is included, and that nothing but the lower price of Canadian wood prevents the exploitation of the Alaskan forest."

Though it is very difficult to predict the result of adopting restrictive proposals, it is however reasonable to assume that the American manufacturer, who is drawing his supplies from Canada, will be in a position for a time at least to manage with domestic sources. It is quite

#(1) Ibidem.

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probable that ultimately he will be forced out of production as far as newsprint is concerned, and either move his plant to Canada, or to turn out those kinds of paper that are protected by the tariff, in both cases again to the Canadian newsprint industry. The immediate result however will be aloss of the export market for that portion of pulpwood that now finds its way into the United States, a loss to the pulpwood operator, timberland owners and to about 25 to 50 tousand settlers and farmer,#(1)<sup>in</sup>whose family budgets the proceeds from the sale of pulpwood form a considerable item.

#(1) Ibidem P. 535. #(2) Quoted from the Canadian Annual Review, 1923, P.80. - 9**3 -**

Common sense dictates that with limiting the number of buyers - supply remaining equal - the price of pulpwood will drop considerably. In this connection the commission says, "The commission however is fully convinced that in many cases there has been a tendency on the part of the manufacturers, to pay wood cutters the minimum price which would purchase the material.... We feel that in cases where Canadian operators have been able to control the pulpwood prices, there has been a strong temptation to reduce pulpwood prices to the minimum.#(1)

Besides, the farmers claim that in some districts the American market is the only one they had access to, and while the scattered woodlots do not justify the erection of a mill. "Under present conditions at least much of wood exported is from areas or districts where mills are not within easy reach, and in some regions there is at least some doubt that the general wood supplies and other contributing factors would justify the erection of mills. In addition to wood supplies there are to be considered the question of power and other economic factors." $\frac{\pi}{\pi}(2)$ 

Another objection refers to the export of poplar, which is used in Canada only to a very limited extent

#(1) Report of Royal Commission on Pulpwood, P. 223. #(2) " " P. 221.
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(2000 cords per year) and the American market is the only market. The export of poplar in the United States amounted in 1924 to over 150,000 cords. $\frac{\pi}{\pi}(1)$  From the point of view of conservation there is no need in preventing its export, since the species is very prominent in Canada. Here again, granting even, that the American manufacturer of soda pulp for the production of which poplar is used, deprived of this source of supply will move to Canada, the immediate result however would be a loss to the cutters of poplar, without any equivalent.

Followers of List may advance the argument of sacrificing the present gain in anticipating a multiple future reward, an argument which contains an amount of truth and is applicable to the problem at present considered. The loss of a few dollars to the farmers and to other exporters may in time increase the number of industrial workers, employ more capital, thus benefitting the whole country. But the question that offers itself is:why ahould a certain class bear the whole immediate burden of such a measure? Granted that an embargo is beneficial to the interests of the country, the country as a whole has to contribute to the measure undertaken. If the welfare of a country requires the expropriation of cer tain lands for the building of a railway-line, although

#(1) Department of Commerce, Washington D.C.

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it is obvious that this is for the benefit of the country, and of a direct benefit to the inhabitants of that particular district, nevertheless the landowners are compensated from public funds, and the tax-paying public as a whole pays for the measure in the expectation of future benefits.

The government recognizing the hardship that would hit the farmers and settlers engaged in pulpwood cutting. pledged itself to exempt the timber coming from farmers' and settlers' lands, from export restrictions. #(1) Since however the farmers' timber amounts to approximately 60 or 70% #(2) of the total export. an embargo would reach only 500,000 cords of which 150,000 cords, are poplar that is not utilized in Canada. Moreover, the demand for pulpwood remaining the same, the result from such an exemption would be a corresponding increase in the rate of cutting from farmers' lands and the same amount of timber would be exported, only of changed ownership. Besides the unjust discrimination between farmer and woodland owner and the difficulties involved in the classificiation of respective owners, such a half-hearted measure would only secenterate the period of exhaustion of the timber grown on farmers' lands. Added to this the exemption for pulpwood delivery of contracts that have been entered into before June 15th, 1923, as provided in Order in Council, of August 14th, 1923. - and the whole embargo is disembargoed.

#(1) Mackenzie King, House of Commons, 1923.(Hansard 4514) #(2) Report of Royal Commission, Page 102. - 96 -

If again the farmers and settlers are not exempt, real hardhip will be inflicted on those classes especially on the latter. Settlers usually depend on the revenue derived from the sale of timber, especially during the pioneering years. The elimination of the American buyer decreases the attractions offered to the prospective settler and may consequently act as retarding the settlement of the as yet uncultivated districts of the country. Apart from exemption, other measures are suggested to remedy the evil, i.e. government regulation of prices, But the difficulty involved in such a scheme renders it impossible. What would be the criterion for fixing the price? How can the government enforce the fixed price? The loss of supplying demand usually override every attempt of price fixing from above. It may be suggested, that the organization of the farmers and settlers and collective marketing may secure to them a fair price. But the scattered distribution of these people makes it impossible to achieve. Besides, such a step might be answered by the manufacturers with a scheme of collective purchasing. Most of the paper companies have their own limits and can draw upon them for years, while the farmer and settler cannot wait with their sales. Conditions being unequal, the play of economic forces would ultimately bring

down the price at the expense of the weaker party.

Exemption, price-fixing and collective marketing being impracticable, the solution would seem to lie in an immediate widening out of domestic market for pulpwood, cut from private lands, as a compensation for the loss of the American market. This was probably meant by the statement contained in the report submitted to the Convention of the Canadian Pulp and Paper Manufacturers Association in 1925; "Granted that the interests of the settlers and other private ownersof pulpwood are involved to some extent in the problem of how to best deal with our diminishing wood supply, I submit that it ought not to be very difficult for the government acting in co-operation with our industry to devise ways and means whereby exportation may be reduced to a minimum, or stopped entirely without sacrificing their interests. We cannot of course expect to take away their present market without providing another equally as good or better." #(1)

There is already a considerable home market for pulpwood coming from private lands. The amount of wood purchased in the home market is well over 30% of the total domestic consumption.#(2) The annual cut from<sup>th</sup>Companies'

#(1) Report of the Mechanical Section of Canadian Pulp and Paper Assn. 1925. #(2) Census Dominion Bureau of Statistics, 1924.

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limits amounted to over 2 million cords per annum during the last few years. To provide a market for **b.4** million cords of pulpwood at present exported it would be necessary that the companies reduce the cut from their own limits to the extent of at least 60-70% of the present rate of cutting. The problem of the enforcement of such a measure is complicated by the fact that some of the limits of the companies are privately owned, and some are Crown lands, held under While the intervention of the government authorities lease. might enforce this measure as applied to Crown lands, it is only voluntary co-operation of the companies that could secure the success of this scheme as applied to private holdings. But then it is doubtful whether the companies will conceive to a measure that restricts the utilization of their own resources. necessitates their buying wood from farmers, settlers and pulpwood operators, and exposes their own resources to the risks of fire and other damages.

The constitutionality of an embargo must also be considered. In the Dominion of Canada the jurisdiction × over property and civil right are reserved to the **P**rovinces exclusively#(1) The right of selling one's own property is certainly an integral part of civil rights, and any

#(1) Br. North America Act, Sect. 92, Cl. 13.

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infringement by the federal government would be challenged as ultra vires. As Premier Taschereau said: "No matter what government there is in Ottawa there is one thing that this province has wanted and will always want, and that is its provincial autonomy. Has the federal government the right to say to an individual in Quebec 'We prohibit you from sending your wood away ?'. The federal government has a right to put on an export tax and may even make it prohibitive. That is a matter of trade and commerce, but has it a right to prohibit owners of wood from selling their property where they wish?"]) A similar sentiment was voiced by the now ex-premier of Hova Scotia. In a letter to the commission on pulpwood he says:"With respect to the general application in this province (Nova Scotia) of an embargo on the export of pulpwood, I am convinced that the varying local conditions in each province illustrate and forcibly emphasize the desirability of preserving intact provincial jurisdiction in dealing with property and civil right." #(2)

This difficulty however could be remedied by the imposition of a prohibitive export tax and its effect equal to that of an embargo. Regulation of trade and commerce is distinctly reserved to the federal authorities.#(3)

 $\ddot{\pi}(1)$  Quoted from the Canadian Annual Review, 1923, P.80.  $\ddot{\pi}(2)$  Report Royal Commission on Pulwood, 1924, Page 292.  $\ddot{\pi}(3)$  B. N.A. Act Section 91, Cl. 2. - 100 -

The possibility of retaliation on the part of the United States is also brought up as an objection to a restrictionist policy of the Canadian Government. The Tariff Act of the United States #(1) authorizes the president of the United States to impose an additional duty on printing paper coming from a "country, dependency, province, or other sub-division of government," which restricts in any way "whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly" the export of printing paper, woodpulp, or pulpwood. But this refers to printing paper which is mostly barred from the American market already. Assuming then that the United States president decides to take retaliatory action, such a measure would not effect the paper-trade to a great extent.

It may also be argued that the United States will answer an embargo by withdrawing newsprint and woodpulp from the free list, imposing a heavy duty, thus crippling the Canadian newsprint industry, which wholly depends on the American market. But it is hardly possible that the United States will take such a course of action. In granting free admission of newsprint, the United States was motivated first of all by the interests of her own consuming population.

#(1) United States Import Duty Tariff Act, 1922, Item 1301.

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It was not a matter of international courtesy. There are no favours in economic relations. The reluctance with which the United States opened her door to Canadian pulp and newsprint proves that there was a continuous pressure of some interests that clamored for such a tariff revision. It was the pressure of the newspaper publisher that caused the tariff reduction in 1909. #(1) The same reasons led to the provisional inclusion of newsprint and pulpwood in the free list in the reciprocity agreement of  $1911_{\bullet}#(2)$ Although the act was rejected by Canada in the same year, and the other clauses of the act never became law, the clause referring to woodpulp and newsprint remained on the statutes. Attempts #(3) of the United States to use the condition attached to the tariff clause on pulp and newsprint. as a weapon against the provincial restrictions were not successful. Finally in 1913

<sup>#(1)</sup> Paine Aldrich Tariff, 1909.

 $<sup>\</sup>pi(2)$  Canadian Hansard, 1918011 Page 2466.

<sup>#(3) &</sup>quot;Provided that such paper and board, valued at  $4\phi$  per pound, or less, and woodpulp being the products of Canada, when imported therefrom, directly into the United States, shall be admitted from of duty, on the condition precedent that no export duty, export license fee or other export charge of any kind, whatsoever ... or any prohibition or restriction in any way of the exportation... shall have been imposed upon such paper, board or woodpulp, or the wood used in the manufacture of such paper, board of woodpulp, or the woodpulp used in the manufacture of such paper or board..." Reciprocity Agreement, 1911.

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the two commodities were put on the free list, accompanied by no "provided"#(1). It is therefore highly improbable that any government of the United States will ever succeed in stopping the source of supply which is essential to the publishing industry of that country. If the provincial restrictions after fifteen years of existence did not cause the removal of newsprint from the free list (on the contrary, it was put on the free list during the provincial restriction) it is reasonable to conclude that an embargo will not cause a change in the tariff policy of the United States.

It was also suggested that the United States may impose a retaliatory embargo on coal, exports to Canada, but the coal and transportation interests in the United States are too powerful to allow any government to interfere with their profitable trade.

There is the third proposal: To use the embargo in negotiations with the United States for free admittance of other paper products. As Premier Taschereau said at the last convention of the Canadian Pulp and Paper Manufacturers Association:" If Americans object to an embargo on pulpwood from private lands, the way to prevent such a embargo is to give free entry to all paper antering the United States from Canada."

#(1) United States Tariff Act, 1913.

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This measure is crowned with success would prove a great stimulus to the paper industry of this country. The rapid strides made by the newsprint industry may give us an idea of the extent of expansion awaiting the other branches of the paper industry, in case of their gaining a free entry into the United States. Of course this is not a conservation measure, but from the point of view of the industrial argument it may even be considered of superior value as compared with the industrial benefits to be derived from the first two proposals, (embargo or export tax). Moreover, it has the distinct advantage of leaving the interests of the farmers, settlers and other pulpwood exporters intact.

But here again the same question arises. Does Canada control the pulpwood market to the extent of shaping the clauses of the United States tariff?

To conclude - an embargo as a conservation measure will cover only 17% of the total available stand of pulpwood, and about 28% of the present annual pulpwood cut. To the same extent that the embargo will conserve, it will also deprive the present pulpwood exporters of their market. In order to compensate the injured parties, the aid of the industrial argument was enlisted. By admitting the reasonableness of the industrial argument, we cancel out the elements of conservation. The industrial argument is - 104 -

convincing only, if Canada's controlling position in the pulpwood market is assured. From the authorities quoted this however, appears to be doubtful. Canada undoubtedly enjoys certain natural advantages over the United States, especially in the newsprint field. Since industries usually follow resources - the newsprint industry is bound to come to Canada anyway. The stationary character of the American newsprint industry and the uninterrupted growth of the Canadian industry proves the validity of such expectations. Practically all additions to the newsprint plant equipment in the last few years took place in Canada . The industry of Canada is taking care of any increase in newsprint consumption already. The cutting off of the supply of pulpwood to some American newsprint plants may quicken the rate of this natural cause. but at the immediate expense of the people, who are now engaged in the export of pulpwood. This evil can be partially remedied by enforcing restrictions on cutting of pulpwood from Crown lands, thus widening out the domestic market for pulpwood coming from private lands. This, however, will involve considerable harships on the companyes drawing their supplies from Crown lands, and may prove a handicap to the industry.

APPENDIX.

## TABLE I

# PULP AND PAPER INDUSTRY, 1870-1924.

Year	Mills	Capital	Employees	Wages
1870 1880 1890 1900 1910 1915 1915 1917 1918 1919 1920 1921 1922 1922	21 36 58 53 72 80 83 94 99 100 100 100 104 110	610,400 2,237,950 6,574,121 19,066,319 53,886,933 133,736,803 186,787,405 241,344,704 275,767,364 347,553,333 379,812,751 381,006,324 417,611,678	760 1,520 2,757 6,236 9,766 15,308 22,965 25,863 26,647 31,298 24,619 25,830 29,234	197,815 444,756 948,401 2,370,885 5,058,007 10,464,399 20,358,019 26,974,225 32,264,208 45,253,893 34,199,090 32,918,955 38,918,955
1924	115	459,457,696	27,627	37,649,528

# Census of Canada, 1870-1911.

Dominion Bureau of Statistics, 1915-1924.

## TABLE II

## REVIEW OF PULP PRODUCTION, 1908 to 1924.

<u>Year</u> . 1908 1909 1910 1911 1912	Total Quanti 363,079tc 445,408 474,604 496,833 582,632	production.#1 ty Value ms \$ #2 - -	Mechanica Quantity 278.570to 325,609 370,195 362,321 499,226	al Pulp Value ons \$ #2	Chemical Quantity 84,509t 119,799 104,409 134,512 183,406	Tibre. Value. ons \$ #
19138 1914 19151,0 19161,3 19171,4	854,624 934,700 074,805 296,084 464,308	- - 65,515,335	600,216 644,924 743,776 827,258 923,731	- - 25,918,811	254,408 289,776 331,029 468,826 540,423	- - 38,374,191
19181,	557,193	64,356,173	879,510	19,112,727	677,683	45,243,466
19191,	716,089	73,320,278	990,902	23,316,828	725,187	50,003,450
19201,	960,102	141,552,862	L,090,114	49,890,337	848,528	90,053,999
19211,	549,082	78,338,278	931,560	32,313,848	612,467	45,929,692
19222,	150,251	84,947,598	L,241,185	31,079,429	897,533	53,615,692
1923 2,4	475 <b>,904</b>	99,073,203 ]	L,419,547	<b>37,5</b> 87,379 <sub>3</sub>	012,092	60,674,518
1924 2,4	465,011	90,323,972 ]	L,427,782	36,165,901	986,242	53,333,823

 $\hat{\pi}(1)$  These totals include some unspecified pulp and screenings.  $\pi(2)$  No values available 1908 to 1916.

# TABLE III

# REVIEW OF CONSUMPTION AND EXPORTATION OF PULP. 1908 to 1924.

Year.	Home Consumption	Percent of total production	Exportation	Percent of total production
1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1922	123,274 tons 164,664 " 328,977 " 259,514 " 348,100 " 556,455 " 509,817 " 810,635 " 952,505 " 973,282 " 1006,960 " 1140,117 " 1021,860 " 1331,994 " 1600,546 "	P.C. 34.0 37.0 30.7 47.8 49.0 65.1 54.5 66.1 56.9 65.0 62.5 58.7 58.2 66.0 61.9 64.6	239,805 tons 280,744 " 145,627 " 237,319 " 334,532 " 298,169 " 424,883 " 364,170 " 558,899 " 511,803 " <b>5</b> 83,911 " 709,129 " 819,985 " 527,222 " 818,257 "" 875,358 "	P.C. 66.0 63.0 69.3 52.2 51.0 34.9 45.5 33.9 43.1 35.0 37.5 41.3 41.8 34.0 38.1 35.4
1924 1924	1075,026 "	00.0	101,909 "	31.7

## TABLE IV.

### DISTIBUTION OF THE PULP AND PAPER INDUSTRY AMONG THE PROVINCES IN 1924.

	Canada.	Nova Scotia	New Bruns.
Number of Mills No.	. 115	9	5
Pulp Mills "	46	9	4
Pulp and paper-mills"	34	-	1
Paper Mills"	35	-	-
Capital Invested\$	459,457,696	9,440,339	21,127,611
Total EmployeesNo	27,627	426	1,241
Salaries & Wages \$	37,649,528	216,025	1,479,152
Fuel Used\$	12,530,825	9 494	934,837
Power EmployedH.P.	797,748	18,215	19,582
Pulp-making materials	50,798,958	322,747	3,483,622
Pulp-mill products\$	90,323,972	830,633	6 867 619
Paper-making materials\$	64,498,062	<b>-</b>	
Paper-mill products	133,395,673	-	÷, f

Number of Mills No.	Quebec 40	<u>Ontario</u>	British Col.
	49	46	6
Pulp Mills	19	12	2
Pulp and paper-mills "	15	16	2
Paper Mills "	15	18	2
Capital Invested 👙	220,709,994	167,068,282	<b>41.</b> 111.470
Total EmployeesNo	13,532	9.874	2,554
Salaries and Wages 💱 👘	17,504,431	14,232,005	4 217 915
Fuel Used \$	5.819.145	4 866 917	
Power EmployedH.P.	376.067	317 853	500,452
Pulp-making materials	23 627 450		00,031
Puln-mill products	AA 000 217	19,000,070	3,558,761
	44,090,210	31,622,586	6,912,921
Pulp-making materials.	31,181,078	29,879,297	3,637,687
Pulp-mill Products	62,523,583	59,904,883	10 967 207

# Quebec and New Brunswick combined.

# <u>TABLE V</u>.

<u>Year</u>	<u>Newspri</u>	nt Paper B	ook and	Writing	Wrappir	ng Paper.
			paper	•		
	Quantit	y <u>Value</u> २	uantity tons	Value	Quantity tons	Value.
1917	689,847	38,868,084	48,141	9,310,138	50,360	5,646,750
1918	734 783	46,230,814	48,150	10,732,807	61,180	7,341,372
191 <b>9</b>	794,567	54,427,879	58,228	12,571,000	59,697	7,979,418
1920	875,696	80,865,271	73,196	21,868,807	77,292	12,161,303
1921	805,114	78,784,598	53 <b>,5</b> 30	12,550,520	) 52,898	6,634,211
1922 1923	1081,364 1251,541	75,971,327 93,213,340	64,808 76,789	12,560,504 13,582,135	81,793 84,912	8,219,841 7,666,174
<b>1924</b> 1925	1388,081	100,276,903	67,934	12,605,623	89,441	8,027,918
1925	1522,000	100, 210, 000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	12,000,000	· · · • • • • • •	0,001,010

	Paper	boards	Other paper	specified Products.	Total P	aper.
	Quantity tons	y <u>Value</u>	Quantity tons	Value	Quantity tons	<u>Value</u>
1917	54,080	3,543,164	11,261	1,382,205	853,689	58855258
1918	87,749	5,551,409	35,862	5,267,142	967,724	73123544
1919	137,678	8,892,046	40,065	3,882,500	1,090,235	87752843
1920	158,041	12,904,662	30,726	4,222,724	1,214,951	132022767
1921	89,120	6,225,948	18,285	2,358,658	1,018,947	106553935
1922	113,200	7,000,081	25,650	2,508,235	1,366,815	106260078
1923	130,582	8,480,233	45, <b>4</b> 79	5,042,488	1,589,303	127984370
1924	135,252	8,228,760	38,033	4,180,293	1,718,741	133319497

## TABLE VI.

## CAPITALIZATION OF THE PULP AND PAPER COMPANIES IN ALPHABETICAL ORDER.

## <u>STOCK</u>.

Name Pr	referred	Common	Bonded Debt
Abitibi Power & Paper Co. \$	1,000,000	\$5,000,000 represented by 250,000	10,321,900
Brompton Pulp and PaperCo.	2,000,000	\$7,000,000 rep. by	4,847,900
Claremont Paper Co.	250,000	140,000 sh.no par value	
Howard Smith Co. Larentide Co. Capit	1,500,000 tal Stock	3,693,700 28,800,000	4,481,000
Provincial Paper Mills Price Bros. St. Lawrence Paper Co.	1,700,000 7,000,000 2,500,000	3,500,000 42,683,700 50,000 sh.	1,425,000 10,000,000
Spanish River P.&P.Co. Wayagamack P.&P.Mills Whalen Pulp & Paper Co.	8,619,500 Capital 2 2,102,500	no par wal. 9,447,000 Stock 5,000,000 8,000,000 del	2,500,000 11,496,526 4,425,500 3,050,000 Dent.3,202,000

Moody's Annual, 1925.

#### TABLE VII.

REVIEW	OF	NEWSPRINT	EXPORTATION.	1917	to	1924.
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	Year.	<u>Quantity</u> exported tons	Total Value \$	Per cent of total Production, <u>p.c</u> .
1917		596,187	32,561,020	86.4
1918		636.533	37,301,269	86.6
1919		708,429	49,811,362	89.2
1920		761,944	72,920,225	87.0
1921		709,241	69,786,317	88.1
1922		959,514	68,362,817	88.7
1923		1,137,962 .	85,611,258	91.0
1924		1,219,384	90,990,711	87.8
1925		1,401,654	98,945,337	92.0

Dominion Bureau of Statistics.

### TABLE VIII

### PRODUCTION OF NEWSPRINT IN UNITED STATES AND CANADA.

Year	U:S.Production	<u>Canadian</u> Production.	Imports from CAnada into U.S.	Imports from other count- ries into U.S.
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926	1,305,000 1,313,000 1,239,000 1,315,000 1,359,000 1,359,000 1,260,000 1,375,000 1,512,000 1,512,000 1,225,000 1,448,000 1,485,000 1,481,000 1,530,000 415,549	350,000 415,000 489,000 608,000 689,847 739,783 794,567 875,696 805,114 1,081,364 1,251,541 1,388,081 1,522,000 429,944	146,733 274,842 329,314 438,212 490,520 581,014 624,479 678,733 656,703 896,311 1,108,465 1,195,615 1,295,325	746 3,560 3,468 534 2,284 15,256 3,255 51,136 135,805 132,957 200,378 153,023 152,594

#(1) Figures for the first three months of 1926, only.

Dominion Bureau of Statistics, Ottawa.

Department of Commerce, Washington, D.C.

# TABLE IX.

# PULPWOOD RESOURCES IN CANADA.

Province.	Total St of pulpy	cand vood	Total S Spruce,	tand B <b>al</b> -	<u>Availab</u> Spruce,	le Bal-	<u>Unalie</u> :	nated.
	cord	15.	sam, Hem	TOCK	sam, Hen	TOCK		
Nova Scotia New Brunswic Quebec Ontario Manitoba Saskatchewar Alberta British Col TOTAL	29,900 k37,672 345,150 207,850 71,850 155,550 275,000 275,058 418,030	000 646 000 000 000 000 000 000 646	29,300 33,190 282,435 131,640 23,150 32,450 80,000 263,429 875,594		20,000 26,600 131,000 84,500 9,500 13,600 26,000 125,000		322 537 146,920 118,986 65,125 143,330 261,347 126,500 863,668	000 600 700 090 000 000 000 390

Province.	Leased or Licensed.	Privately Owned.
Nova Scotia	3,946,000	25,632,000
New Brunswick	18,027,000	19,108,046
Quebec	118,000,000	20,230,000
Ontario	75,110,000	13 753 300
Manitoba	3m671.373	2 453 538
Saskatchewan	7 070 000	5,150,000
Alberta	7 277 000	6.376.000
British Columbia	149,029,000	19,529,000
TOTAL	442,103,373	112,231,883

Royal Commission on Pulpwood.

# TABLE X

REVIEW OF PULPWOOD PRODUCTION, DOMESTIC CONSUMPTION & EXPORTATION, 1908 to 1924

Year	Total production of pulp-wood		Used in Canadian pulpmills		Exported Unmanufactured	
	Quantity	Average value per cord	Quantity	p.c.of total prod.	Quantity	p.c.of total prod.
	cords	\$	cords	p.c.	cords	p.c.
1908	1.325.085	5.84	482,777	36.4	842.308	63.6
1909	1.557.753	5.98	622.129	39.9	935.624	60.1
1910	1.541.628	6.35	598,487	38.8	943.141	61.2
1911	1.520.227	6.37	672.288	44.2	847,939	55.8
1912	1.846.910	6.46	866.042	46.8	980.868	53.2
1913	2.144.064	6.67	1.109.034	51.7	1.035.030	48.3
1914	2,196,884	6.72	1.224.376	55.7	972.508	44.3
1915	2.355.550	6.61	1.405.836	59.7	949.714	40.3
1916	2.833.119	7.05	1.764.912	62.3	1.067.207	37.7
1917	3,122,179	8.56	2.104.334	67.4	1.017.845	32.6
1918	3,560,280	10.64	2.210.744	62.1	1.349.536	37.9
1919	3,498,981	11.99	2.428.706	69.4	1.070.275	30.6
1920	4.024.826	15.22	2.777.422	69.0	1.247.404	31.0
1921	3.273.131	16.16	2,180.578	66.6	1.092.553	33.4
1922	3,923,940	12.93	2,912,608	74.2	1.011.332	25.8
1923	4,654,663	14.42	3.270.433	70.3	1,384,230	29.7
1924	4.647.201	12.43	3,316,951	71.4	1,330,250	28.6

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