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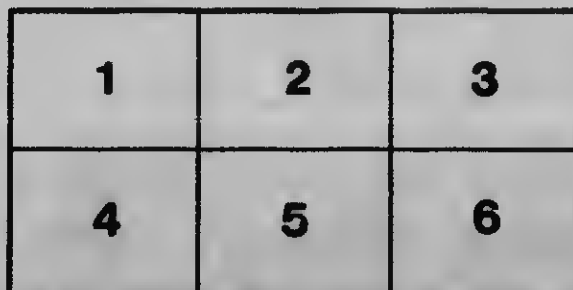
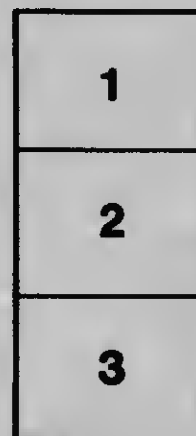
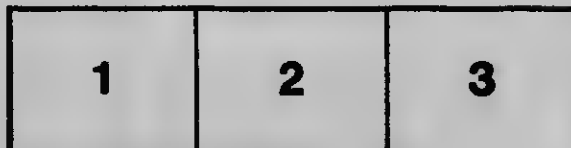
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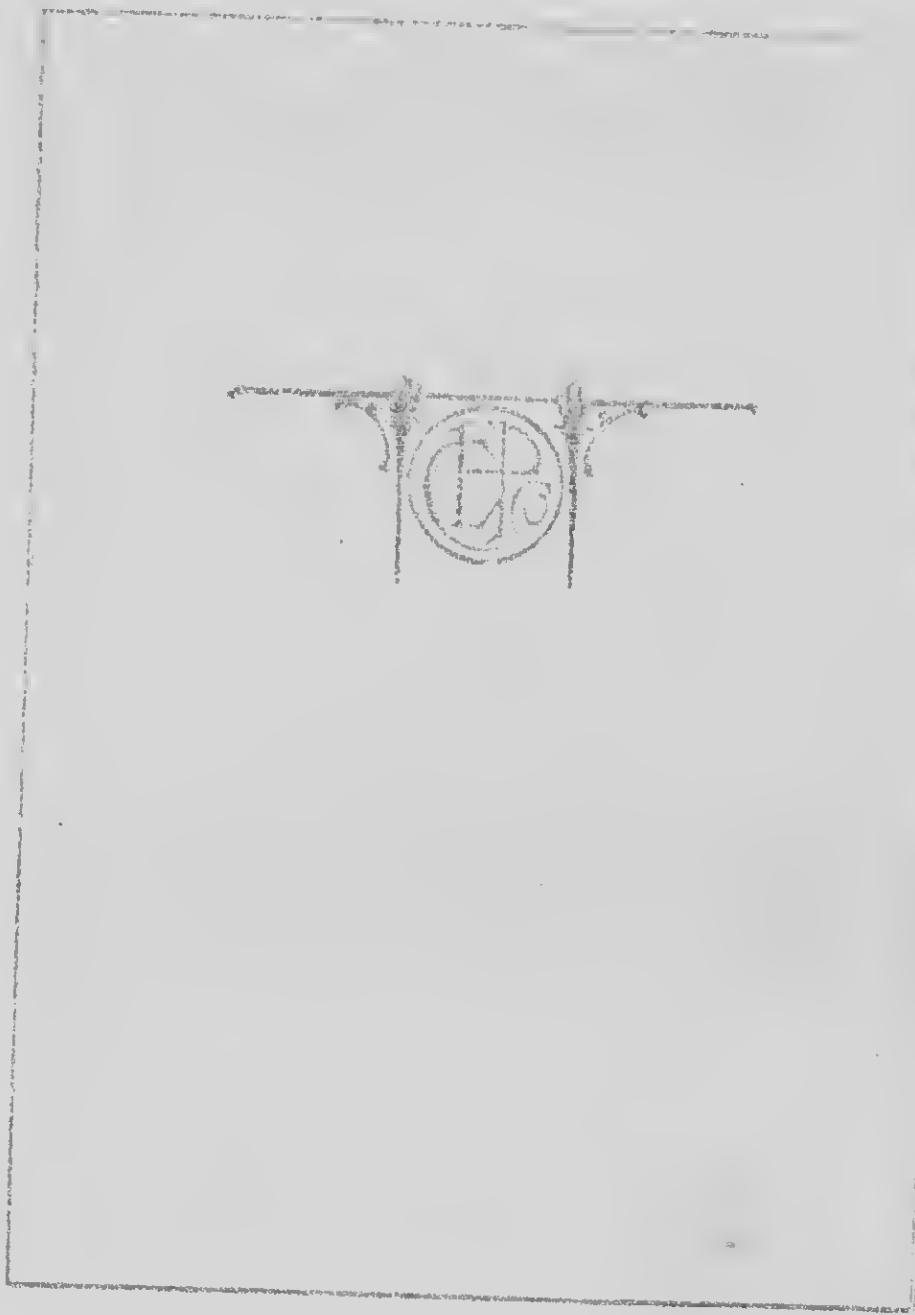
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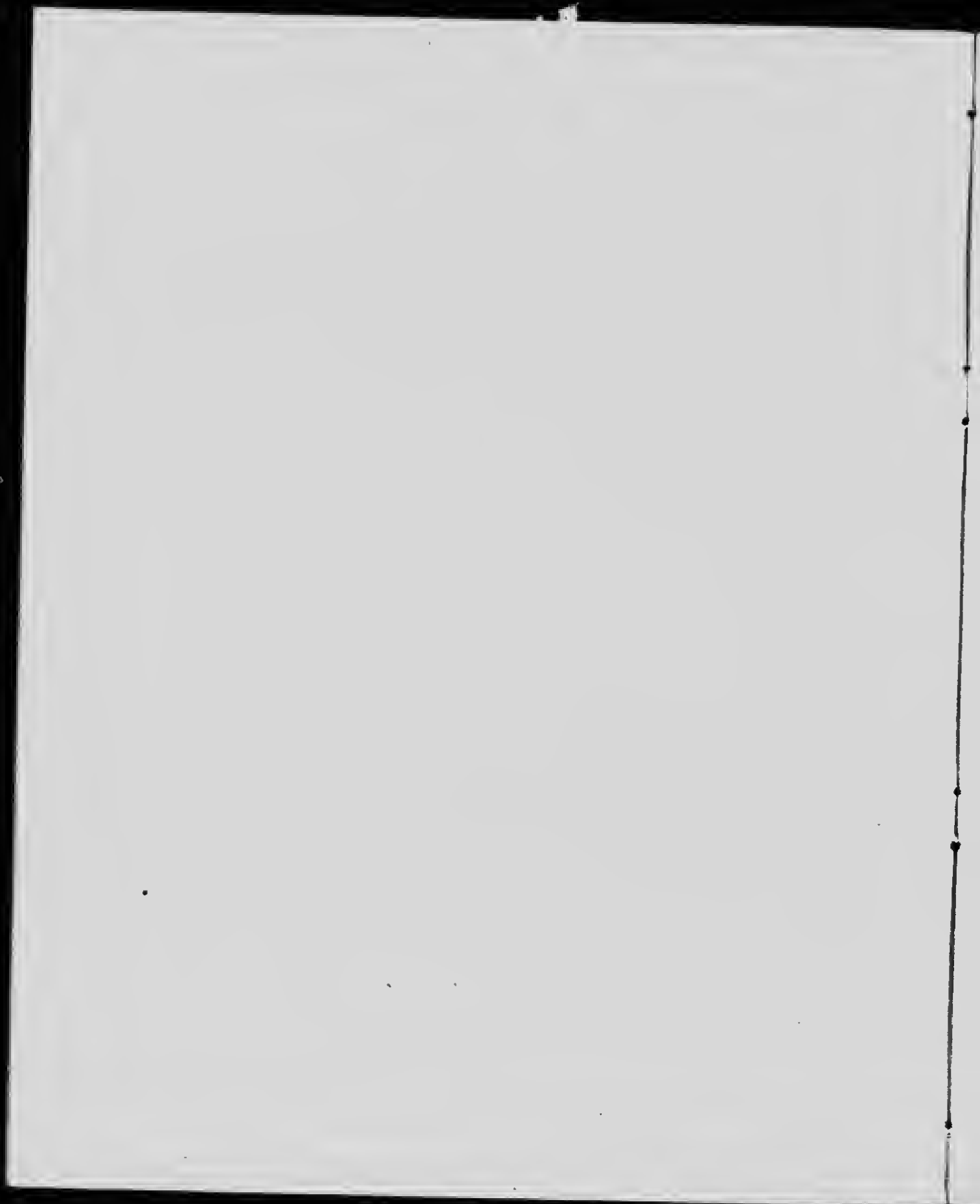


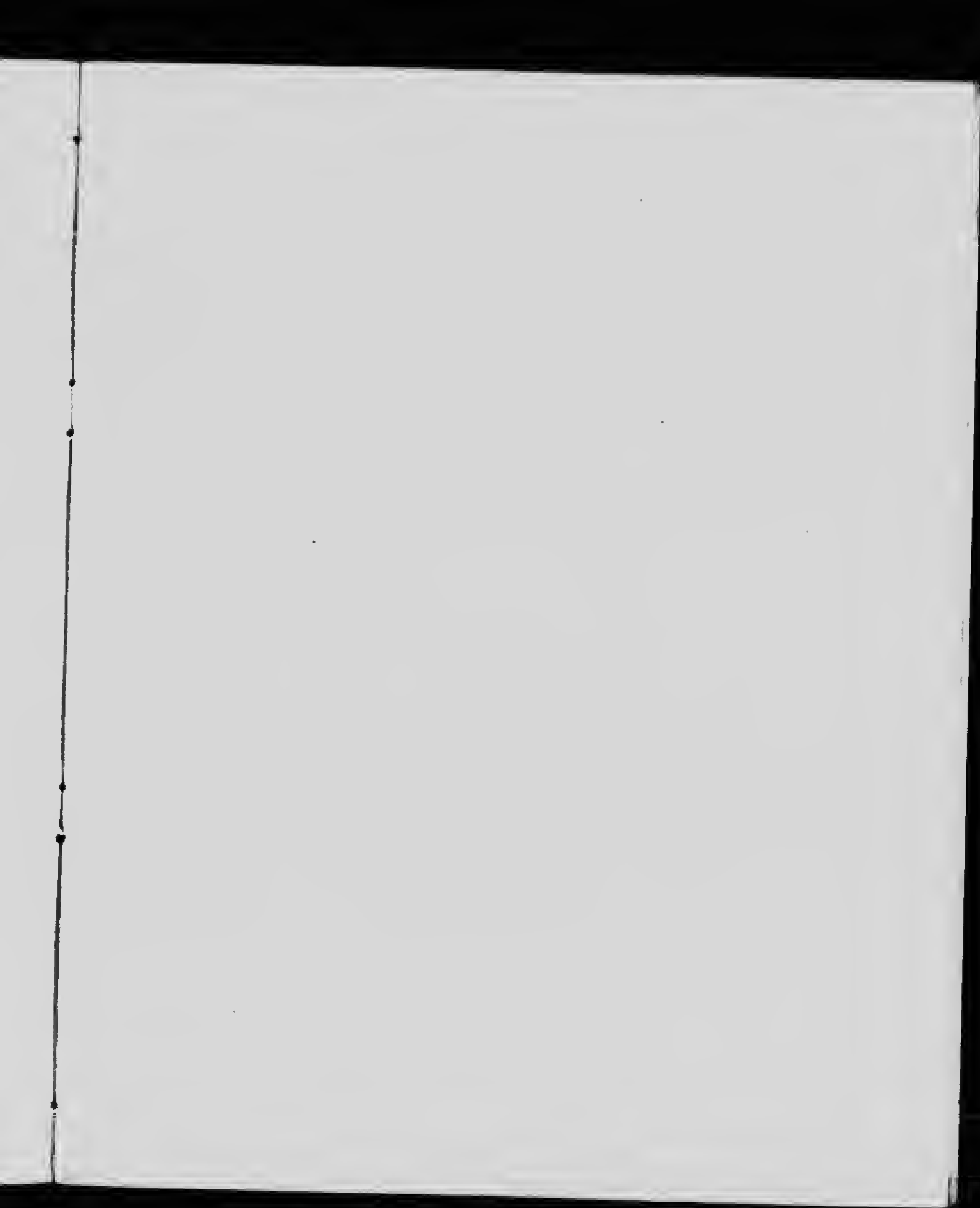
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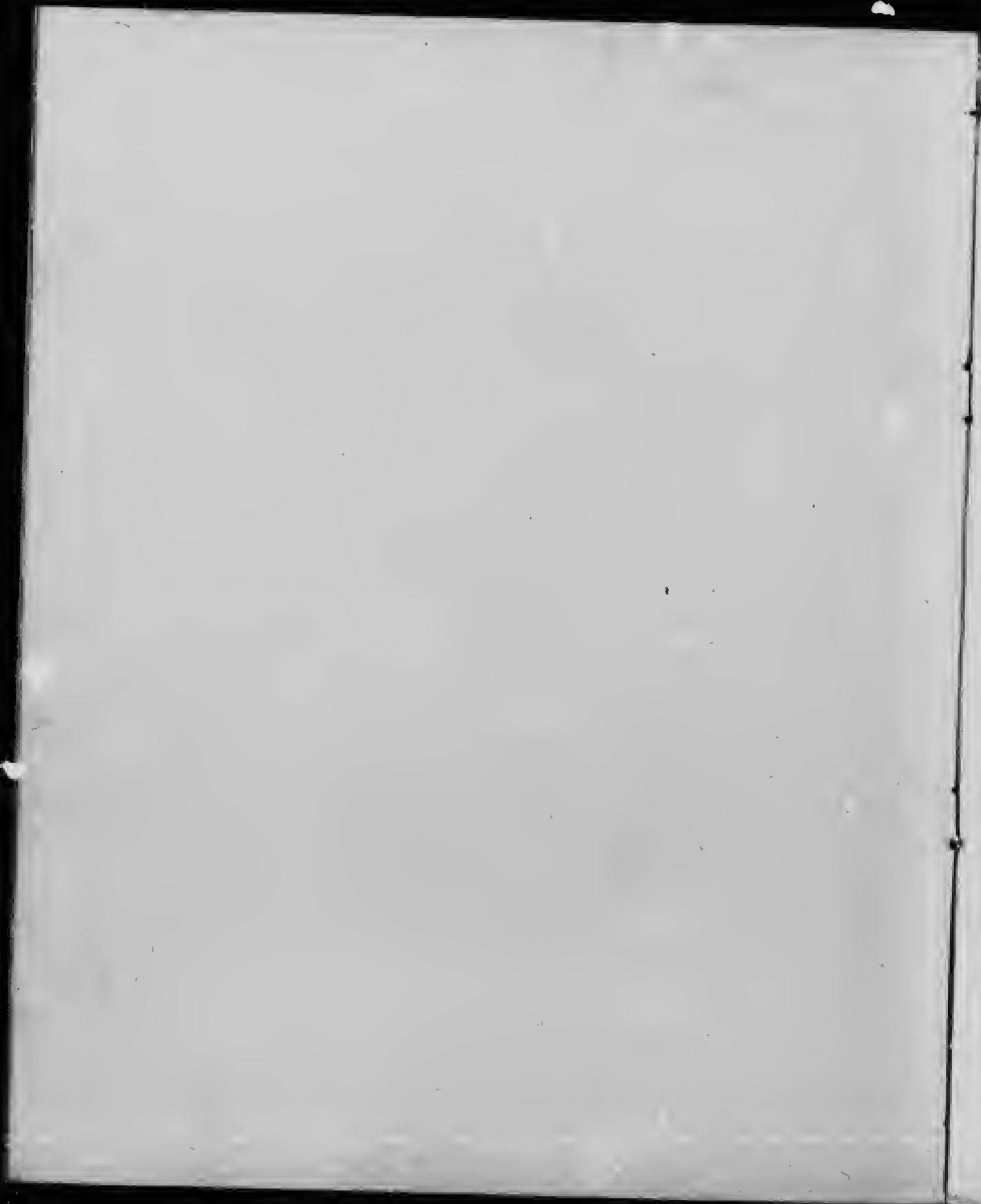
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PAPER

Resources, Activities
and Production
of Leading Paper
Makers, serving
the Buyer, through
one central
organization

Canadian Export Paper Co.
Limited
Montreal

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C 3

1919

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FOREWORD

TO present to you briefly, at the same time more or less completely, the advantages, opportunities, and resources of the Canadian Export Paper Co. Limited, is the purpose of this book.

Standardization and centralization, through the lessons learned from the great war, have become fundamental necessities of manufacturing. The great paper industry of Canada, growing greater by leaps and bounds, is taking advantage of these fundamental lessons learned. This company offers to buyers of this commodity a business adaptation of "a unified command"—a central sales organization handling the output of Canada's leading paper mills.

The organization, complete as to product, experienced as to requirements, and thoroughly equipped for its undertaking, stands ready to assist and suggest regarding the various problems connected with paper and its use, and to produce and deliver its product, most efficiently, to those who call upon its services.

Inquiries and requests for quotations should be addressed to nearest agents or to our main office.

A list of addresses appears on the previous page.



H. BIERMANS, ESQ.
President Canadian Export Paper Co. Limited
General Manager Belgo-Canadian Pulp & Paper Co. Ltd.



FIFTEEN thousand square miles of timber, with adjoining limits comprising thirty thousand square miles, are controlled by the companies distributing their export products through the Canadian Export Paper Co. Limited. The production of these mills represents more than one thousand tons per day.

Other advantageous resources are:

1. Great and cheap water powers, stable in flow, with large drainage areas and with high heads capable of cheap development.



2. Large bodies of good timber suitable for the manufacture of ground wood and chemical pulps, contiguous to great water ways and easily and expeditiously driven.
3. Ample supply of intelligent labor.
4. Tidewater locations most easy of access to the great markets of the world.
5. Accessibility to great consuming markets.
6. Efficient and intelligent management.

Formed in 1917 to market the output of certain print mills, the Canadian Export Paper Co., Limited, today is distributing a combined output of print amounting to approximately one thousand (1000) tons per day.

It was felt that many years' experience had proved that the marketing of newsprint was not on a sound basis, and especially that a combined selling association was necessary to cover the export market, as a series of sales organizations could not adequately cover the field. It was also recognized that the competition likely to be met after the close of the war would be very keen, and therefore one efficient selling organization, to compete with similar other associations in Scandinavia and Germany, was absolutely necessary.

In addition to the United States, we have at the present time representatives in Great Britain and Europe, Australia, New Zealand, South Africa, India, Siam, Java, China, Japan, South and Central America, Mexico, and Cuba. For several years members of our organization have sold to numerous clients in various parts of the world.

GEORGE F. STEELE,
General Manager.

Note.—*A map showing location of the various mills appears on the insert at the back of this book.*

In addition to the distribution of print, the company now handles exclusively the output of mills making other qualities, such as high-grade bonds and writings made by the Howard Smith Paper Mills Limited; Sulphite Bond made by the Crabtree division of the Howard Smith Paper Mills; also the product of the finest book mill in Canada, namely, the Provincial Paper Mills Company, Limited.

Both of these latter mills are progressive and are considerably increasing their output for export markets. This is also true of the Interlake Tissue Mills, manufacturing high-grade tissue and light weight wrapping, plain and crepe toilet, etc.

THE STATISTICAL DEPARTMENT

A well-equipped Statistical Department is also operated. Here are received the official trade returns of practically every country in the world. Correspondence is exchanged with the government statistical offices of the various countries and detailed information of the paper and pulp trade throughout the world is thus obtained. These records are collected, converted into Canadian weights and currency, and issued, in the form of monthly, quarterly and annual reports, to the various departments concerned. In this manner close track is kept of the world's markets, sources of supply and trade possibilities. Graphic diagrams are employed where possible to render this information available at a glance. This department also receives the periodicals dealing with all branches of the paper and pulp trade, advertising and printing, in English, French, Norwegian, Swedish, and Spanish. From these periodicals are taken extracts dealing with the paper and pulp situation, prices in the various markets, trade opportunities and matters of interest generally. These reports are then sent out to the various departments of the Company.

THE TESTING DEPARTMENT

A Paper Testing Department is maintained for the purpose of helping to maintain the standard of the products. This department is equipped with paper testers of various kinds, basis weight scales, etc. The different mills whose products are handled by the company send in samples of their production each day, and these are tested for quality, appearance and character. Records are kept and sent out to the mills to enable them to compare their products with those of the other mills in the organization.

In addition printed samples of newspapers are received daily, tested and checked for weight to ensure customers getting satisfactory service from the paper supplied by the company. Tests and investigations are also held from time to time on such subjects as the "breaking weight," "percentage stretch" and "ink absorption" of the paper supplied by the company.

STORAGE FACILITIES

All mills are well equipped with storage facilities to hold large reserves of raw material, thus enabling the full production to continue during the winter months.

PACKING

This question has been gone into very carefully, and all our mills are equipped to pack in compressed, iron-bound bales or cases as required for the export markets.

(See illustration of different packings shown on insert.)

OUR AIM

It is the aim and purpose of this company to supply our product with regard to the particular needs of customers in other countries and to meet all conditions that may be peculiar to the requirements of our clients.



The total annual output of the Canadian pulp and paper industry exceeds in value \$85,000,000.

Last year's exports of pulp and paper exceeded those of the preceding year by \$18,830,437.

Canada's exports of pulp and paper products create "exchange" for Canada, in the United States, at an average rate of \$205,000 a day for every working day in the year.

While the bulk of Canada's pulp and paper exports go to the United States, they are also sent to Great Britain, Japan, China, Australia, New Zealand, South Africa, India, Cuba, Mexico, British West Indies, and South America.

Canada produces for sale 2,525 tons of newsprint paper and 2,500 tons of pulps of all kinds every day.





LAURENTIDE COMPANY, LIMITED, GRAND'MERE, QUE., CANADA



UP in the hills of Quebec Province, on the St. Maurice River, at Grand'Mere, you will find Laurentide. Let it be called the Laurentide Industries. These industries, ideally planned, progressive, and scientifically operated, have taken to themselves every natural resource of river and forest, and added thereto what the best minds of men can devise; and that nature may not fail to yield her wealth, man is resowing today the future yield of the forest.



The average yield of five to seven cords an acre from limits comprising 2500 square miles shows the wealth and resources available. This company was one of the pioneers to apply the principles of scientific forestry to its woodland operations. Fire losses, as a result, for the past seven or eight years have been negligible. The past two years have seen the Forestry Department planting more than a million trees a year, which will mean that on maturity these plantations will have a stand of from fifty to seventy cords to the acre, all within convenient "driving" distance of the mill.

Power is developed by the Laurentide Power Co. with a capacity six times larger than the requirements of the mills—the greater part of the balance is sold to a neighboring power company—so that the possibility of shutdowns from power shortage is totally obviated, with the result that any question of deterioration in the quality of the product from the use of stored or purchased pulp is eliminated.

Each day marks approximately an output from these mills of 210 tons of newsprint, already being shipped to many countries throughout the world, and in addition 62 tons of cardboard. These figures do not, of course, represent a maximum capacity, as, in addition to the requirements in ground wood and sulphite, the production of these products greatly exceeds requirements and may be varied to meet market conditions.

Labor, the force which turns this product of nature to an article for man's use, lives under ideal conditions. The company has done its best to promote advantageous community conditions. The town is growing at least as fast as the mill, and a continuous supply of permanent, contented and skilled labor is assured.

Let us not stop with the story of one single enterprise, but look further into the other enterprises making up the complete circle of standardized

production. These vast operations, taking from the woods of Northern Canada the raw material and turning it into a product for the world's markets, are so well organized and adapted to meet possible needs, that all contingencies are provided for.

Buyers of the various lines of paper will specially appreciate the value of this coördination of all branches of the industry to meet the requirements of paper consumers.



Canada's pulp and paper exports lead all manufacturing industries.

The United States consumes one-half of the world's production of paper. Canada, in proportion to her population, is a close rival of the United States as a paper-consuming country.

The newspapers of the United States consume 2,000,000 tons of newsprint every year, of which Canada supplies, approximately, one-fourth.

The daily consumption of newsprint paper in Canada is, approximately, 250 tons; in the United States, 5,750 tons.



PRICE BROTHERS & CO. LIMITED, KENOGAMI, QUE., CANADA



FOR over 100 years Price Bros. & Company Ltd. have been in operation. Today this company is the largest manufacturer of spruce lumber in the Province of Quebec and one of the largest in Canada. Timber holdings amount to approximately 7000 square miles of freehold and crown lands.

Kenogami and the Jonquières Paper mills are also owned and operated by



this company as well as a large number of saw mills along the shores of the St. Lawrence and in the Saguenay district. In addition to these we find the company owns several lath, cedar shingle and tie mills of large capacity.

These tremendous timber resources are equally divided in the production of paper, pulp, timber and wood products. The limits are easily workable and accessible to home markets as well as being particularly well situated to meet the demands of British, United States and export markets. The supply of raw material may be considered inexhaustible, as a careful system of conservation and renewal is carried out at all times.

The Kenogami Paper Mills, and the Jonquières Paper and Card Board Mills, are situated in the heart of the company's timber limits on the Au Sable River, which flows into the Saguenay a few miles above Chicoutimi. These two mills are only a short distance from each other. Ten miles away is Lake Kenogami, which gives its name to the town. A large bulk of the pulp wood for these mills comes through this lake from the enormous tract of timber limits in the surrounding country.

The company's mills are of the most modern construction and equipment. The product and development of these mills are best illustrated by the following figures:

In 1913 the production was about 170 tons of newsprint per day. At the end of the present year the daily production of the two mills will total about 300 tons of newsprint apart from a considerable output of cardboard, etc.

The water power in this neighborhood is developed to the extent of 40,000 h.p., and further development is going on.

Here, as well as with the other great mills, we find the community idea is highly developed. The village, inhabited entirely by the employees and their families, insures ideal labor conditions. Churches, schools, hospitals, and clubhouse meet the needs and desires of the people. The mill also operates a dairy farm and have a herd of pure bred Ayrshire cattle, thus assuring a supply of pure milk, cream and butter, which has proved of great benefit, particularly to the children.



Canadian Pulp & Paper Facts

Where coal is used to generate power in the operation of paper mills it takes, approximately, a pound of coal to produce a pound of paper.

The average labor cost of producing a ton of paper has increased 75 per cent in the period 1912-1918.

Reafforestation is practised in some of the provinces.





BELGO-CANADIAN PULP & PAPER CO. LIMITED, SHAWINIGAN FALLS, QUE., CANADA



THE plant of the Belgo-Canadian Pulp and Paper Co. Limited is located at Shawinigan Falls and receives its power from the St. Maurice River. The company has a perpetual lease with the Shawinigan Water & Power Co. for the supply of 14,000 horse power of hydraulic power. The same company also supplies electrical power to the extent of its requirements above the hydraulic. Shortage of power is not known by this company.



it being one of the companies benefiting by the original contract. The plant of the Belgo-Canadian Pulp and Paper Co. was started in 1900 as a ground wood mill, the first product being turned out in 1901. The company has since that time continued increasing its plant by starting the manufacture of newspaper in 1902, having added additional paper machines thereafter until at this present time there are installed four paper machines having a capacity of 195 tons of newsprint per day. In connection with the plant there is also in operation a sulphite pulp mill, having a capacity of 90 tons per day, in addition to the daily tonnage of ground wood, which totals 165 tons.

The construction of the plant is modern and up-to-date in every way. Special attention was paid to securing the plant against undue exposure to fire hazards which might cause interruption of operations. The entire plant is fireproof, with automatic sprinkler system.

The wood for the manufacture of pulp is mostly received via the St. Maurice River. Furthermore, the equipment for handling the wood received by the river has a capacity of 100 cords per hour, which is very much in excess of the requirements of the total plant, which consumes only about 360 cords per day, thus always assuring a speedy handling of this most essential material when river conditions are most suitable for the purpose.

As far as the operation of the plant is concerned this locality has in the past had little trouble with labor, and no difficulty to any extent is anticipated in the future. The help employed by this organization is practically all local or drawn from the surrounding country.

The company receives its wood almost entirely from the limits located on the upper St. Maurice River. A total of 1,084,000 acres are under

lease from the Government. The average yield per acre is about five cords. Thus the company has available in its resources of pulp wood over 5,400,000 cords of wood, which for the present requirements of the company would be in excess of 50 years' supply. However, the fact must not be overlooked that the above figures are taken from the present inventory, and that by proper forestry methods and reforestation, the area under lease will reproduce yearly a large percentage of what is actually cut. Thus it seems evident that the area of woodland under lease by this company is sufficient to meet the requirements of the plant for a long time to come.



Paper was first made in Canada at St. Andrews, Que., in 1803.

Canada's first large paper mill was built in 1865, and produced $1\frac{1}{2}$ tons of paper in 24 hours. Today a modern paper mill produces from 250 to 300 tons in the same length of time.

Canada's preëminence as a paper-producing country lies in the possession of hundreds of thousands of acres of pulp-wood forests and to conveniently located water powers.





BROMPTON PULP & PAPER CO. LIMITED, EAST ANGLUS, QUE., CANADA



LOCATED at East Angus and Bromptonville, Province of Quebec, are the mills of the Brompton Pulp & Paper Company, Ltd. The pulp wood resources of this Company have been steadily growing until today, even with a wood consumption of 400 cords per day, there is, aside from the possibilities of reforestation, at least 40 years' operation ahead of the plants. Control of the driving rights of the St. Francis



River drainage area is held by the company; consequently facilities for the delivery of this wood to the mills are exceptionally good, which fact, coupled with the pulp-wood resources available, gives satisfactory assurance of a continued supply of raw material.

Capable management has also given proper attention to power conditions. In addition to the present sufficient supply there are two additional water powers, within twenty miles of each other, which will be made available for use at a future date or when manufacturing demands make further development necessary.

Brompton properties date back to 1888, which date records the beginning of the enterprise in the shape of a sawmill and a 20-ton soda mill. The acquisition of timberlands was also begun at that time.

From these early small beginnings growth was steadily progressive. In the year 1914 the first newsprint machine was installed. At the present time two are in operation.

The following table gives a résumé of daily production:

Newsprint.....	120 tons
Ground Wood Pulp (dry).....	220 "
Boxboard.....	55 "
Sulphate Pulp.....	90 "
Kraft Paper.....	60 "

As is the case with practically all the mills located in Quebec labor conditions are most favorable.

The many years of growth and development behind the Brompton Pulp & Paper Co. represent a valuable asset, which is appreciated by buyers who value a service founded on experience.

The Brompton properties tap a section of Quebec's fertile pulp resources not touched by other mills in the group represented by this company for export trade.

A study of the location of all these mills in relation to resources, labor, power and shipping facilities will assure the buyer of paper products of the advantage of making purchases through The Canadian Export Paper Company, Limited.



Canada has the largest forest area of any country in the British Empire.

Canada's forests embrace 350,000 square miles of pulp-wood timber, estimated to yield 1,033,370,000 cords of pulp wood.

There are 91 incorporated companies and other concerns in Canada engaged in manufacturing pulp or paper. Their combined capital is estimated at \$200,000,000.

In 1890 Canada's exports of pulp and paper products amounted to but \$120. In 1910 they were worth \$10,000,000. For the fiscal year ending with March 31, 1918, they reached a total of \$71,755,325.





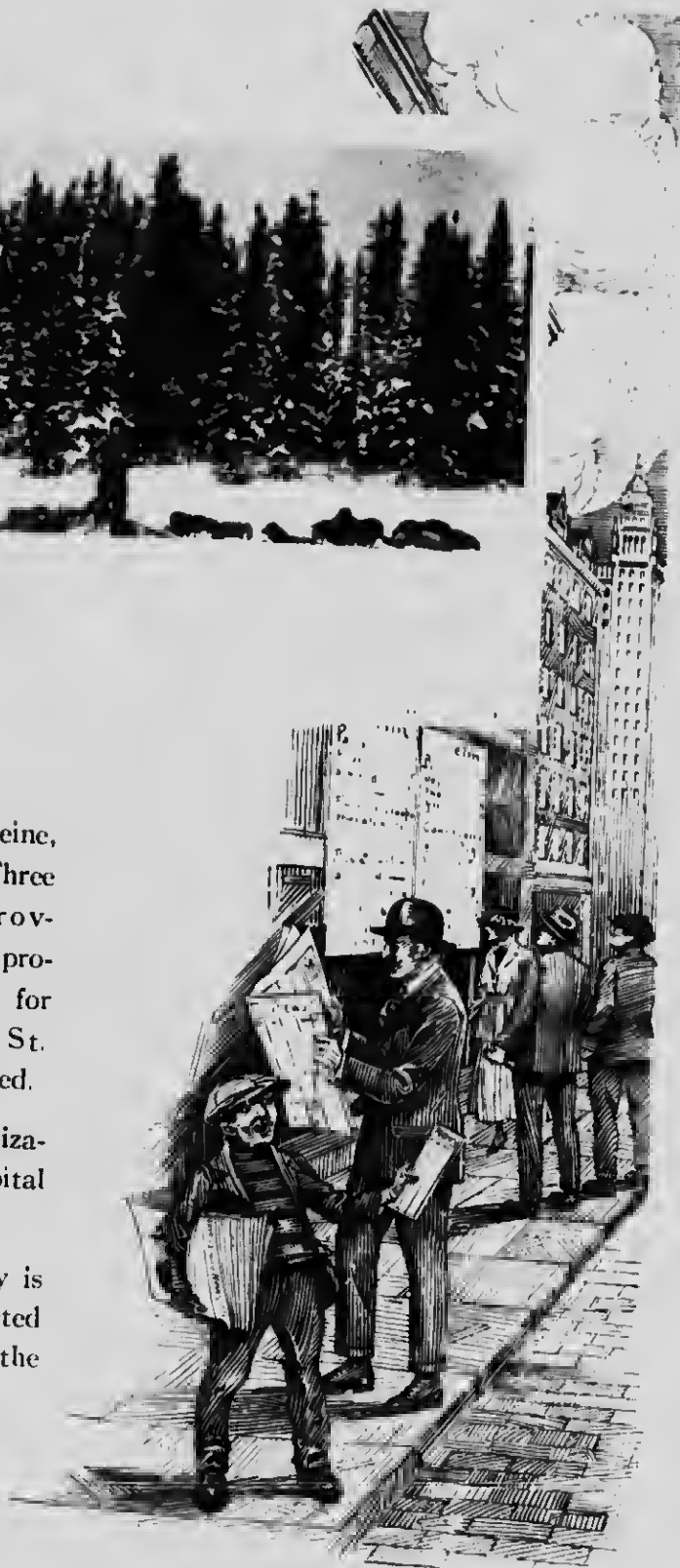
ST. MAURICE PAPER COMPANY, LIMITED, CAP DE LA MAGDELEINE, QUE., CANADA



CAP de la Magdeleine, near the city of Three Rivers, in the Province of Quebec, provides the location for the large enterprise of the St. Maurice Paper Company, Limited.

The company has a stock capitalization of \$5,000,000, but actual capital invested totals \$7,500,000.

While the St. Maurice Company is one of the most recently constructed mills offering its product through the



Canadian Export Paper Company, Limited, it has the advantage of recent thought on paper manufacturing. Construction requirements have been carried out according to recent engineering practice, and all equipment is new. Production has been maintained since 1917, until at the present time the mill is running to capacity and delivering paper of first quality.

The daily production at St. Maurice is already large. To properly provide for the present large production and to meet requirements in years to come, large sources of raw material have been obtained; 2050 square miles of timber limits represent the company's resources of wood supply.

Power and labor conditions are ideal. Power is obtained at low cost and is available in abundance.

The company's plant is only a short distance from tidewater—a matter of 400 feet—which makes the direct conveyance of the product from plant to ocean bottom a distinct advantage. Also, as is the case with the other mills, the location offers low rates to points in the United States. The addition of the St. Maurice Company's production adds greatly to the supply of "quality" newsprint which can be secured through a centralized agency.

The St. Maurice Company is another example of a well-rounded and coordinated organization, where all possible factors of importance to the buyer are considered and where all contingencies are discounted in order that this tremendous export business may be handled in the most expeditious manner.

A summary of the various products of this mill is shown in the following table of daily production.

Newsprint.....	110 tons
Ground wood.....	100 "
Sulphite.....	50 "
Kraft.....	50 "



Canadian Pulp & Paper Facts

Canada's daily output of paper, made into a continuous strip three feet wide, would be long enough to girdle the globe at the equator.

The principal pulp and paper mills of Canada are located in the provinces of Quebec, Ontario, New Brunswick, Nova Scotia, and British Columbia.

Spruce, balsam fir, hemlock, jack pine, tamarack, poplar, and basswood are used in the manufacture of pulp.

Quebec's annual production of pulp wood exceeds 1,000,000 cords. Ontario comes next with about 800,000 cords.

It takes approximately $1\frac{1}{2}$ cords of wood to make a ton of paper.





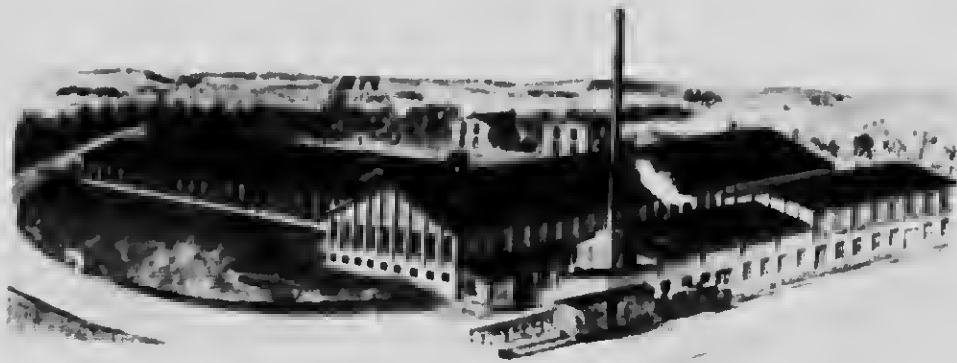
View of Harbor—Montreal, Que., Canada

THE growing importance of the Port of Montreal in its relation to world shipping should be of interest to users of our products. Direct lines are running to a great many overseas ports, which fact brings to the Canadian Export Company Limited as well as to the buyer the advantages of direct shipments.

Montreal, the metropolis of Canada, has grown with great rapidity; even during the war the tendency to expand has been noticeable.

The City is close to the various companies and mills whose products are introduced in this booklet, and the location particularly favors the handling of deliveries promptly, inasmuch as orders can be filled by calling on various mills, should one company not be able to give delivery required.

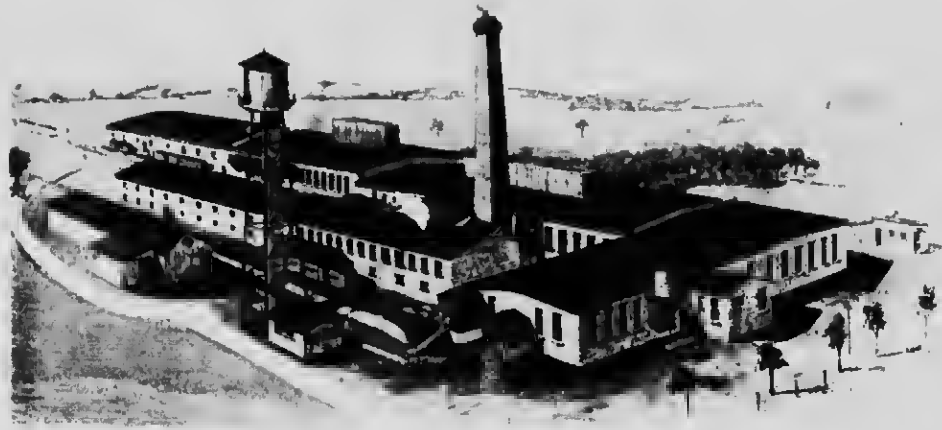
Georgetown Coating Mill



THE continued growth, of what is now The Provincial Paper Mills Limited, from early beginnings and the long association with many paper manufacturing problems are points worthy of emphasis. The knowledge and experience of a seasoned history are reflected in the various products all of which are of the highest quality. There are several plants owned by this company, in one of which a specialty is made of S. C. book and litho, catalogue, and writing papers. The daily output approximates 60,000 pounds, and from this mill 75 per cent of the publications of Canada receive their paper. This plant is situated in the village of Mille Roches,



Montrose Mill at Thorold, Ont.



Mille Roches, Ont.

Ont., on the St. Lawrence River, about 60 miles from the city of Montreal, equipped with modern machinery for the manufacture of paper.

Power is derived from the mill's own steam plant and the St. Lawrence Power Co., on the Long Sault Rapids, three miles distant.

Another mill, most modernly equipped in every respect, is situated in the town of Thorold, in the Niagara peninsula, and specializes in the manufacture of light catalogue, book, lithograph, offset, envelope, writings, and sulphite bonds.

A daily output of approximately 50,000 pounds finds easy outlet by lake or rail to Toronto, 80 miles distant, where the Company's head office is situated.

Power is generated by steam and also from the Company's own power plant, situated on the old Welland canal, which furnishes water for power purposes to many factories throughout the Niagara district.

The plant at Georgetown, which is situated about 28 miles from the city of Toronto, the provincial capital of Ontario, consists of, first a coating mill, equipped with six modern coating machines and general equipment, manufacturing all grades of coated book and litho, box glaze, and coated blanks. Its "Maple Leaf" and "Beaver" grades are a standard in the Canadian market.

The daily output under normal conditions approximates ten tons of book and board.

The paper mill, situated in the Credit River Valley, about one half mile from the coating mill, is one of the first plants built in Canada for the manufacture of paper. Its equipment consists of one 60-in. and one 72-in. Fourdrinier machine, together with a soda pulp mill, making approximately 12,000 pounds in 24 hours of soda fiber for the manufacture of featherweight and antique books, in which this mill specializes.

The daily output of the paper mill averages 25,000 pounds in every 24 hours of featherweight, M.F. book, writing, lithograph, and poster papers.

Power for the mill is derived from the Company's own power plant and from the Provincial Hydro Electric Power transmission lines, generated at Niagara Falls.



Georgetown Paper Mill



Interlake Tissue Mills Limited

THE Interlake Tissue Mills Limited are located at Merritton, Ontario. This company are producers of light weight wrappings, plain and crepe tissue paper, paper napkins and specialties, whose products add largely to the scope of the service available to export buyers of paper commodities.

The mill is modern with up-to-date equipment and productions are of a very high grade. The machinery and equipment consists of two 1000 lb. and one double roll 2500 beating engines. One 116-in. Yankee Tissue Machine. The widest trimmed sheet is 110 in. The power for manufacturing purposes is obtained from steam and electricity.



Beauharnois Mills

THE Beauharnois division of the Howard Smith Paper Mills Limited is situated on the shores of the beautiful Lake St. Louis. It is an ideal location for paper-making with an abundant supply of pure water, and that of a superior quality, which is so essential to the manufacture of high-grade papers, for which this firm has become renowned.

In building this mill the utmost care was taken to provide every facility for the economical handling of the stock, and to incorporate the most modern and approved features. The equipment is of the latest design and is the most perfect that can be obtained to produce the highest grades of tub-sized, loft-dried papers. Electricity is used as the motive power. Each group of machinery has a separate motor, the drives being on the unit system. An auxiliary steam plant has been installed that nothing may interfere with the continuous running of the mill.

No detail has been overlooked in order to secure absolute cleanliness of the product. For this reason copper has been used for the water and stock piping and particular attention given to the rag department.

The Beauharnois division was originally designed for a two machine mill, the first machine has been in operation since 1913, and the second is now being built. It is planned to manufacture the high grade quality only at Beauharnois, and the Sulphite bond exclusively at Crabtree Mills.

The products of Howard Smith mills include high-grade writing papers, tub-sized, loft-dried bonds and ledger papers, stationery papers, and sulphite bonds.

The large and growing demand for "Beaver S" papers throughout Canada whenever papers of quality are desired, is evidence of the successful production efforts of this company.

An exceptionally well-managed and efficient organization working with aggressiveness to maintain the highest standard of quality has been the basis on which this success has been reached.

The Howard Smith Paper Mills Limited occupy a strong financial position and are continually growing to meet the demands for their papers. This company has been for many years in the Canadian paper trade and can justly claim to have a thorough knowledge of the requirements of home and foreign markets. As paper makers, they are recognized among the best on the continent.



Crabtree Mills

The Crabtree division is situated on the River Ouareau, and has also an abundant supply of pure water. This mill has recently been completed and turns out 20 tons of sulphite bond daily. It was especially built with all modern improvements to manufacture this grade of paper. In making long runs of one grade an exceptionally uniform and well-constructed sheet is turned out.



PROCESS OF NEWSPRINT MANUFACTURE

FOR the benefit of many of our clients who probably have never seen paper in the making, a short treatise on the procedure is given.

The initial operation in the manufacture of newsprint starts in the forest. The wood commonly used, and best adapted for this class of paper, is spruce, which grows extensively in our northern forests. The trees are felled and trimmed, usually in the winter months, hauled to the landings on the banks of rivers and streams, and in the spring, when the water is at its highest pitch, the logs are driven down these waterways to the mills. On arrival at the latter, the first step in the actual process of manufacture is to cut the logs into suitable lengths and remove the bark, after which the wood is ready to be converted into pulp.

Two kinds of pulp are used in making newsprint paper—mechanical pulp, called ground wood, and chemical pulp, called sulphite. Mechanical pulp is produced by grinding the blocks of wood in machines called grinders. These machines contain large grindstones running at a high rate of speed, into which the blocks are forced by hydraulic pressure and the wood is ground into pulp. From the grinders the pulp is subjected to a system of screening and refining, and eventually reaches a large tank or chest from which it is later pumped to the mixing machines, or beaters.

Chemical pulp—sulphite—is made by an entirely different process. The wood, after being sawed and barked, is cut up into small chips in machines specially designed for the purpose. These chips are then conveyed to large cookers, called digesters, where they are immersed in an acid which is a chemical combination made from the gas of burning sulphur and milk of lime, and cooked under a direct pressure of live steam

Wet End
showing
Screens, Wire
and Presses



Section of
Steam
Heated
Dryers

Calender
Rolls, Reels
and
Winder



until all the fibers of the wood are loosened and segregated. This cooking process usually takes from 8 to 12 hours. The pulp thus obtained is put through a washing and screening process, after which it is ready to be mixed with the mechanical pulp.

The two pulps, ground wood and sulphite, are pumped to beaters, or mixing machines, and thoroughly mixed together, color and other necessary ingredients being added during this mixing process. The stock thus obtained is run through a refining engine, called a Jordan, and is then ready for the actual conversion into paper.

This is done on a machine like the reproduction on the previous page. These three views comprise one complete modern Fourdrinier paper machine, running at a speed of from 600 to 800 feet per minute.

The stock obtained from the mixing of the two pulps, as described above, is pumped to the screens which are shown in the front of the top picture. At this time it contains a large percentage of water, which has necessarily been added to insure its quick flowage and easy manipulation. After passing into the head box, which is directly in front of the screens, it passes in order over the wire, through press rolls, and over woollen felts, all of which operations tend to remove the water from the stock. At the extreme right of the top picture it is started over the driers, which are plainly shown on the middle reproduction. These are large cylinders heated by steam. Upon reaching the point shown at the right of the center picture the web of paper is practically dry, with, however, a rough surface. In order to give it the proper finish to make it suitable for printing, it is passed through a stack of solid steel rolls called calenders, which are shown at the left of the lower picture. The web has now become a finished sheet of paper and is then wound on to reels, which are shown in front of the calenders, and from there to the winder, which is at the extreme front end of the lower reproduction.

This winder is fitted with slitters, or circular knives, which cut the web of paper lengthwise into the required widths and it is then wound into rolls. The paper is now ready for wrapping, weighing, and marking for shipment, except in cases where sheet paper is required, when the rolls are cut into sheets on a machine called a cutter, after which they are counted and packed in cases or bales and then weighed and marked. The paper is then loaded into cars and transported to the consumer direct by rail, or to seaports, where it is transferred to ships and started on the way to its destination overseas.



REAFFORESTATION—By ELWOOD WILSON

WOOD is the raw material entering most largely into the manufacture of newsprint paper. Various substitutes have been tried, but so far none have been very successful or seem at all likely to supplant wood, and it is not likely that anything else will ever do so to any large extent. The cellulose in wood, which is the fiber from which the paper is made, is in such a compact form that it can be easily transported and stored. If cornstalks, cotton stalks, or grasses were to be used in the manufacture of newsprint, the huge bulk to be transported, the large areas which would have to be covered to get sufficient material, and the difficulty of storage owing to the decomposition of the material would be very serious and costly obstacles. The woods most commonly used are spruce and balsam fir, both trees which grow in cold climates or at moderately high altitudes, so that they are often in the neighborhood of large rivers with many falls which furnish the cheap transport by driving and the cheap power for manufacture, which are so essential to paper making. Spruce is preferred somewhat to balsam fir, as the fibers are a trifle longer and the wood is said to "cook" more easily in the digesting process used for disintegrating the wood and removing other substances than cellulose which it contains.

Spruce and fir are almost always associated in the northern forests and are often mixed with the native hardwoods. Under the conditions of competition with other species in the virgin or wild forest they grow on an average of about one inch in diameter in ten years, but when grown in the open, as on abandoned farm lands or after a fire has destroyed a forest they grow at the rate of about one inch in four to six years and in very favorable circumstances, as in plantations with proper spacing, they will grow one inch in two to three years. The average amount of wood which is cut on lands under license from the Government in the Province of Quebec according to the Government regulations is between six and seven cords to the acre. As it takes approximately one cord of wood to make one ton of paper, a mill with an output of 100 tons per day would have to cut about eight square miles of forest every year.



The most important matter for a paper mill is the supply of raw material for the future, and this is taken care of generally today by acquiring sufficient areas of forest land to insure the supply. Mills which have not already done this find it difficult, as practically all of the readily accessible lands have been sold. Many of the largest and most progressive companies have already begun to plant trees for future use or are getting ready to do so. This is much the better way to handle the problem, as the plantations can be made on lands much nearer to the mills, thus reducing the cost of fire protection and transportation, and as the yield on planted lands is at least ten times that on wild lands, the logging expenses are more concentrated and therefore much reduced.

Fire protection for forests is a most important thing, and since the formation of the coöperative fire protective associations the loss from fire has been reduced to almost a negligible amount. The forests are patrolled by men in canoes, on horseback, on motor cycles, and in automobiles, and patrol by aeroplane has recently been adopted. Gasoline pumps are used for extinguishing fires and the organizations have been brought to a high pitch of efficiency.

After fire protection the most important thing a forester has to do is to make accurate maps and estimates of the amount of timber. This is necessary so that it may be known how long the timber holdings of a company will supply the mill, where and how they are located, and how they can be cut most economically and to the best advantage. The logging departments must have maps in order to plan their operations from year to year intelligently.

Logging operations usually begin in the latter part of August, when the contractors who cut the logs go into the forests, taking often their wives and families with them. Here they build camps of logs roofed either with split logs or tarred paper, and the cracks of the logs are stuffed with moss. These camps, although differing in size, are all built on the same plan. They are oblong with a door in front, two or three small windows,



a rough table, and a few benches and bunks for sleeping along one wall, generally in two tiers. A large stove in the center is used for both cooking and heating. If the wife lives in the camp a small room is built at one side; sometimes only a curtained enclosure is provided. The stable is built at one side, often with an opening into the camp to give some warmth for the horse. The trees are cut and sawed, the branches cut off, and then they are sawed into logs, usually $13\frac{1}{2}$ ft. in length and dragged out or "skidded" into piles, which are made alongside the roads which will take them to the nearest river or lake. When the snow is deep enough to make hauling easy they are "landed" or piled on the shore or sometimes on the ice. Here they are measured by the "culler," and the jobber or contractor is paid by the thousand feet board measure. The hauling is usually finished by March 1st, when the woodmen return to their homes.

As soon as the ice is out of the lakes and the rivers the "drive" commences. Logs which are piled on the banks are rolled into the water and start on their way to the mills. The drivers keep them from lodging on the banks or in rapids and follow after the main body of the logs, rolling back into the water such as have become stranded. Often the logs stick on the rocks in the rivers, and large piles or jams are formed. Then the dangerous part of the work commences. The boldest men in the crew get out on the pile and try to loosen the log or logs which form the key of the jam. This takes skill and courage, for when the jam is loosened it may go very quickly and the men must not get caught. Sometimes dynamite must be used to dislodge the jam. On small streams dams are built to hold back the water which is let out as needed to supply enough water for floating the logs. When the logs are cut each owner stamps his mark on the end of the log and cuts a bark number into the log near each end. On arrival at the mills the logs belonging to it are sorted out and taken up out of the water to be utilized.



The more progressive companies have established nurseries and are reforesting their lands. A nursery is like a garden, the tree seeds which are collected in the fall and which are, for the spruces and firs, about as big as turnip seeds, are planted early in the spring and germinate in about two weeks. The little trees, which grow slowly, are two to three inches high at the end of the first season, and after they first come through the ground must be shaded by frames, usually made of laths, for about two months. They must also have water during dry spells and be kept free of weeds. By the end of the second season they are four to six inches in height and at the beginning of the third are transplanted in long rows and kept cultivated and free of weeds until the end of the fourth year when they are planted out in the forest. They are then about twelve inches high. They are usually planted five to six feet apart and are carefully protected from fire. When they reach four to six inches in diameter they may be somewhat thinned out and from then, till it is decided to cut them all, thinnings are made about every ten years, depending on the rate of growth. In thinning the weakest and poorest trees are removed so as to allow the best and strongest to mature. To form a spruce forest about 1200 to 1700 per acre are planted.

The firms represented in the Canadian Export Paper Co. Limited are most progressive. To them is due the formation of the first coöperative forest protective association in Canada, which has so safeguarded the forests and which has reduced the cost of fire protection and made it a new profession. Tree planting has been undertaken by one firm and three others are beginning at once.

The formation of the "Woodlands Section" of the Canadian Pulp and Paper Association is due to these same firms. This section is engaged in studies of logging with a view to reducing wastes and improving methods and the use of the forests to the best possible advantage. Most of the firms employ technical foresters, and are bringing their forest management up to the high standard so successfully employed in the mills.

ELWOOD WILSON.

First of the
Fleet



Hydro
Aeroplane
Patrol

FINANCIAL SUMMARY

LAURENTIDE	- - -	Laurentide Co., Limited (Laurentide Paper Co., Ltd.) <i>Head Office: Grand'Mere, Que.</i> Controls Laurentide Power.	
			BONDS..... \$ 565,778
			COMMON STOCK..... 9,600,000
PRICE BROS.	- - -	Price Bros. & Co., Ltd. <i>Head Office: Quebec, Que.</i> Lumber, Pulp and Paper Mills.	
			BONDS..... \$ 5,172,000
			COMMON STOCK..... 5,000,000
BELGO-CANADIAN	- - -	Belgo-Canadian Pulp & Paper Co., Ltd. <i>Head Office: Shawinigan Falls, Que.</i>	
			BONDS..... \$ 2,500,000
			COMMON STOCK..... 5,600,000
BROMPTON	- - -	Brompton Pulp & Paper Co., Ltd. <i>Head Office: East Angus, Que.</i>	
			BONDS..... \$ 1,524,000
			PREFERRED STOCK..... 2,000,000
			COMMON STOCK..... 7,000,000
ST. MAURICE	- - -	St. Maurice Paper Co., Ltd. <i>Head Office: Montreal, Que.</i>	
			BONDS, issued..... \$ 1,500,000
			COMMON STOCK, issued..... 5,000,000
PROVINCIAL	- - -	Provincial Paper Mills Co., Ltd. <i>Head Office:</i> Toronto, Ont. Mills Thorold, Georgetown, Mille Roches, Ont. (Montrose Paper Mill, St. Lawrence Paper Mills and Barber Paper and Coating Mills)	
			BONDS..... \$ 50,000
			PREFERRED STOCK..... 1,700,000
			COMMON STOCK..... 2,481,000
INTERLAKE	- - -	Interlake Tissue Mills, Ltd. <i>Head Office: Toronto,</i> Ontario.	
			COMMON STOCK, fully paid up..... \$ 250,000
HOWARD SMITH	- - -	Howard Smith Paper Mills, Ltd. <i>Head Office:</i> Montreal, Que.	
			BONDS..... \$ 800,000
			PREFERRED STOCK..... 475,000
			COMMON STOCK..... 1,062,500
		Total.....	\$52,280,278

PRODUCTION SUMMARY

	PRODUCTS	DAILY PRODUCTION IN TONS
LAURENTIDE - - -	NEWS.....	210 tons
	Ground Wood.....	280 "
	Sulphite.....	180 "
	Board.....	45 "
PRICE BROS. - - -	NEWS.....	300 tons
	Ground Wood.....	320 "
	Sulphite.....	90 "
	Card and Box Board.....	25 "
BELGO-CANADIAN -	NEWS.....	195 tons
	Ground Wood.....	165 "
	Sulphite.....	90 "
BROMPTON - - -	NEWS.....	120 tons
	Ground Wood Pulp (dry).....	220 "
	Sulphate Pulp.....	90 "
	Box Board.....	55 "
	Kraft Paper.....	60 "
ST. MAURICE - - -	NEWS.....	110 tons
	Ground Wood.....	100 "
	Sulphite.....	50 "
	Kraft.....	50 "
PROVINCIAL - - -	Book, Catalogue, Writings, etc.....	70 tons
INTERLAKE - - -	Wrappings.....	} 10 tons
	Tissue.....	
	Toilet Rolls, Napkins, etc.....	
HOWARD SMITH - -	Writings.....	} 40 tons
	Bonds.....	
	Ledgers.....	
	Total per day.....	

ALL OF THIS PRODUCTION AVAILABLE FOR EXPORT IS SOLD THROUGH
THE CANADIAN EXPORT PAPER COMPANY, LIMITED,
AND ITS AGENTS



A Canadian Log Drive

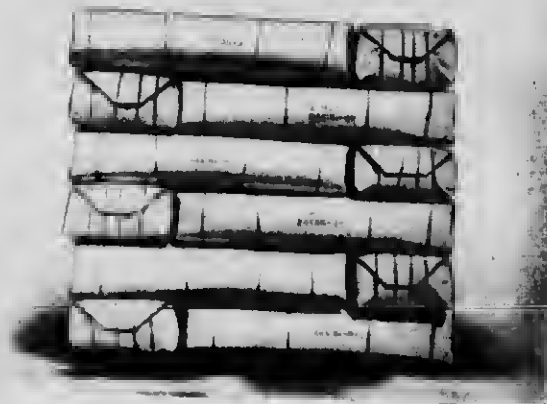
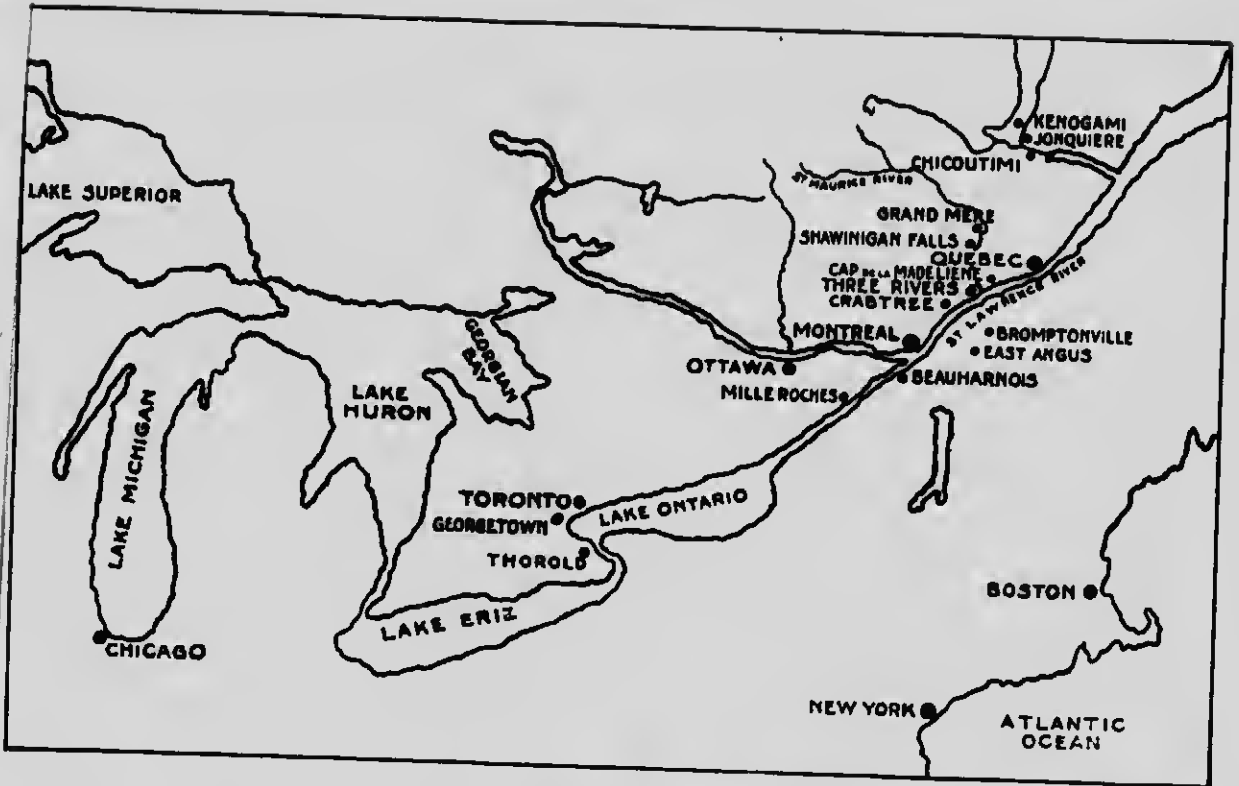
PACKING & SHIPPING

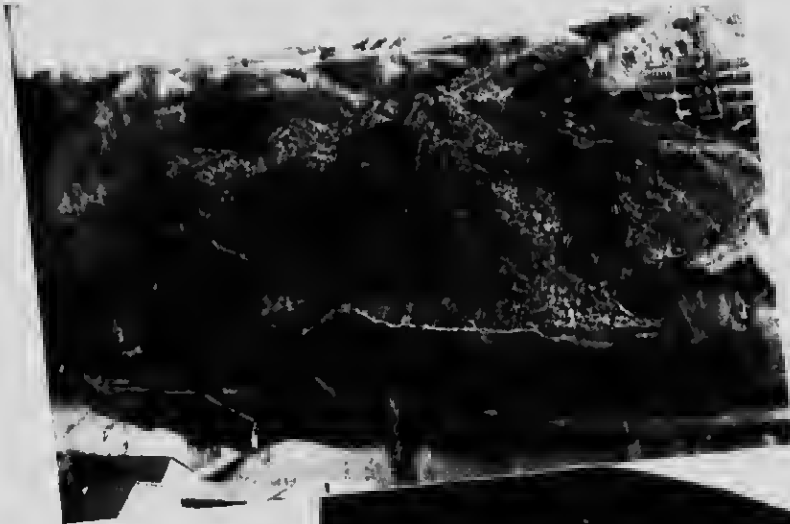
Our mills have for years been shipping paper to the principal United States and foreign markets, and are well qualified in the matter of packing and loading. It is our desire to meet the wishes of our patrons in every respect, and with the experience that our mills have had, and their present facilities for handling paper, we are well equipped to offer service to meet any condition that may arise—service that we consider unsurpassed, if equalled by any paper-producing company in the world.

The location of our mills on the main arteries of commerce in Eastern Canada and their connection with the large trunk lines leading to all parts of the United States, enables us to give quick and adequate deliveries. While during the war difficulties in shipping have been encountered in all lines of manufacturing, we have been able to give our patrons satisfactory service consistent with war conditions. With the gradual return to a pre-war basis, we can assure transportation facilities second to none.

Ocean shipping is now being resumed by the larger companies and with the nearby location of our mills to the principal seaports of Eastern Canada and the United States, we are in position to offer to our clients in foreign countries entirely satisfactory overseas facilities.

Smith, Dene & Moore, Limited, Montreal
Engraved and Printed by
The Mortimer Co. Limited, Ottawa





PHASE
CANADIAN P



PHASES OF THE
CANADIAN PAPER INDUSTRY

