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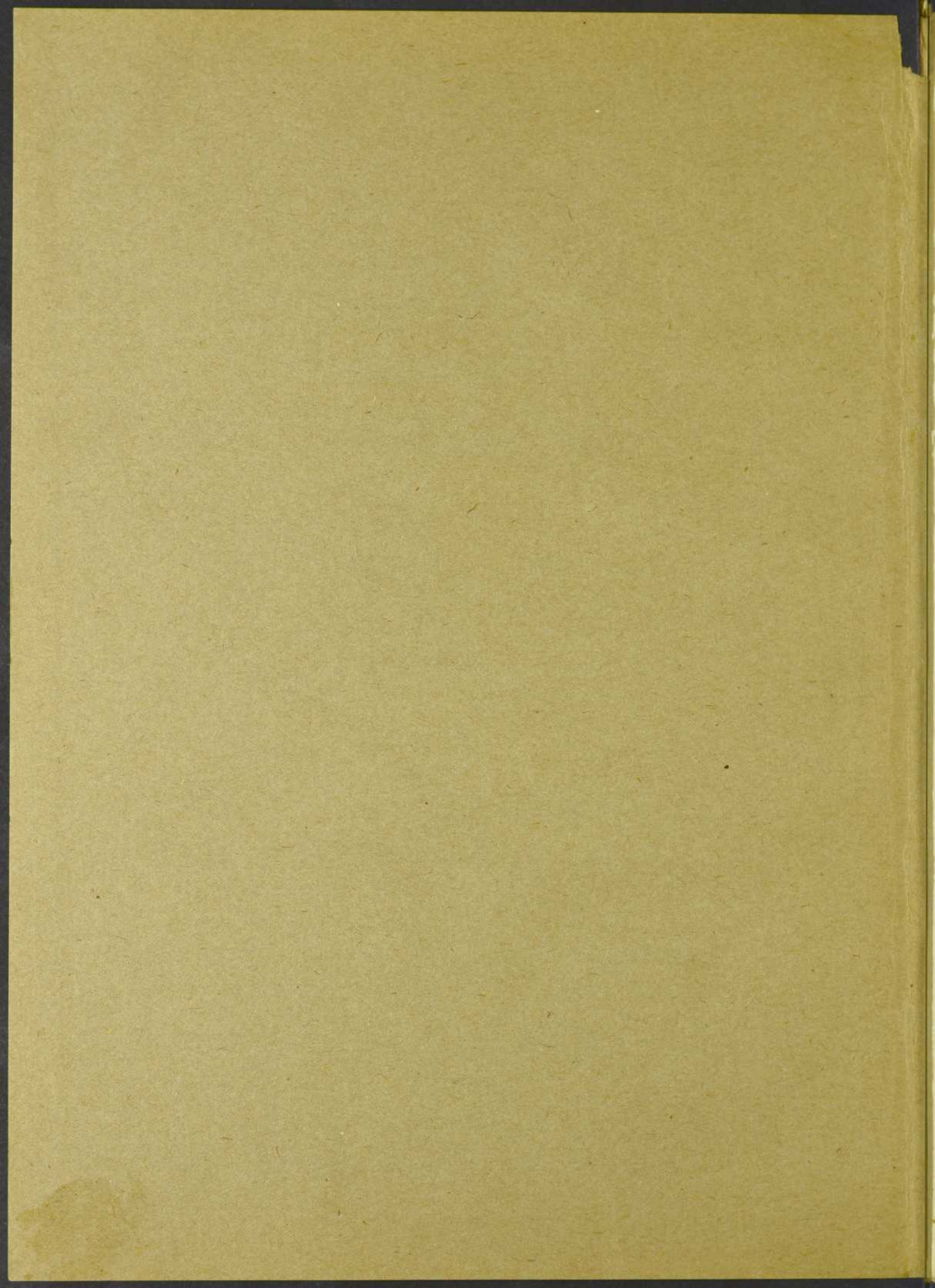
FROM RAGS TO
WRITING PAPER



BIBLIOTHEQUE
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WRITING PAPER



FROM PAGE TO
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FROM RAGS TO WRITING PAPER.

A SERIES OF TWELVE SKETCHES BY C. W. SIMPSON, R.C.A.,
REPRODUCED WITH DESCRIPTIVE NOTES BY THE
ROLLAND PAPER COMPANY LIMITED, AT WHOSE ST.
JEROME MILL THE SKETCHES WERE MADE.



RECENTLY, art has abandoned its somewhat academic aloofness and shown itself entitled to take a worthy place in the productive group called industry.

It is as though its vision had widened. Art has always acknowledged that its true mission is to make beauty visible to those who before did not recognize it. Now it has come to perceive that there is a beauty and a dignity in manufacture which needs such translation.

In this series of sketches, the artist has succeeded in visualizing a complicated process—that of transforming rags into writing paper. He has thrown round it something of that “light which never was on sea or shore.” He has captured this visualization with a line and tint technique peculiarly his own.

And the virtue of the work lies in the fact that no one who glances over the series can ever again see either a bundle of rags or a piece of writing paper without seeing in them something which he did not see before—the possibility of the one and the pedigree of the other.

BIBLIOTHÈQUE
SAMF-SULPICE

PROCEEDINGS OF THE

ANNUAL MEETING OF THE

AMERICAN SOCIETY OF

PLANT PHYSIOLOGISTS

HOLDEN, MASSACHUSETTS

SEPTEMBER 1958



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1958

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LIST OF ILLUSTRATIONS

The Rag Room	I
The Thresher	II
The Sorting Room	III
The Boilers	IV
The Beaters	V
The Jordan Refiner	VI
The Paper Machine	VII
Tub Sizing	VIII
The Lofts	IX
The Calendars and Platers	X
Inspecting, Counting and Trimming	XI
Wrapping and Packing	XII

THE HISTORY OF THE

REPUBLIC OF THE UNITED STATES OF AMERICA

FROM 1776 TO 1876

BY

WILLIAM F. STANTON

NEW YORK

1876

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FOREWORD



It is no mean artistic achievement to reduce to a series of twelve pictures a complicated process that takes from three to four weeks to complete—the process of converting a bundle of rags into a ream of writing paper.

Nor is it an easy thing for the reader to grasp the significance of these pictures unless he take with him, as one takes a guide through a museum, an analysis of the process couched in the broadest possible terms.

To this end it might be said that the process of paper-making is divided into four parts:

First—The rags are reduced to a mass of pure cellulose fibres. (Pictures I to IV.)

Second—These fibres are further reduced and refined, and certain necessary ingredients are added. (Pictures V and VI.)

Third—The “paper machine” forms the sheet of paper from this mixture, eliminating the water which has been used thus far as a “carrier.” (Picture VII.)

Fourth—The paper goes through various “drying” and “finishing” processes. (Pictures VIII to XII.)

If this rough generalization is kept clearly in mind, the various details added to explain the pictures will be found to fall naturally into their right places, like shadings into an outline drawing.



F O R E W O R D



The following is a list of the names of the members of the committee who have been appointed to investigate the various questions which have arisen in connection with the proposed new constitution of the Society. The names are given in alphabetical order of surnames.

Mr. A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.

I.
THE RAGS

I. THE RAGS

THE "rags" used for making the highest grades of writing paper are the aristocracy of rags — pure white linen or cotton garment factory clippings. Animal fabrics such as silk and wool are unsuitable.

With the great development in paper making and the consequent increase in both the demand and the price of this product, the whitewear manufacturer has learned to place a proper value on the different grades of cuttings.

The rags are collected, sorted and classified with the utmost care in the garment factory. They are then sent to wholesalers, who send out samples from which carload lots of uniform quality can be ordered after the samples have been subjected by the paper maker to rigid chemical tests.



C The rags arrive in bales. They are elevated from the track-side shed shown in this drawing to the top of the mill in trucks drawn by cable.



II.
THE THRESHER

II. THE THRESHER

THE absence of specks and blemishes in such a sheet as Superfine Linen Record can be obtained only by the most painstaking care in eliminating dust, dirt, and other foreign substances.

This vigilant cleaning process begins with the "thresher" and ends only in the inspecting room, where every finished sheet that is not absolutely clear and perfect is ruthlessly rejected.



The "thresher," as its name indicates, is a threshing machine or fanning mill for the removal of all dust and dirt.



III.
THE SORTING ROOM

III. THE SORTING ROOM

SCRUPULOUS cleanliness is essential to every process of paper making. It is a striking feature of every department of a paper mill.

Every rag that goes into the factory is first inspected by trained girls alert to detect buttons, pins, bits of metal, etc., ripping the larger pieces on the scythe-like knives seen on the left.

After this sorting, the rags are put through a cutting machine which reduces them to quite small pieces. They are then given a second dusting similar to that which they received in the "thresher."



C It will be remembered that the first stage in paper making is the reduction of rags to pure cellulose fibres. "Dry cleaning" has now been carried as far as possible in eliminating extraneous matter. The next process is boiling.



IV.
THE BOILERS

IV. THE BOILERS

NOT only dust and dirt, but all fatty matter also must be removed from the rags to produce fine cellulose fibres, which are the basis of linen and cotton rags. This is the work of these immense boilers which have a capacity of several thousand pounds. In them the rags are "cooked" for between eight and fourteen hours in an alkaline liquor under steam pressure. Meanwhile the boilers revolve slowly.

After boiling, the rags are put through the "washers" which differ very little in appearance from the "beaters" illustrated in the next picture. In these huge wash-tubs through which pure water flows continuously the rags are forced round and round until thoroughly washed. While this process proceeds, the rags pass under a revolving roller teathed with knife-blades which tear the rags to shreds.

When the washing is practically complete, bleach is added. The rags, which by this time have been reduced to a pulpy mass of fibres, are then taken to the "drainers," tile-lined vaults, where they remain for several days while the water and bleach drain away.



Here the "rags" are being taken out of the boilers after the liquor has been drawn off. They are now ready for the "washers."



V.
THE BEATERS

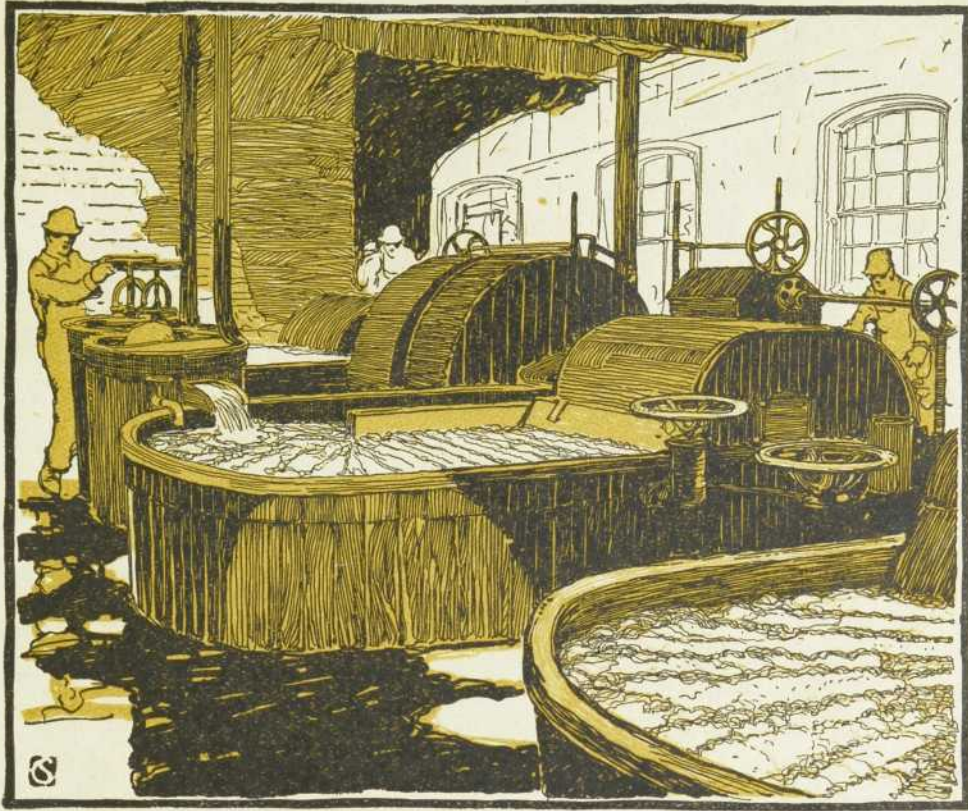
V. THE BEATERS

THE first part of the process of paper making is now complete. "The rags have been reduced to a mass of pure cellulose fibres." Now follows "reducing and refining these fibres and adding the necessary materials."

The rag pulp is brought up from the drainers and put in the "beaters" with nice regard to the varying qualities which varying types of rag will give to the finished product. The formula, consisting of dyes, resin size and other chemicals, with a large amount of water is then added. The beating process, while thoroughly mixing these ingredients, reduces and refines the rag fibres.

The time which the mixture remains in the "beaters," and the adjustment of the beater roll, determine the length of the fibres and the consistency of the material. Longer fibres give greater strength; shorter fibres better appearance. Fast beating will give one result; slow beating, another. The "beating" is something which cannot be done according to any scientific rule or regulation, and the degree of perfection attained is dependent on the ability of the "beater-man." Therefore, he must have long experience and the skill of an artist, for upon his judgment depends the maintenance of the manufacturer's standards.

NOTE—In making other than "all rag" papers, a proportion of wood pulp is mixed with the rag pulp. Such papers are sometimes called "rag content" papers.



C These large oval vats are known as "beaters." A partition running lengthwise down the centre but not extending the full length of the tub can be seen in the picture. Round this partition the stock is made to circulate. In the centre and on one side of this partition is the "beater roll," a large cylinder which revolves within a few inches of the bed plate on the base of the vat. Both the bed plate and the roll are equipped with sets of knife blades. As the roll revolves it causes the stock to circulate round the vat, "beating" the mixture as it passes between the knife blades.



VI.
THE JORDAN REFINER

VI. THE JORDAN REFINER

THE work of the "beaters" is supplemented by that of the Jordan Refiner, a cone shaped machine equipped with series of revolving knives capable of the nicest adjustment. These give the last touch in the refinement of the fibres. Here, again, the personal element figures strongly, as it is only by the sound of the running machine that the tender is guided.

From this machine the stock is removed to "stuff chests," large vats where it is diluted with pure water to the appearance of skim milk and kept constantly stirred to prevent settling.

The stock is now ready for the "paper machine," which performs the gigantic task of transforming this watery stock into a continuous sheet of paper.

From the "stuff chests" the milky stock is pumped to the "stuff box" at the head of this machine. The outlet of this receptacle must be carefully adjusted, as the thickness and weight of the paper depend largely on the volume with which the stock flows on to the machine.



The "Jordan" adds the finishing touch to the first two stages of paper making. After passing through this machine, the disintegrated fibres that came to the mill as rags, are ready to be made into paper.



Faint, illegible text, likely a caption or description of the photograph above.

VII.
THE PAPER MACHINE

VII. THE PAPER MACHINE

IT takes the paper machine from two to four minutes to turn into paper the liquid stock, the preparation of which has taken from two to four weeks.

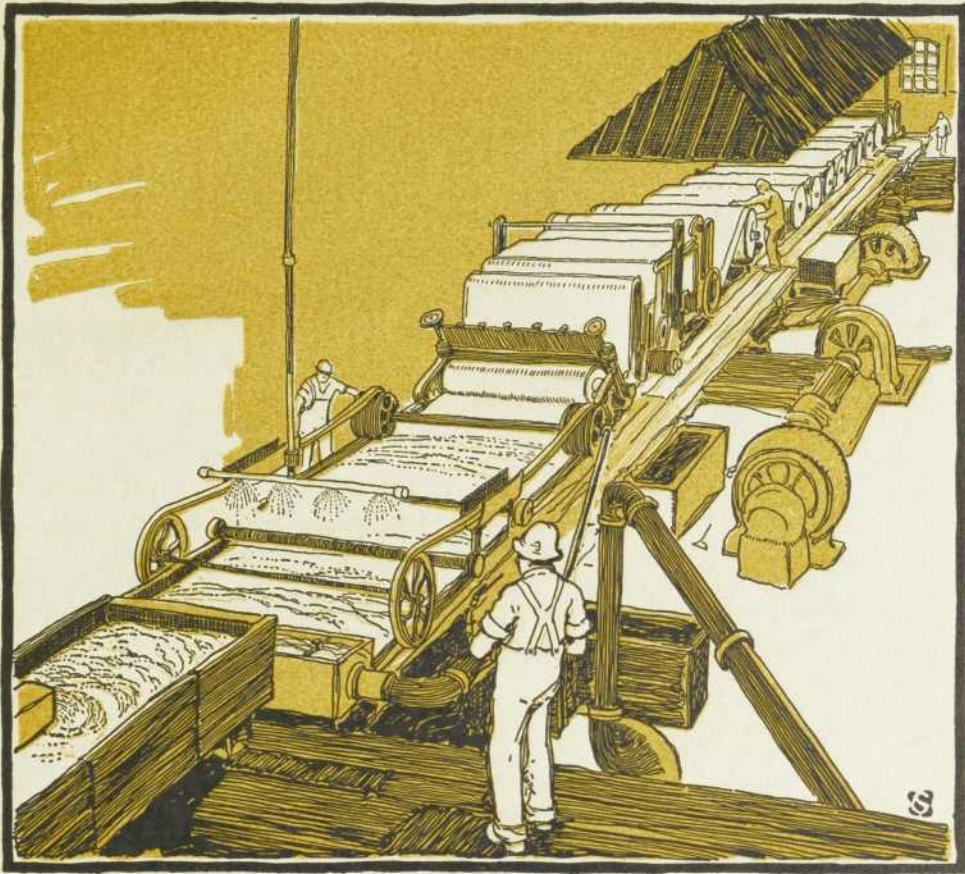
As the stock flows onto the machine it is over 99% water. It is received and carried forward on the fourdrinier wire, which is an endless belt of wire cloth full of tiny meshes through which the water rapidly drains, but which are too small to allow the passage of the fibres. As the belt moves forward, it has also a lateral shaking which causes the fibres to take their correct relative position.

The sheet of paper is actually formed on the fourdrinier wire, and from it passes between felt rolls which sponge or squeeze out a large portion of the remaining water.

The drying is then completed as the sheet passes over a series of large heated cylindrical rolls called the driers.

The stock which came to the machine as liquid has now been transformed and felted into a sheet of paper.

NOTE—The watermark is applied at the first or “wet end” of the machine, where a roller presses the raised design gently on the pulpy sheet about two-thirds of the way down the wire belt, thus displacing a number of the fibres and leaving a relatively transparent impression.



C A Chinaman, Tsai-Lun, first invented paper making in China in the year 123 B.C. It was then made in moulds manipulated by hand. In 1799 A.D. a simple workman, by the name of Robert, in a factory in France, invented a machine to produce a continuous sheet of paper. Later, about 1807, great improvements were made to the machine by the Fourdrinier brothers in England. Since that time steady improvement has been made, the paper machine of to-day being one of the most intricate and efficient machines of modern industry. It takes from seven to ten years experience to become a machine tender.



VIII.
TUB SIZING

VIII. TUB SIZING

AS a high-grade paper leaves the "dry end" of the paper machine in a continuous strip, as shown at the right-hand side of this picture, it is passed through a bath of hot animal size solution.

This "sizing" is given to the best bond papers only. It improves the writing qualities and strength of the sheet, and gives it a "crackle" and a character that other papers do not possess.

NOTE—The "tub sizing" is in addition to the ordinary sizing given in the "beaters."



Ⓒ This drawing shows the sheet of paper coming from the "dry end" of the machine, passing through a tub of hot size, and thence to the apparatus which cuts it into sheets ready for the lofts where it receives the seasoning process called "loft drying."



IX.
THE LOFTS

IX. THE LOFTS

TO thoroughly "cure" a paper, no method has been discovered to take the place of the somewhat tedious process called "loft drying." After the paper has been tub sized and cut to the standard sizes, it is taken to the lofts—usually situated, as the name indicates, at the top of the mill—and hung on racks to dry. The loft is then closed for several days while it is heated by steam to a carefully prescribed temperature. By this method the size seasons properly into the paper, giving it a life and "feel" which has not been equalled by any quicker means.

NOTE 1—"Machine dried" papers are not "tub sized," and receive no further drying after leaving the machine.

NOTE 2—"Air dried" papers are "tub sized," but, after tub sizing, they are not immediately cut in sheets, but first pass through the "web," where hot air is blown on the paper, absorbing the moisture. This process takes only a few minutes.



C Here the artist has shown only a corner of one of the lofts. Usually there are a number of these lofts independent of each other. The man on the left is examining the sheets as they hang on the racks.



X.
**THE CALENDERS
AND PLATERS**

X. THE CALENDERS AND PLATERS

THE surface finish of a paper is produced by the "calenders" and "platers," which give it a sort of ironing.

The calenders consist of a series of rolls. Some are of pressed steel, some of compressed cotton or paper. Pressure is applied as the sheets pass between these rollers.

The "platers" produce a very similar result, but in this process the paper is placed between sheets of metal and pressure applied.

A "linen finish" is secured by placing sheets of linen between the metal sheets in the "plater."

NOTE 1—The heavier or "ledger" papers are usually given a higher finish than the lighter or "bond" papers.

NOTE 2—To the layman the choice of a "finish" may seem purely a matter of personal taste; but, to the printer or lithographer, it is one of extreme importance in getting the exact result desired.



C A calender is shown on the left of this drawing and a plater on the right.



XI.
INSPECTING, COUNTING
AND TRIMMING

XI. INSPECTING, COUNTING AND TRIMMING

THE rags have now been transformed into writing paper. There remains only the final stage in the elimination of foreign matter. Every sheet in a good paper mill is examined with scrupulous care. The least spot or blemish is enough to condemn the whole sheet. The counting of the sheets into reams of 500 sheets is done by hand, no quicker or better method having yet been discovered.



C After rigid examination the sheets are counted into reams and trimmed ready for packing. The girl in the foreground is counting; those in the background are examining.



XII.
WRAPPING AND PACKING

XII. WRAPPING AND PACKING

ALL-RAG, loft-dried papers such as Superfine Linen Record leave the packing room to carry the most important records and communications of the world's commercial and financial transactions. The sheet of paper is now wrapped and packed in cases—made ready for the printer, the business man, the writer, the novelist—for its destiny.

The average user will not think of the work necessary for its production; but anyone who has glanced over these sketches will have an idea of the art, the science, the care and the manipulation necessary to make it worthy of being the carrier of human thoughts.



C Bond and ledger papers are wrapped in reams of 500 sheets each in the various standard sizes, which have been found to cut most economically into the usual sizes of stationery. They are packed for shipment in cases of approximately 500 lbs. each.



HIGH-GRADE PAPER MAKING IN CANADA

THE first mill in Canada to make finished high-grade bond and writing papers was built in 1882 at St. Jerome, P.Q., by the Rolland Paper Company Limited.

The site was well chosen on the North River, where excellent water-power was developed and an abundant supply of pure, clear water was assured.

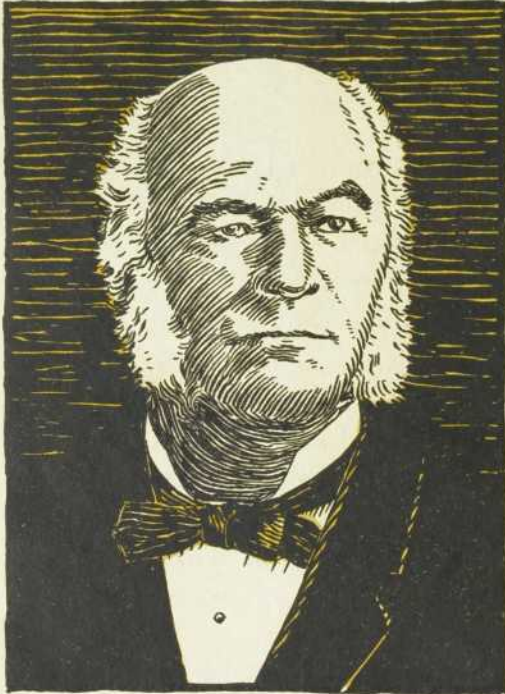
The mill was equipped to produce a loft-dried and tub-sized paper of the highest order, and immediately specialized in an all-rag paper, which was watermarked Superfine Linen Record.

In 1885, this paper captured the Gold Medal at Antwerp; in 1893, the Highest Award at Chicago; and, in 1900, the Grand Prix, Paris.

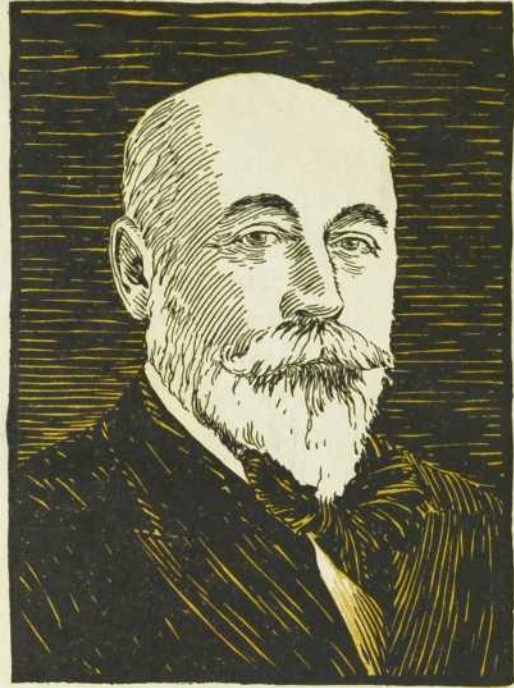
In 1912, The Northern Mills Company at Mont Rolland, P.Q., was taken over by the Rolland Paper Co. Limited, which enabled the Company to increase its production and make a complete line of bond, writing and ledger papers.

In recent years, several other mills have been built to produce many grades of bond, writing and book papers.

A few years ago, the percentage of Canadian-made papers of this class used in Canada was small. To-day, the reverse is true—and there is also a lively enquiry for Canada's high-grade papers for export.

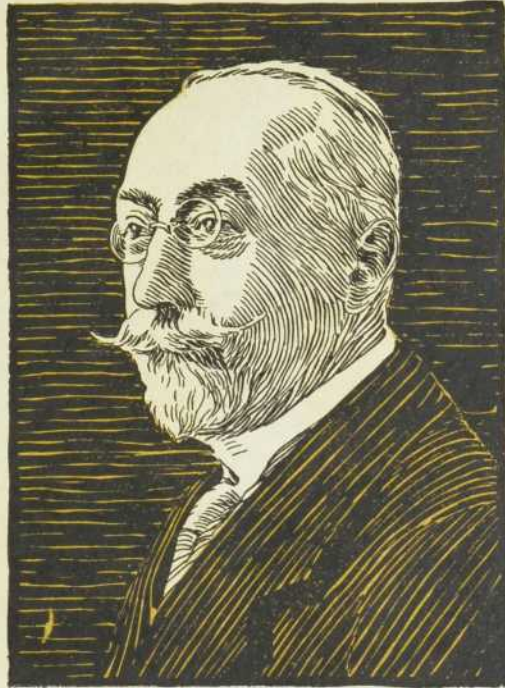


THE LATE SENATOR J. B. ROLLAND



THE LATE HON. J. D. ROLLAND

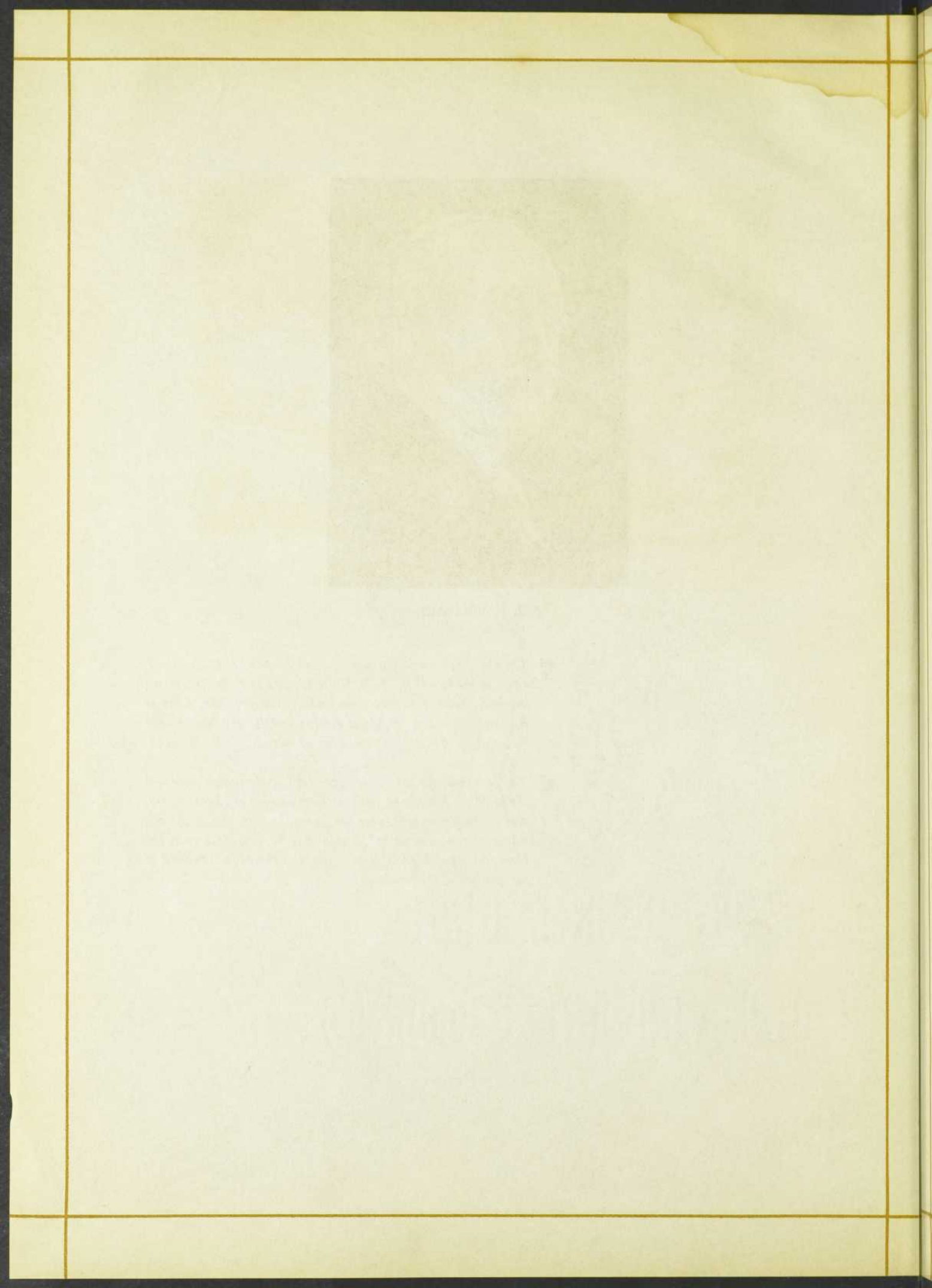
- ¶ *It is interesting to note that three generations of the Rolland family have had the direction of operation and policy of The Rolland Paper Co. Limited. This is the tradition of long-established mills of old France, but is probably the only instance in Canada of such a record.*
- ¶ *The late Senator J. B. Rolland founded the Company in 1882, his work being carried on by his two sons, the late Hon. J. D. Rolland, and the present President, Mr. S. J. B. Rolland.*

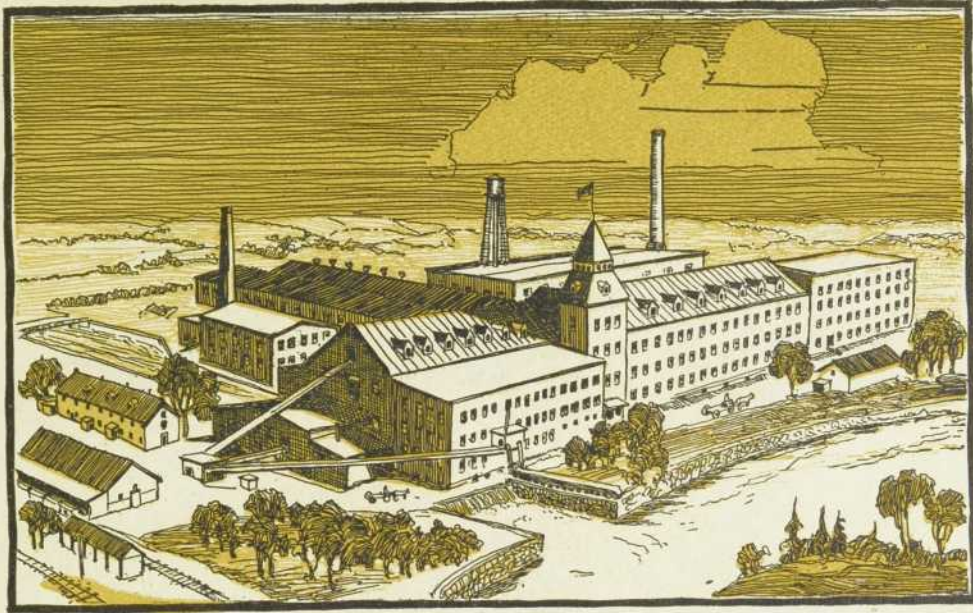


S. J. B. ROLLAND

¶ *The third generation is represented by Mr. J. P. Rolland, a son of the late Hon. J. D. Rolland, who is Vice-President; by Mr. Jean Rolland, General Manager; Mr. Olivier Rolland, Manager of Mont Rolland Mill, and Mr. Henri Rolland, of St. Jerome, all sons of Mr. S. J. B. Rolland.*

¶ *The fact that over thirty-three per cent. of the male employees of the Mills have been with the Company over twenty years, and seventy per cent. over ten years, is a tribute to the administration, and it is largely due to this fact that the Company has been able to maintain the high standard of the quality of its products.*





THE ST. JEROME MILL

C St. Jerome is a thriving town thirty-three miles north of Montreal. The first paper mill was built there in 1882. Since then the mill has been repeatedly enlarged and improved to keep abreast of the most modern methods of paper-making. The abundant water-power, the excellent supply of clear water, make the site ideal for the purpose.





THE MONT ROLLAND MILL

C The town of Mont Rolland is beautifully situated among the Laurentian hills. Its population is composed almost entirely of employees of the Rolland Paper Company and their families. The mill is one of the model mills of North America. The rags enter it at the point which occupies the top left-hand corner of the picture and, after going completely around the four sides of the factory, reach the same point again, ready to be shipped out—as writing paper.

BIBLIOTHÈQUE
SAINT-SULPICE



**SUPERFINE
LINEN RECORD**

*This book is printed on Superfine
Linen Record of which the
above is the watermark.*

*All Rolland Papers carry the "R
Shield" water mark.*







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