

MEMBER OF THE A. B. C.

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

FORTY-SIXTH YEAR

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J. W. VAN GORDON, Vice-President

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A STRIKING YEAR OF ADJUSTMENT

A Retrospective View of the Leading Events and Market Changes in the Paper and Pulp Industry in 1917—Readjustment of Prices the Main Feature

Entrance of America into European Conflict Greatly Affects Paper Industry in All Branches—Unusual Conditions Force Consumers to Buy Very Conservatively with Result That Market Has Been on Downward Grade in Reaction to Events of Previous Year—News Print Events Constituted Chief Features in the Trade with Newspaper Publishers and Manufacturers Finally in Precedent Making Agreement Which Concludes Trial of Seven Indicted Manufacturers.

Few years, if any, in the annals of the paper industry have been as replete with important events and even far-reaching precedents as was the year which has just passed into history. It was a year of important changes in several departments of the trade, though judged from the course of events it was mainly a news print year.

As every one knows who has been connected with the industry during the past year, it was not as prosperous as was the previous year. It has been largely a period of adjustment and gradual drop in the demand for paper, and in easing up of prices for almost all grades.

Favorable Outlook When Last Year Opened

The year began with high hopes for a continuation of the record-breaking prosperity of the former year, but it was apparently not on the cards for this to occur. The entrance of America into the great world conflict to preserve her rights and to champion the cause of democracy against military autocracy placed the paper industry in a period of uncertainty; in which position it was not alone, as many other industries as great as the paper-making industry were perplexed and in doubt. Gradually as time wore on toward the early summer certain things began to loom up through the doubt and the industry began to adjust itself in some degree to the facts of the situation. But the demand for paper had fallen off considerably meanwhile, due somewhat to the campaign which was started at the time to economize as far as possible. This campaign spread quite extensively, but it was dropped when the economic fallacies of the argument became apparent and the nation was asked to be rational in its saving and not to further subject the economic organization of the country to any greater strain than was necessary.

At the beginning of the fall it looked for a while as though the demand for paper was about to reassert itself, but the fall passed without the demand strengthening to any great degree. From this period to the end of the year the demand has been largely of a hand-to-mouth character, with consumers buying only for immediate needs and supposedly awaiting a further break in the market. It has been repeatedly brought out by prominent men in the trade that such a break is not probable, owing to the tremendously increasing costs of doing business. It is likely that before present prices are lowered that they will first be raised.

Transportation Difficulties

From the early spring months the transportation system began to become congested. Shipments of raw material to the mill were held up for many weeks beyond their normal time for reaching the consignees. Jobbers who ordered finished paper

from the mills and paper mill supply dealers who shipped their goods to the mills were unable to secure cars or were held up beyond all precedent.

During the summer the situation did not improve, and the entire industry was severely crippled by the transportation congestion. During the fall and winter months, when the snow began to fall, the railroad congestion became so bad that the inevitable remedy was applied suddenly by the President of the United States, when he took over the railroads for Government account and appointed Secretary of the Treasury McAdoo as Director General of the Railroads. Paper men hailed this step as one very much in the right direction, although they realized that the paper industry could not compete with the Government or industries furnishing war supplies and their transportation on the roads of the country.

As this is being written there is a further extension of the powers of the Government over the paper industry. Because of the needs of the Government for all the power it can possibly get, several mills at the important power centre of Niagara Falls have been forced to shut down. This is one of the most important events in the annals of the industry, and as the war continues the Government's power may be even further extended.

News Print Investigation

The famous and widely heralded news print investigation and trial of the seven news print manufacturers came to its close during the last few months of the year. The investigation of the news print industry was begun in 1916 at the request of George F. Steele, then secretary of the News-Print Manufacturers' Association. This invitation was prompted by what Mr. Steele regarded as most unjust statements appearing in the press and the opinions of many members of Congress. The Trade Commission took up the work of the investigation, which culminated in the indictment of seven manufacturers. These indictments came up for trial, after many postponements, during the fall of the year before Judge Mayer of the Federal District Court. The legal talent on both sides was practically representative of the New York bar. Finally a precedent making agreement was reached by both sides, the manufacturers pleading nolo contendere, and the indicted men were fined \$11,000. The agreement provides that the maximum price to be charged by manufacturers from January 1, 1918, to April 1, 1918, be 3c, this price to be reviewed by the Federal Trade Commission in an investigation which is now going on at Washington. The findings of the Trade Commission are subject to review by the Court of Appeals, should the manufacturers find them unsatisfactory.

Perhaps the chief result gained from the publishers' stand-



FORTY-FIRST BANQUET OF THE AMERICAN PAPER AND PULP ASSOCIATION HELD THURSDAY, FEBRUARY 7, 1918, AT THE



WALDORF-ASTORIA, NEW YORK. THE PATRIOTIC ATMOSPHERE WHICH PREVAILED IS APPARENT IN THE PICTURE.

point was the enforced dissolution of the News-Print Manufacturers' Association, the dissolution of which was also incorporated in the agreement signed by the manufacturers. In accordance with the terms laid down, the association formally dissolved at a meeting held at the Waldorf-Astoria on December 12. A new association was formed, known as the News Print Service Bureau, with offices in the same place as the old association. The objects of the new bureau are to act as a statistical organization and to conserve the interests of the manufacturers generally.

The Smith Resolution

Immediately before the settlement of the case against the news print manufacturers, and after that until well in the first month of the new year, Government ownership of the news print and pulp industry was threatened by the enactment of the Smith Bill. The Smith Bill (or resolution) provides "that the Federal Trade Commission be authorized and empowered to supervise, control and regulate the production and distribution of print paper and mechanical and chemical pulp in the United States, and that all mills producing and all agencies distributing print paper and mechanical and chemical pulp in the United States shall be operated on Government account; that these products be pooled in the hands of the Federal Trade Commission for the term of the war and the emergency occasioned thereby, and equitably distributed at a price based upon cost of production and distribution, plus a fair profit, as determined by the Federal Trade Commission."

At the period of making contracts for the coming year in the news print market, the enactment of this bill was held over the heads of the manufacturers as a virtual club to hammer down prices. It proved to be comparatively little value in this connection, however. Contracts for the first three months of 1918, in harmony with the Federal Trade Commission agreement, were made at 3c until April 1, when a new price will be fixed by the Trade Commission, which is subject to review by the Court of Appeals, if the manufacturers so desire. However, alternative contracts are being made to cover the entire year at a price around 3.15c f. o. b. mill by a number of manufacturers.

Pulp Prices Greatly Decline

The beginning of the year found the demand for chemical pulp far exceeding the supply. Prices were remarkably high, exceeding the boldest prediction that could have been made a year earlier. The foreign supply was just beginning to thin out, with the German Government taking most of the Scandinavian supply. Soda pulp was somewhat scarce.

After several weeks of uncertainty as to the ability of foreign shippers to get foreign pulp here, several cargoes reached this country by way of the longer route north of the British Isles. The domestic market was troubled by the shortage of accessible wood and the growing inability to secure men to cut the wood.

Prices at this time were beginning to ease off somewhat. Bleached foreign sulphite was quoted at \$9.25. Domestic bleached was strong at \$7.75@8.10. A quiet demand began to make itself felt about April, with foreign shipments continuing to fall off. A lack of interest began to make itself felt about this time. The demand for finished paper had reached its highest level before this, and as a consequence the demand for raw materials slumped. Domestic pulp began to ease off—the bleached coming down to \$6.50@7.00.

Foreign pulp now began to accumulate on the wharves at New York and Philadelphia until at one time there was approximately 75,000 tons at these places.

The summer was extremely quiet, with the market continuing its softening tendencies. Prices for the bleached domestic eased off until at this time this product was quoted at \$5.75@6.00.

For a time the market continued to mark time, owing to the necessary adjustments the paper industry had to make when the United States entered the war.

As a further check upon the buying and exportation of foreign pulp, Scandinavian exchange began to go against the American importer. The American dollar shrunk from 20 to 25 per cent. in comparison with the Swedish kroner, which increased in value from 26.80c to 33.50c at this time.

About October 11 the last imports of pulp of any great quantity from Scandinavia reached these shores, with the value of foreign exchange going steadily against the importers on this side of the water. As a result, whatever trading was taking place during the last quarter of the year was largely for the domestic product, with the market rather soft.

An interesting turn to the situation was given when some importers turned to South America to dispose of their pulp. Paper manufacturers in Uruguay and Argentina were reported as taking fair commitments of bleached and unbleached sulphite.

Toward the close of the year a fire occurred at Baltimore which destroyed about 15,000 tons of pulp, which was regarded as somewhat of a bull argument at the time.

The year closed with the market in a much softer condition than was the case when the year began, and there remained many new problems to be solved, with the outlook not pessimistic, however.

Wood Pulp Prices for the Year

	Jan. 1.	March 29.	Aug. 3.	Dec. 30.
Foreign bleached sulphite.....	10@11	10@—	9.50@—	7.75@8.75
Domestic bleached sulphite.....	7.25@8.00	8.00@—	6.50@—	5.25@6.00
Foreign unbleached sulphite....	5.40@5.75	5.75@6.00	5.50@5.75	5.00@5.50
Domestic unbleached sulphite....	5.25@5.50	5.00@5.25	4.50@4.75	2.75@3.25
Easy bleaching sulphite.....	6.00@6.25	6.00@6.25	5.25@6.00	5.25@5.50
Krafts	6.50@7.00	6.50@7.00	5.50@6.00	5.00@—
Ground wood pulp.....	\$42@45	\$45@47	\$40@44	\$32@34

Ground Wood Prices Fall Sharply

The market in ground wood has largely followed the course of the chemical fibre market, as was natural. The year opened with ground wood at most sensational prices, it being quoted at \$50 per ton and higher at point of manufacture, with considerable difficulty in securing it even at this figure. The story of the past year, however, is one of gradual decline, owing to the slackened demand for paper in all lines except news print. This fact made the largest buyers the news print mills. Under normal conditions the news print mills which operate their own grinding plants generally have had a fairly large surplus, which was always available for the trade. However, this was not the case this year, as advertising records for the newspapers were made during the past year, and the only factor that has helped to put strength into the ground wood market situation is the buying by these mills, which not only used their own manufacture but entered the spot market to get further supplies.

There was considerable talk during the early part of the year that there would be a scarcity of wood and also of competent forest labor, owing to the working of the draft and the volunteering of a large forestry regiment for service in France, but as it developed there was more than enough wood available, and the labor problem, while still menacing, never reached a stage that could really be called acute. The railroad situation grew steadily worse, and the great problem was to get the cordage of wood already cut to the mill. This problem is, like life and death or marriage, still with us, but it promises to grow less under Government direction of the roads.

The decline in prices has been gradual, indicating the general easing up tone of the market, as the above table will show. The range was from about \$42@45 at the beginning of the year, increasing a trifle during the second quarter, dropping off in the third and last until at the end of the year the range conservatively given was about \$32 to \$34 per ton, with many figures going considerably below these quotations. The outlook at present is toward further softness in the immediate future.

Government Purchases Help Market

One of the most important factors in the market and one which contributed toward its strength during the past year were

"Whether you are a big or small buyer, the facilities of our organization—the result of more than thirty years' experience—are at your disposal."

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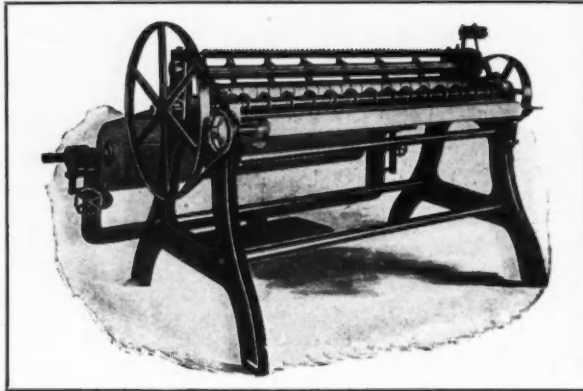
ANNUAL BANQUET OF THE NATIONAL PAPER TRADE ASSOCIATION HELD WEDNESDAY EVENING, FEBRUARY 6.



FEBRUARY 6,

1918, AT THE WALDORF-ASTORIA, NEW YORK. ALTHOUGH A HOOVERIZED DINNER IT WAS VERY SUCCESSFUL.

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QUICKLY ADJUSTED FOR MAKING SANITARY PAPER TOWELS. Can be equipped with Drum Winding Attachment for producing hard wound CREPE toilet or paper towel rolls.

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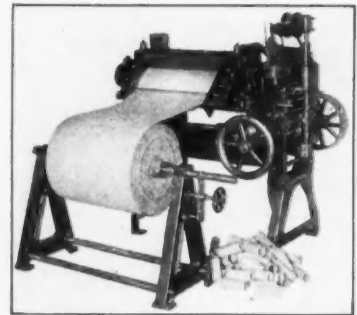
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Paper Cores for Toilet Paper Rolls and Towel Rolls Directly from the Roll

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Capable of producing 3,600 wire-stitched toilet tubes per hour directly from the roll, or from sheets cut to proper size on machine designed to take sheets if preferred. TOWEL TUBES are made at the rate of 1,800 per hour directly from the roll.

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THE DIETZ MACHINE WORKS

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the immense Government purchases of paper for the needs of the various departments. Paper men attribute much of the holding force of the market in the period of adjustment and lowering of prices in the face of a weakened demand to the supplying of these needs.

The demand for writing papers at the beginning of the year was considered very good. Just as soon, however, as the declaration of war with Germany was signed, the demand fell off to a striking and serious degree. Cheaper sulphite bonds were ordered in every place in which they could be used instead of the costlier rag papers. This was a direct result of the wave of economy which spread over the entire country at the time. As the war went on the Government became a factor in the market for fine bonds for the printing of the certificates of the various loans floated and the manifold uses to which paper is put in the everyday operations of the Government. This helped some to put the market in better shape, and as the year closed the demand for the finer grades of writings and bond papers was practically up to normal.

Dull Market in Tissues

In tissues the market was largely dead during the past year. Prices were cut by jobbers who had large supplies on hand, so that at one time their prices were much less by the ream than were mill prices for the same quantity. The lifeless condition of the tissue market continued practically during the entire year. Several of the mills making tissues closed down during a portion of the time, but this did not seem to help the market any. The end of the year found the market still in bad shape.

Board Prices Show Big Decline

The market in boards acted in sympathy with the other departments of the market. The price advances which in the previous year had been phenomenal were gradually eased up, so that a great deal of the inflation was taken out of them. However, as quotations of the various grades went lower the demand did not increase, so after a short period prices continued stationary, with only a very little demand current. The decline in the prices of

boards has been no greater in proportion than those made in the other grades of paper, although the rise was out of proportion. Some factors irrelevant of the paper market have entered into the situation in boards. There was the strike of the employees of several of the paper box manufacturing concerns and also the dullness in the latter part of the year of the garment workers' trades, which ordinarily consume a very large quantity of paper boxes. The way prices acted during the past year can be readily discerned from the following figures for each quarter of the past year:

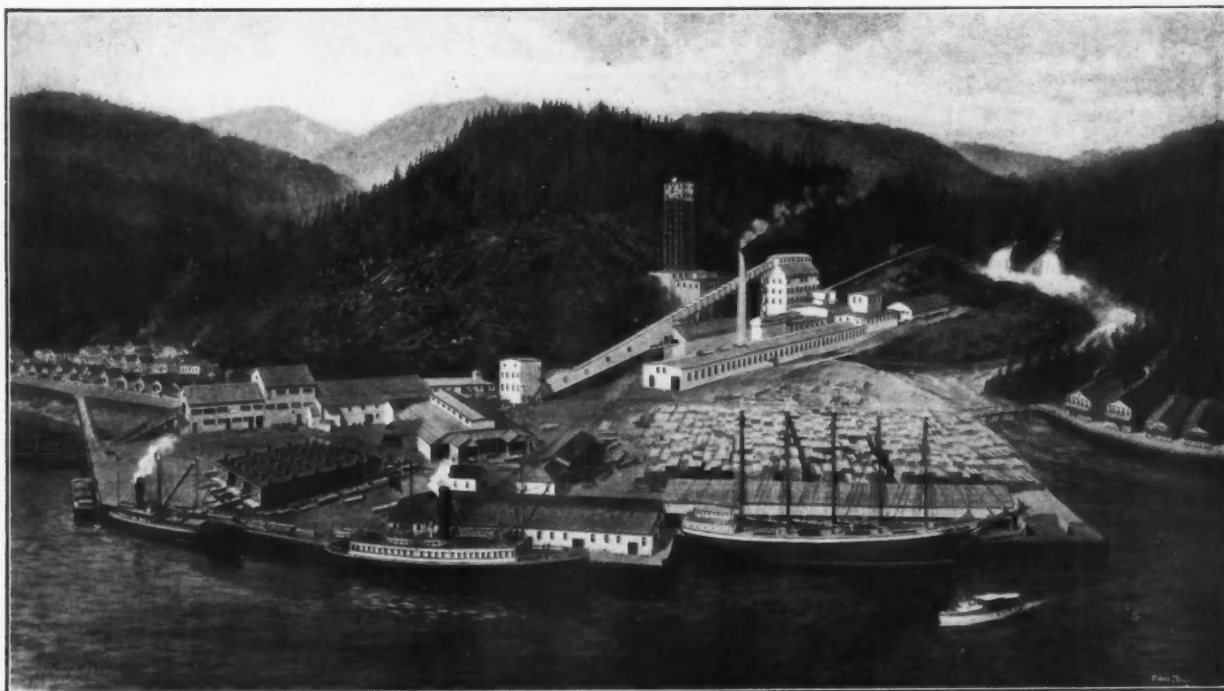
	January 4.	March.	Sept. 27.	Dec. 27.
News board	\$75@80	\$70@—	\$55	\$40
Straw board	65@70	60@70	50	43
Chip board	70@—	65@—	50	38
Wood pulp board.....	75@—	75@—	65	60

CONTROLLING THE PAPER INDUSTRY IN ITALY

At every paper mill in Italy the minister of industry, commerce and labor may institute a control, temporary or permanent, for technical and economic assurance in regard to manufacture and cost of paper. To those charged with the control must be shown the books and other documents relative to the carrying on of the mill. They will have the right to visit all the premises, warehouses, machinery, etc.

In case of nonfulfillment on the part of a paper mill of the obligation to produce the amount of paper prescribed for it by a decree of July 17, 1917, the minister of industry, commerce and labor, unless it is proved that the nonfulfillment is due to causes not imputable to the paper mill itself, may, after having heard the representative of the firm, order the purchase of paper at its expense. The difference between the purchase price of the paper on the market and that which should have been paid to the paper mill will be charged to the mill.

In case of an appeal, the magistrate who hears the case has power to decide whether the conditions exist for purchase at the expense of the mill. The minister of industry, commerce and labor, in accord with the minister of the interior, will establish the prices and the rules to be observed in the distribution of paper for publications.



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1917 An Eventful Year in News Print Paper

Prices Advanced, But Publishers Chose to Shut Their Eyes to the True Reasons for the Advance and Endeavored to Compel the Paper Mills to Sell at a Loss—Government Regulation, Anti-Trust Prosecution and Other Forms of Interference Were Urged, with Not Very Good Success—New Mills Projected by Paper Committee of A. N. P. A. Fail to Materialize.

Written Especially for the Annual Number of the Paper Trade Journal

Nineteen hundred and seventeen was a decidedly eventful year for makers and users of news print paper. The unusual conditions created by the entry of the United States into the war were complicated by the efforts of newspaper publishers to punish American paper makers for not being an exception to the natural trend of the world market on all grades of paper. In common with other commodities, news print had advanced in cost, but publishers chose to shut their eyes to the true reasons for increased price and attempted to coerce the paper mills into selling at a loss. Government regulations, anti-trust prosecutions, and other forms of interference were vociferously demanded, and tried. The results—as could be expected—were disappointing to those who were so unwise as to try to overcome basic economic conditions by artificial and unsound regulations and legislation.

As a direct result of a 200,000-ton increase in consumption in the United States during 1916—approximately 12½ per cent. more than in 1915—the margin between production and demand continued to be uncomfortably close during the early months of 1917. Efforts to bring about a general decrease in consumption were unsuccessful, until the daily newspapers in Philadelphia, Buffalo, Pittsburgh, Chicago, St. Louis and other large cities increased their sales price from 1 cent to 2 cents, cut off returns, limited their advertising volume, etc. By the end of 1917 practically every large city except New York, Boston, Detroit and Baltimore had 2-cent morning papers, and only a few other cities retained 1-cent evening papers. (New York publishers held out against the inevitable advance to 2 cents until January 25, 1918.) As a result of these economies in consumption, the panicky conditions prevailing in 1916 and early months of 1917 were brought back to normal by June 1. Since that time the supply has been equal to all legitimate demands, assuming even distribution and no hoarding of paper by selfish publishing interests.

Supply of News Print Paper

The Federal Trade Commission's report of December 31, 1917, shows 145,000 tons in publishers' stocks and 38,000 tons in transit. This equals a month's normal consumption and is relatively the same supply as existed January 1, 1916. Total production was slightly less than in 1916, although 1917 showed an increase up to October 31. The falling off in the last two months was due to two mill fires, coal and car shortages, strikes at Pacific Coast mills, and transfer of the last machine at Berlin Mills to other grades. One new machine came into the field in the United States early in 1917, and one in Canada in December.

A number of new mills confidently "projected" by the Paper Committee of the American Newspaper Publishers' Association to start production in 1917 did not materialize. Efforts to interest capital in new plants or extensions failed on account of the antagonistic attitude of most publishers, who continued their bitter attacks on the industry throughout the year.

Few labor troubles were experienced, although some of the Pacific Coast mills lost production in the last quarter, owing to strikes.

The supply from the United States and Canada was added to by an arrangement entered into by the American Newspaper Publishers' Association in July to take over and operate the Northcliffe mill at Grand Falls, Newfoundland. By special favor of the United States Shipping Board in Washington, they were permitted to use some of the interned enemy steamers, and up to the end of 1917 about 15,000 tons of news print were landed at Boston, New York and New Orleans. This favoritism to a special interest caused considerable feeling, especially in Canada. Our Northern cousins thought that the use of vessel space on comparatively unnecessary shipping was traitorous to the Allied war aims, and some trenchant criticisms were printed on the subject. The American Newspaper Publishers' Association retorted that the "delay to steamers was only a little one." One interesting development in connection with the import of this Newfoundland tonnage was the much heralded "effect on the spot market." The American Newspaper Publishers' Association appears to have charged as high a price to their constituent publishers, and others, as the market would stand, and latest reports show them to be demanding \$3.20 per 100 pounds f. o. b. New York, Four Dollars a ton higher than their own statements regarding the "inflated" market price for paper made in the United States and Canada.

Demand for News Print Paper

The demand for news print continued steady throughout the year. Economies effected by the publishers through price increases, cutting off returns, etc., were largely offset by increased circulation due to war interest, larger papers and new features added to justify higher price to readers.

Advertising volume increased up to the end of June, 1916, held about the same as in 1916 from July 1 to October 31, and fell off slightly in November and December. The whole year will show a gain over 1916 of 3 per cent.

The number of daily newspapers remained fairly constant. Records for 1917 show forty new daily and Sunday papers of note. Twenty-six papers of similar size suspended. Some important amalgamations occurred, the most notable being the purchase of the six-day Cleveland *Leader* and its incorporation with the *Plain Dealer*. Seven hundred and fifty thousand dollars was paid for the *Leader's* franchise and subscription list only, an interesting sidelight on the publishers' howls about their business being ruined by the inevitable advance in paper costs.

Since January 1, 1918, the demands on mills have increased owing to uncertainties about deliveries of paper already in transit, and production has been seriously cut into, due to further car shortage in Eastern Canada. The Fuel Administration Order issued January 17 is figured to take 60,000 tons of news print out of the market, and unless consumption is cut to a corresponding extent, the effect of these restrictions in production will be sharply felt before the first of April.

Government Activities

The investigation by the Federal Trade Commission, started in

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OUR QUOTATION WILL INTEREST YOU

Value of Swedish Kronor during week ending
 February 5th. Normal rate of exchange: 1
 Krono = 26.80 cents.

Jan. 29th—33.60	cents—increased value	25.37%
" 30th—33.80	" "	26.12%
" 31st—33.70	" "	25.75%
Feb. 1st—33.65	" "	25.50%
" 2nd—33.90	" "	25.37%
" 4th—33.20	" "	23.89%
" 5th—33.50	" "	25.00%

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April, 1916, came to a head on March 3, 1917, when the Commission made an interim report to the Senate. The report covered a compromise agreement proposed by manufacturers producing one-third of the news print in the United States and Canada. These manufacturers requested the Trade Commission to determine the probable increase in costs, and fix a fair selling price for the period from March 1 to August 31, 1917. This proposal contained a clause under which the publishers benefiting agreed to give up 5 per cent. of their contracted tonnage for the purpose of supplying those smaller users who were not covered by contracts. It was generally understood by the paper manufacturers who made the agreement with Francis J. Heney, special counsel employed to assist the Trade Commission, that the Commission would find that increased costs justified a price close to 3 cents f. o. b. mill. To their dismay the Commission apparently based their conclusions on 1916 cost figures, and decided that 2½ cents f. o. b. mill was a reasonable price for roll news on 80 per cent. of the tonnage produced in the United States and Canada. The price for the remaining 20 per cent. was never determined. The proposed agreement never became effective. The principal reasons were the unwillingness of publishers to agree to reduce consumption and the unexpected action of the Federal Department of Justice on April 13, 1917, indicting seven prominent men, six of whom were paper manufacturers and members of the executive committee of the News Print Manufacturers' Association. These indictments were found by a Federal Grand Jury in New York on the ground of alleged violation of the Sherman Law. The paper men had agreed with Mr. Heney to propose the compromise offer of February 15 with the assurance that this would adjust the dispute with publishers for a six months' period at a price fair to both sides, and in the belief that by September 1 it would have become apparent to all concerned that the contract prices for 1917 were justified by increased costs.

They felt doubly injured by the 2½-cent price fixed by the Trade Commission and by the indictment which followed on April 13. The Commission requested formal confirmation from those manufacturers who had signed the original proposal. In May five of the manufacturers refused to go on with the arrangement, and the proposed compromise agreement failed. Later in the year the Federal Trade Commission offered to open its files on this particular phase of the matter to those publishers who had given their written consent to the suggested 5 per cent. reduction in contract tonnage, so that these publishers could proceed legally against manufacturers if they desired to. No action appears to have been taken on this suggestion.

The Federal Trade Commission followed this up in July by asking Congress to enact legislation which would place the entire print paper and wood pulp industry in the United States and Canada under Government control.

The American Newspaper Publishers' Association had attempted to dissuade the Department of Justice from seeking to indict the manufacturers under the Sherman Law, and it called for a meeting of its members in Washington early in July to decide on what course the Association would take on this effort to put the mills under Government control. The proposal to endorse the Trade Commission's plan was negated. The Paper Committee of the Association felt that this was a vote of "no confidence" and threatened to resign. A few days later they decided that the vote at the Washington meeting might be nullified and overridden by writing to the smaller publishers who had not seen fit to attend the Washington meeting. This "referendum" was started over the protests of the members who had attended and voted against the plan in Washington. The actual result of this supplementary canvass has never been given, but Chairman Glass of the Paper Committee stated that a "majority of the members" of the American Newspaper Publishers' Association had supported the Paper Committee plan for Government control of the paper and pulp mills.

In October, 1917, Senator Smith, of Arizona, introduced a resolution giving effect to the request of the Federal Trade Commission. This was not reached before Congress adjourned.

In August, 1917, the Secretary of War under the direction of President Wilson ordered the International Paper Company to supply paper required for the Official Bulletin at 2½ cents f. o. b. mill, on the ground that this was a war necessity and on the statement of the Federal Trade Commission, W. B. Colver, that 2½ cents would allow the International Paper Company a fair average profit of \$5 per ton, which he pleasantly affirmed was all they needed. Mr. Colver's failure to realize the fundamental difference between margin on sales price and return on investment destroyed the little confidence that remained in the ability or willingness of the Commission to treat manufacturers fairly. The International Paper Company courteously protested against the price ruling, but agreed to supply the paper as a patriotic duty.

The case against the indicted manufacturers was postponed several times pending a settlement. This was agreed to early in November, and on November 26 five of the accused pleaded nolo contendere and were fined \$11,000 in all. This settlement was made under a written agreement between the manufacturers and the United States Attorney General, providing for a price of 3 cents f. o. b. mill up to April 1, 1918, and thereafter for a price to be fixed by the Federal Trade Commission, subject to appeal and revision by the Federal Judges of the First District (New York). The paper men stated that the Trade Commission had demonstrated their inability to grasp the essentials of the business, and insisted upon the right to appeal to a judicial body in the event of any repetition of unfair price fixing. On the publishers' side they are to be represented by the Attorney General of the United States and can take action only through him.

This agreement appeared to satisfy everybody concerned, and the American Newspaper Publishers' Association promptly claimed the credit for their successful work in bringing it about. However, on thinking it over, some of the publishers realized that they had fought a long and costly battle, only to find at the end of it that their pet theories regarding low-priced paper were exploded. They decided to get behind Senator Smith's resolution for Government control, which had been carried over into the new session of Congress, and a campaign to popularize this was pushed vigorously by the Paper Committee of the American Newspaper Publishers' Association.

The representative newspapers in larger cities had by this time seen that their professional paper advisers were more often wrong than right, and most of the larger publishers opposed the measure. After a three days' debate in the Senate, the resolution was defeated, 36 to 32, on January 15, 1918.

The foreign markets advanced very rapidly during the year and the paper commissions and other price-regulating authorities in the countries at war limited the size of newspapers and fixed prices for news print. This was established in England as \$9.40 per 100 pounds, in France \$8.60 per 100 pounds, and in Australia \$8.75 per 100 pounds. South American newspaper were obliged to depend on the United States and Canada for their paper supplies, and early in the year the Argentine Government reduced the import duty on news print, so as to ease the burden to their own publishers.

The prices obtained on paper for export were \$8 to \$10 a ton higher than the United States market throughout the year. Most American mills patriotically limited their export trade so as to take care of the home demand. Many of the larger manufacturers refuse to export any paper whatever, as long as the supply situation here remains so critical.

The volume of export trade enlarged considerably during the year, and up to December 1 exports amounted to 82,000 tons. September, October and November averaged 12,000 tons a month, showing a big gain over any previous month in recent years.

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News print exports for the year will probably show a total of over 90,000 tons, against 72,000 tons in 1917.

Ground Wood and Sulphite

The price on ground wood declined from an average of \$42 f. o. b. the pulp mill in January, 1917, to \$28 f. o. b. pulp mill in November. News grade of sulphite dropped during the year from \$90 f. o. b. pulp mill to approximately \$50 f. o. b. pulp mill. At the latter figure pulp producers state they are not making any margin of profit whatever, and it would appear likely that the news grade of sulphite would advance to \$65 to \$70 f. o. b. pulp mill in the course of the next few months.

General

Nineteen hundred and seventeen marked the passing of two very prominent men in the news trade. Arthur E. Wright, who had

been for many years the vice president and sales manager of the International Paper Company, died in February, and his old business associate and personal friend, George H. Parks, died in July.

The news print mills look forward to a less troubled year in 1918 in the way of Government control of their particular industry, but they face manufacturing problems which are very serious. It is realized that their best efforts are to be required if production is to be kept up to the market demand and the mill costs kept down. It is thought that the Federal Trade Commission will fix a price between 3 cents and 3½ cents, commencing April 1, 1918, and good judges of the situation feel that the larger and more efficient mills will get through at this figure, although their profits will be very seriously cut into because of the rapidly advancing costs of wood, labor, coal and other constituents of their finished product.

PACIFIC MILLS, LTD., START BIG PLANT AT OCEAN FALLS

After more than two years of strenuous work, the San Francisco capitalists who took over the original pulp mill and hydro-electric plant of the old Ocean Falls Company have fully completed one of the largest paper mills in the world at Ocean Falls, B. C., situated at the head of Cousins Inlet, an arm of the Pacific Ocean. The townsite, together with the manufacturing site, is held by the Pacific Mills, Ltd. Within a distance of sixty miles of Ocean Falls, the Pacific Mills, Ltd., owns or has leaseholds on about six billion feet of fine timber, of which a large percentage is pulp wood.

The first unit of the new paper mill, which was erected adjoining the original pulp mill, is constructed of reinforced concrete and is equipped with electrically driven machinery of the most modern type, having a daily capacity of 55 tons of news and 25 tons of kraft. It was started up for commercial operations in June, 1917, and since then regular shipments of news paper have been made by steamship to the Pacific Coast market and elsewhere. The superstructure of the building occupied by the old pulp mill has been reconstructed, so as to be uniform with the news plant.

After the first unit went into operation no time was lost in pushing the construction of a second and larger manufacturing unit on an adjoining site. It has a capacity of approximately 125 tons of paper a day, giving the complete paper mill plant a capacity of 205 tons daily, or about 61,500 tons for the year.

Included in the equipment of the machine-rooms are the following: One 122-inch kraft machine, one 174-inch news print machine, and two 204-inch Bagley & Sewall news print machines.

A sulphite mill, with a daily capacity of 50 tons of fibre, and a sulphate mill capable of producing 60 tons of fibre a day, are now in operation. The total capacity of the ground-wood pulp mill is 150 tons a day.

Electric current, for operating machinery and illuminating the paper mills, is supplied by a hydro-electric generating plant of 20,000-hp. potential. A great reinforced-concrete dam, located but a short distance from the mills, impounds an ample supply of water for all purposes.

The total investment of the Pacific Mills, Ltd., at Ocean Falls amounts to several millions of dollars. A. B. Martin is resident manager of the plant.



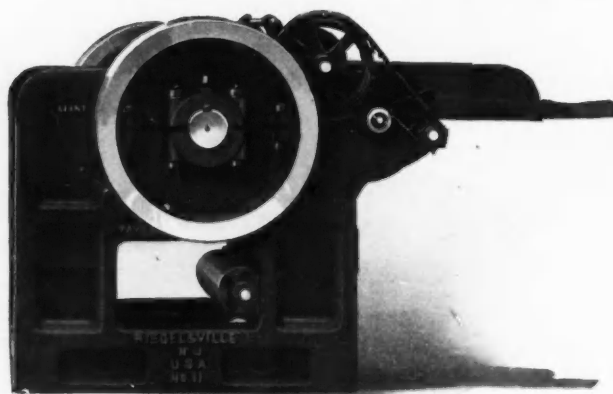
PLANT OF PACIFIC MILLS, LTD., RECENTLY COMPLETED AT OCEAN FALLS, B. C.

SERVICE



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 The Recommending of the Cutter Best Adapted to Your Work
 The Guaranteeing That After Proper Installation It Will
 Do This Work And Will Continue To Do It



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Analysis of Book Paper Industry Difficult

Explained Principally by Fact That There Is No Data Available from Any One Source Which Covers the Industry for the Entire Year—Statistics for September Have Been Omitted and Would Be Difficult to Combine the Reports of the Federal Trade Commission and the Bureau of Statistics, Book Paper Manufacturers' Association—Production and Shipments for 1916 and 1917 About Equal Specially Written for the Annual Number of the Paper Trade Journal by C. F. Moore of the Clinton Paper Company

For obvious reasons it is utterly impossible to make any accurate or detailed analysis of the book paper industry for the year 1917. In the first place there is no data obtainable from any one source which covers the operations of all the mills manufacturing book paper throughout the entire period.

Discontinuance of Bureau of Statistics

The records of the Bureau of Statistics were based on monthly reports made by mills producing about 75 per cent. of the tonnage. If these figures covered the entire twelve months, it would be easy enough to approximate the totals, assuming, as it is fair to do so, that the mills producing the remaining 25 per cent., were operated under similar conditions. In this manner we have heretofore been able to arrive at estimated totals for each year sufficiently accurate to be made the basis of comparisons. Unfortunately we are not able to follow this plan for 1917 on account of the discontinuance of the Bureau of Statistics.

The last monthly report compiled by the Bureau was for the month of August, 1917. While most of the mill reports covering the month of September was sent into the Bureau, they were turned over to the Federal Trade Commission and were embodied in no general tabulation thereafter issued.

No Statistics Published for September

The first report sent out by the commission was published on the 6th of November, covering the month of October. Therefore the month of September is left out of all calculations; and moreover the reports of the Federal Trade Commission differ so materially from those previously issued by the Bureau of Statistics that the two cannot be readily coupled together.

There is little to be gained by dealing with figures that are incomplete. On the other hand, the conclusions based upon their analysis may be altogether misleading. We shall not therefore undertake to use them at all for the purposes of this article, except as they may suggest general conditions and comparisons.

No Substantial Difference Between 1916 and 1917

So far as production and shipment are concerned the aggregate tonnage for the two years 1916 and 1917 show no substantial difference. Before it is explained, this statement will no doubt be challenged. We have learned to look upon the year 1916 as the high water mark of activity in the book paper industry. So it was at the latter end of the year, but at the beginning it was at a very low ebb; so that the average for the entire year was not far different from the average of the year 1917. The difference between the two years consists principally in the fact that 1916 started off slowly and speeded up as it went; while 1917 started like a winner, but could not stand the pace, consequently came under the wire with slackened speed.

While as we have said, there was little difference in the total productive results of the two years, there was a marked difference at the finish. At the end of the year 1916 demand greatly exceeded

supply, whereas a year later there was no difficulty in taking care of current requirements and prices were considerably reduced.

Unsettled and Uncertain Conditions

Owing to the unsettled and uncertain conditions relating not only to mill operations but also to the markets of purchase and sale, the year 1917 was a most trying one. There was no way of forecasting the future. The best that could be done was to guess at what was to come. Judgment and experience counted for little; the book paper business was indeed no longer a business, but a gamble.

What lies ahead no one can undertake to say. We are in the midst of a period of uncertainty. No plans can be made that reach far into the future. Each day must take care of itself, and if we get through it without failure should be satisfied.

Prices Have Practically Reached Bottom

One thing, however, appears to be assured; prices have practically reached the bottom, and for that reason the market will have more stability. Curtailments and economies have already trimmed consumption to a minimum. No one is now buying more paper than necessity requires; and we cannot see any reasonable way by which these necessities may be diminished. On the other hand, the difficulties and cost of production and distribution have enormously increased. Supplies of every kind and labor have not only advanced in price but at times and in places cannot be had for any consideration. Already there has been a great deal of enforced idleness among the mills and indications point to more of it.

With this inevitable curtailed production, with no prospect of further diminished consumption, it is hard to understand how any one can predict or expect lower prices.

For the present we shall all have to content ourselves with tempering; doing the best we can without precedent or light to guide us and hoping for a lifting of the clouds.

WORK OF THE FORESTRY BATTALION

In a review of Newfoundland's forestry activities during 1917 it may not be amiss to refer to the fact that there are now 500 skilled Newfoundland woodsmen in Scotland, a forestry battalion operating in conjunction with the Newfoundland regiment, and engaged, as this is written, in cutting down the suitable timber on an estate owned by the Duke of Atholl at Dunkeld, Perthshire. The battalion is reported as doing very creditable work there, having a splendid daily output, and giving very satisfactory service, the men being not alone noted for their splendid work in their particular pursuit, but also for their orderliness and social qualities, which make them great favorites in all the countryside. They are learning new methods of forestry work there, the introduction of which into Newfoundland when they return will, it is believed, be attended with very great benefit to the Island.

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Finishing Machinery for Lithographers and Playing Card Manufacturers

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Improved Beaters of Umpherston Type

Gearing, Shafting and Mill Work of every description

Hercules Turbine Wheels, both Vertical and Horizontal

WE ALSO MAKE SPECIAL MACHINERY TO ORDER

1917 a Poor Year for European Pulp

Shortage of All Kinds of Pulp in 1916 Caused Unprecedented Increase in Prices and Stimulated the Building of Many New Mills and Expansion of Old Ones—This Increase in Production Naturally Brought About a Depression in Prices—After the Deals for Foreign Pulp in 1916 Were Disposed of There Was No New Business in European Cellulose Worth Mentioning—Price at Start and End of Year.

Especially Written for the Annual Number of the Paper Trade Journal by Hans Lagerloef.

In the beginning of 1917 we began to feel the increase in the production of sulphates, krafts and sulphites made on this continent. The year of 1916 with our country still neutral created a shortage of all kinds of pulp of unprecedented proportions and price levels rose as never before. This facilitated new buildings of mills or extensions of old factories. Then at the beginning of 1917 and even the last couple of months of 1916 we had had evidence of hesitation in business as if something of a serious nature was being discounted and business in general seemed to take into account the events to come which culminated in the entrance of our country into the war on the side of the Allies in April, 1917.

Situation Abroad Grows Worse

In the meantime the foreign situation grew worse. Steamers were held in neutral European ports for long periods (as long as six months) and goods for delivery here in January or for shipment prior to the close of navigation in 1916 only came in in instances as late as in July the following year. Most of these goods were on old contracts or bought here by the mills when the foreign exchange situation was still reasonable and business good and everything promising for a continuation of brisk business. When these deals for 1916 were disposed of and the goods shipped, there was no real business worth mentioning in European cellulose to this country except that certain contracts running over a few years were being completed and the mills abroad shipped considerable quantities of sulphites and krafts on consignment, believing in good business at the end of 1917.

Prices for Imported Pulp

However, we all know how 1917 has been the year of war and general readjustment of the country to the big task before it with business on a restricted and cautious basis. The following prices may be said to have prevailed for European goods over here during the year of 1917:

Beginning of the year—	
Kraft	\$6.25
Mitscherlich	5.75
Easy bleaching sulphite.....	5.75
Ordinary strong sulphite.....	5.25 to \$5.50
End of the year—	
Kraft	\$5.30 to \$5.35
Mitscherlich	5.00 to 5.10
Easy Bleaching Sulphite.....	5.00 to 5.25
Ordinary strong sulphite.....	4.50 to 4.65

Already in 1916 it had been different for the Scandinavian mills to obtain any raw materials with which to run their mills. The embargo grew tighter all the time and was completed when America entered the war. Such commodities of vital importance as coal, sulphur and soda ash rose to such figures that business in European cellulose in this market even at

a cost price quotation from abroad could not be realized as, owing to the quieting down of trade here and the increase of production of cellulose among the Canadian and United States mills, a heavy surplus came on the market and merely drove quotations for domestic goods down to half the value of the foreign. If any foreign cellulose was sold at all from docks or from stores here it must be attributed to the fact that certain paper mills here had grown so accustomed to the use of the European article that they were willing to pay the premium; then they might be unable to use domestic wet pulp and there may have been cases of specialties where higher prices for the raw material did not cut such a figure. Since the Interstate Commerce Commission in its ruling did away with the free storage for imported pulp, Scandinavian goods have been very much at a disadvantage, because storage charges have been increasing and so have labor charges in and out and late in 1917 these charges were as high as \$2.50 per ton a month.

Scandinavian Factories Have Trying Year

The cellulose factories in Scandinavia have gone through a very trying year. In the summer the Swedish Government suggested that the cellulose mills shut down and instead employ their men to cut wood, collect refuse fuel in the woods, help with the harvests that nothing be lost or to pick berries or other fruits that could be utilized for food to maintain the population. It was considered more advisable to keep the cellulose mills running during the winter, when the working man could not be employed on the outside, as could be done in the fall for purposes just mentioned. Even before this suggestion the production had been lowered in Sweden to 4 per cent. of normal for lack of the necessary raw materials.

It can be estimated that the import of European cellulose will only show a figure of about 20 per cent. of what we have been accustomed to of late years. As to market conditions, it was significant that in November, when the big fire in Baltimore consumed between ten and fifteen thousand tons of foreign pulp, there was not even the slightest little flurry nor scurrying to obtain goods. It also stands to reason that with the new point of view created with the war to save and economize the question of quality and luxury would be eliminated and that is one of the reasons besides that of much lower price why cellulose made on this continent has regained such favor.

Poor Outlook for Importation During War

The outlook for any importation of European pulp during the war is exceedingly small, although as yet no prohibition for the import has been forthcoming from Washington.

In spite of the serious curtailment of production in Scandinavia there are considerable stocks, and the reasons are many. Great Britain only authorized the importation of a certain amount of tonnage and the Central Powers have been buying very much less than before owing to lack of the necessary funds and means to pay. Then it is practically impossible to

THE LINING OF THE SMELTING FURNACES
IN
MANY OF THE LEADING SODA AND SULPHATE MILLS
IS

ALBERENE STONE

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THIS SOAPSTONE GIVES LONG SERVICE

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GOOD BUSINESS POLICY SUGGESTS PLAC-
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ship to France, Italy, Spain or the Far Eastern countries because of the danger of the U-boat warfare. To a large extent sailing vessels were employed to take pulp out of Sweden, but the cost of the shipping, especially war risk, was so enormous that gradually this had to be stopped. It was figured out when I was over there that 60 per cent. of ships and cargoes leaving Sweden were destroyed. This will give an idea as to why shipping gradually dropped off.

A very peculiar situation arose in Sweden because of the impossibility of the mills to get rid of their finished stock on hand. The year of 1916 was a very good one and, as in that country they have to pay a very high income tax based upon something similar to our tax because of the war, there were mills that had to take up loans and issue bonds simply to pay their tax.

Poor Conditions in Norway

Conditions in the cellulose industry in Norway are even worse than in Sweden. The Norwegians had to reduce their output even before the Swedes. Sweden had always been on a better basis as far as wood is concerned and able to produce at a lower figure, and this advantage of Sweden has been maintained even as the war went on. I was often told in Norway when I was over there in 1916 that even when the Swedes restricted the export of cellulose to Great Britain and Norway obtained a very handsome premium as the only near and real source of supply the Norwegians' margin of profit was not excessive owing to their higher cost of manufacture.

Sweden and Norway can be considered out of this market during the war unless exports from here should be reopened, which would do away with the premium on Scandinavian money or even make it sell at a loss. Should exports reopen, considering how empty the Scandinavian countries are of both foodstuffs and raw materials, the trade in cellulose from abroad might resume.

The domestic and Canadian mills have taken the bulk of the business in 1917, formerly going to the Scandinavian cellulose makers. Will they hold this business? When the war is over there will be a readjustment in trade all over. Our country will then have the biggest mercantile marine in the world and will want to keep it employed. Where are the customers for all the natural wealth and resources of our country to come from? Neutrals like Sweden and Norway with their big purchasing power unimpaired will be welcome customers for our sulphur, chemicals, coal, cotton and everything else. As a consequence freight rates will no doubt within a short time go substantially lower, which will permit the European mills to manufacture pulp at much lower prices again and put them on a basis where they will be once more in a position to compete with the American and Canadian cellulose and regain their trade here, as wages on this side will be so decidedly higher and wood will be high, and so on.

However, these predictions are all surmises, the world is confronting a situation of such proportions and possibilities that I consider one guess as good as another.

THEODORE HOFELLER & CO. RETIRE

Theodore Hofeller & Co., dealers in waste material, 206-226 Scott street, Buffalo, N. Y., discontinued business February 1.

Theodore Hofeller retired from active business in this line several years ago, and during the last few years both he and Eugene D. Hofeller have been engaged in several enterprises in other lines of business. These enterprises have grown to such proportions that they found it difficult to give the waste material business the executive attention which it required. They wish to thank their many friends in the trade for the business which they have given them and to express their regret at severing these pleasant relations.



WHALEN PULP & PAPER MILLS, LTD., MILL CREEK PLANT, MILL CREEK, HOWE SOUND, B. C.

Year of Adjustment in Paper Mill Supplies

As in the Market for Finished Papers, the Market Here Has Been Influenced by Unusual and Peculiar Conditions—Story of the Past Year Shows That Prices Have Traversed an Interesting Course in Reaching Their Present Level—Indications Point to an Improvement in Conditions—Strong Tone to the Market with the Opening of the Year, with Prices Holding Firm.

Written Especially for the Annual Number of The Paper Trade Journal by Walter R. Hicks, of Daniel M. Hicks, Inc.

"Well, what is the outlook for the coming year?" is the slogan of the day about the trade. This can best be arrived at by a study of conditions, and in order to determine adequately the situation it would be well to take an inventory for the year and see just where we stand. We are confronted with problem unprecedented in the history of the trade. Business instinct prompts us to go ahead. The mingled fears and hopes that crowd in upon us each new year, intensified, again present themselves.

No Surprise at Present Prices

To one awakening from a Rip Van Winkle escapade since the outbreak of the war, there would be no great surprise occasioned at the present status of market prices. Many grades are hovering around normal levels, while a few are even below normal for this time of the year. It will be interesting to traverse the diversified route, the intricate sequence of events, that led to present market conditions.

Rags Reached Zenith in 1916

It will be recalled that rags reached their zenith in 1916. In that frenzied market, No. 1 old whites touched 9 cents per pound, No. 2 whites 7 cents, thirds and blues, as high as 5½ cents, and roofing climbed to 4 cents. Rag papers went skyward, and the prohibitive prices that ruled brought a sulphite sheet on the market that met with a ready demand, as it could be produced at a much lower figure. Mills took machines off rag paper and ran them on sulphite. Rags slumped, and the decline that set in continued throughout 1917. The year opened up with No. 1 whites ranging from 6 to 6½ cents per pound, No. 2 whites from 4¼ to 4½ cents, thirds and blues from 3¼ to 3½ cents; roofing, 2 to 2¼ cents.

The market in old rags has been dull as far as the better grades are concerned, with little or no demand. The shredders were practically out of the market all year, which helped to keep the prices from fluctuating. Fibre and roofing mills were the chief sources of demand, both consuming a good tonnage of rags, particularly the roofing manufacturers, who had a remarkably good year. There were no importations of rags, with the exception of dark cottons, which were all practically brought over on order and consumed. On the whole, there is no real surplus of rags, and prices for the last quarter have been pegged, with signs of strengthening. We find No. 1 whites at about 4½, No. 2 whites 3¼, thirds and blues around 3 cents, and roofing at 2 cents, at the close of the year. With the exception of No. 1 whites, these figures are about what they were at the opening of 1917.



WALTER R. HICKS.

New Rags Most Active Grades

New rags as a whole have been the most active grades on the market. No. 1 white shirt cuttings were selling at about 10 cents per pound at the start of the year; washable at about 5 cents, etc. After the declaration of war, there was a slight falling off in price, which lasted through the summer, but all through this period stock was moving at some price, and there were no large accumulations at any time. In the early fall a demand arose for "breaking up," and all grades of new rags stiffened. This is particularly true of the higher grades, such as shirt cuttings, hosiery and washables. Government order for paper required new rags, and the higher grades received a further boost. Consequently the year closes with prices showing quite an advance over the opening. Sales are made at figures ranging from 10¾ to 11 cents per pound for No. 1 white shirt cuttings; washables at 6 cents, etc., and every indication for higher prices.

There is little stock on hand, and no one is inclined to sell ahead. It is estimated that there is a shrinkage in the production of new rags, as the garment manufacturers are cutting closer, and there is consequently less waste, and a further shrinkage due to the number of men who have entered the service, who would ordinarily require wearing apparel from which waste is made.

Waste Paper Undergoes Depreciation

All grades of waste paper have been a thorn in the side of the highly sensitive market that existed practically all year. When rags softened in 1916, waste paper strengthened in sympathy with pulp. In the fall drive of that year, spot lots of foreign bleached sulphite sold as high as 10½ cents per pound, and domestic as high as 9 cents per pound. All other grades of pulp, both chemical and mechanical, scored new high levels which carried waste paper to dizzy heights. No. 1 hard white shavings reached 7 cents per pound at that time, soft white went to 5½, book stock and ledger stock touched 4 cents, and with the exception of book stock and ledger, these prices carried over into the early part of 1917. The outlook for 1917 continued strong, and mills and dealers were alike in the belief that we would see even better business, as both contracted on soft and hard white for periods of 3 to 6 months. After war was declared, retrenchment set in and the market has since been undergoing a readjustment. There was practically no demand, and each quarter showed a depreciation of about 20 per cent, in all grades. There seemed to be no bottom. The export business petered out owing to the Government's com-

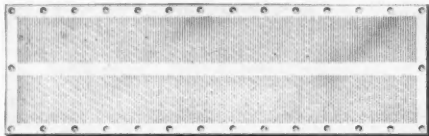
WILLIAM A. HARDY & SONS Co.

FITCHBURG, MASSACHUSETTS

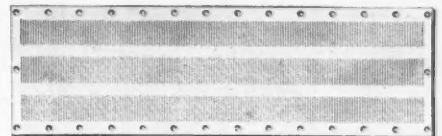


STYLE B

Made of
Hardy Bronze
Rolled Brass
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Copper



STYLE A



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SCREEN PLATES

FOR FLAT, ROTARY and CENTRIFUGAL SCREENS

Drilled or
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Old Plates
Recut to
Accurate
Gauge

DIGESTER CASTINGS

SUCTION PLATES—BRONZE SCREWS
ALL GRADES OF BABBITT METALS

AND

BRONZE CASTINGS

Test Special Rubber Belting



A Successful Mill Should Use a Successful Belt

Our famous "Test Special" brand is especially constructed to meet conditions called for in fast running machinery.

It is made of the best grade duck and the friction is the highest obtainable, making the belt of great strength and durability. The stretch is reduced to a minimum in the manufacture, resulting in an evenness of pull, without loss of power, making the belt the most economical on the market.

Special Belts for Any Purpose Made to Order

We manufacture (in the highest grade) everything in rubber requisite for Paper Mills.

MANUFACTURED ONLY BY

NEW YORK BELTING & PACKING COMPANY

New York, N. Y. 91-93 Chambers Street
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CARRIED IN STOCK AT ALL BRANCH STORES AND BY GOOD SUPPLY HOUSES

Cobbs High Pressure Spiral Piston and Valve Stem Packing



STYLE 2

Cobbs Packing is acknowledged by Engineers to be one of the best high pressure packings on the market. It gives splendid results on high and low speed stationary and marine engines, Corliss Valve Stems, high and low air pumps and compressors. This packing has a heat and oil resisting core in the centre which is covered with a well frictioned duck. The outer cover is a spun jacket made of a very high grade Canadian asbestos. Cobbs Packing is also guaranteed not to become hard or score the rods; will remain elastic under all conditions.

Indestructible White Sheet Packing

Does the Work at All Times and Under All Conditions



STYLE 10

Steam, Oils and Ammonia cost money. Why take chances in using a sheet packing which may do the work? There is no question about Indestructible White Sheet. It gives perfect satisfaction on high and low steam pressures, hot and cold water, ammonia, oils, greases and acids of all kinds. Eliminate your sheet packing troubles by sending in your trial order today for Indestructible White Sheet.

Catalogues which illustrate the most up-to-date line of packings, together with samples, will be sent upon request.

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LARGEST MANUFACTURERS OF

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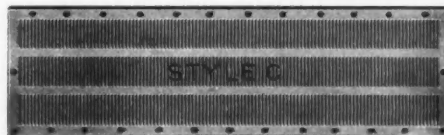
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The Union Bronze (Best Phosphorized
Cast Metal) Screen Plates

Rolled Brass Screen Plates

Union Bronze Suction Plates

Union Bronze Screws for Screen Plates



Old Plates RECLOSED and RECUT to Accurate Gauge. Satisfaction Guaranteed.

Immediate Delivery of the Largest Orders

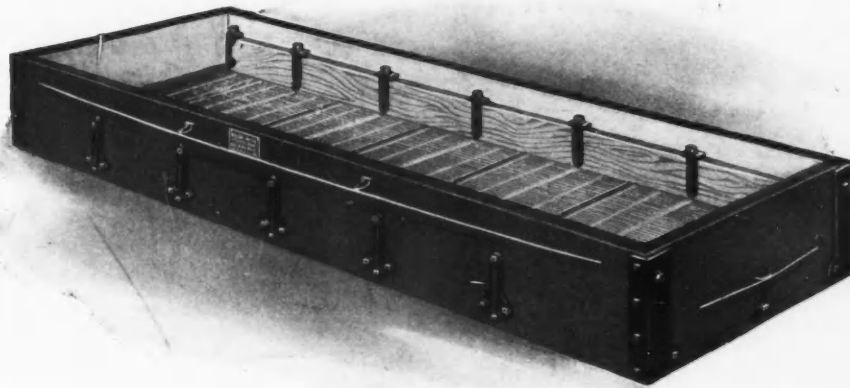
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LENNOXVILLE, P. Q., CANADA

SOLE MANUFACTURERS OF

WITHAM IMPROVED SCREEN PLATE FASTENER

PATENTED JULY 9, 1901



THE ORIGINAL

THE BEST

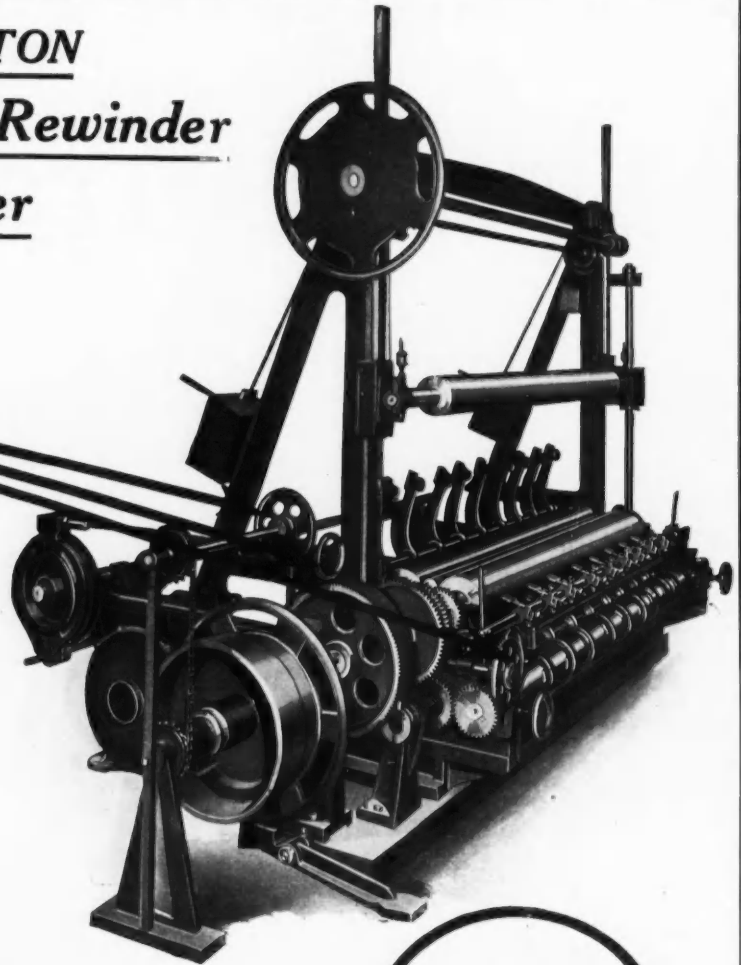
Recommended by all the Screen Makers.

Over One Thousand in Successful Operation

THE LANGSTON
Surface or Drum Rewinder
and Slitter

- 1—Starts and stops machine.
- 2—Controls the tension on paper.
- 3—Regulates the trim.

All from the front of the Machine



Nothing here for the operator to do but change rolls



Samuel M. Langston Company



Patented January 28, 1902

Camden, N. J., U. S. A.

mandeering of ships. Certain classes of mills were threatened with indictments, and a very unhealthy condition of trade existed. Those who were not indicted feared Government interference, and things were at a standstill. The sudden stagnation of business resulted in there being a surplus of pulp on the market. The embargo of Swedish pulp to this country had no effect, or practically little effect, as there was little demand. Again waste paper acted in sympathy, and away went the prices. The big slump that followed shot the prices down, and each new sale was for figures substantially lower than the previous one. We find at the close of the year hard white at about $3\frac{3}{4}$ cents; soft white, about $2\frac{3}{4}$ cents; books, about 1.05 to 1.10; ledger, $1\frac{1}{2}$ to $1\frac{3}{4}$; news, 60 to 65, and mixed 35.

Bagging and Rope Markets Hold Firm

The bagging market held remarkably firm for the year. In January, 1917, bagging (No. 1 scrap) was selling at about $3\frac{1}{4}$ cents per pound; gunny reached 4 cents, and light bright bagging sold as high as $3\frac{3}{4}$ cents. Foreign shipments continued over the year, in fair size quantities, and this together with an easing off of demand brought lower prices during the summer months. The demand for pulling up has been sufficient to steady the market, and the dealers have kept pretty well cleaned up of all grades.

The year closes with gunny and bright burlap selling from $3\frac{1}{4}$ to $3\frac{3}{4}$ cents, and No. 1 scrap bagging at $2\frac{3}{4}$ to 3 cents.

Rope Sets New High Mark

Rope set a new high mark, and has been in good demand for the best part of the year. The year began with rope selling around $5\frac{1}{2}$ cents, and went as high as $6\frac{1}{2}$ cents during the early summer, and held firm until the last quarter, when the price fell off to $4\frac{1}{2}$ cents. The drop was brought about by the heavy arrival of foreign shipments.

Every Indication Toward Better Business

What of the outlook? Every indication points to better business. Even now there is a much stronger tone to the market and prices are holding firm. There are many obstacles to business that are for the time being almost insurmountable, such as trans-

portation conditions, coal shortage and priority regulations. Stocks of finished paper will become depleted and raw material inaccessible. If railroad conditions do not improve there will be practically a famine in both raw and finished goods. Until their need is demonstrated, they will not become an essential. This will regulate itself in time, but will result in heavy buying when relief comes. There are less rags and old papers collected than there were a year ago, as many peddlers have been forced out of business in the past nine months. From a recent canvass of New York and Brooklyn, for example, four out of every five peddlers, it is estimated, have gone out of business. Supply has not greatly exceeded demand, as there is no surplus to speak of. Things seem to be well pegged, and if there is any change it ought to be upward.

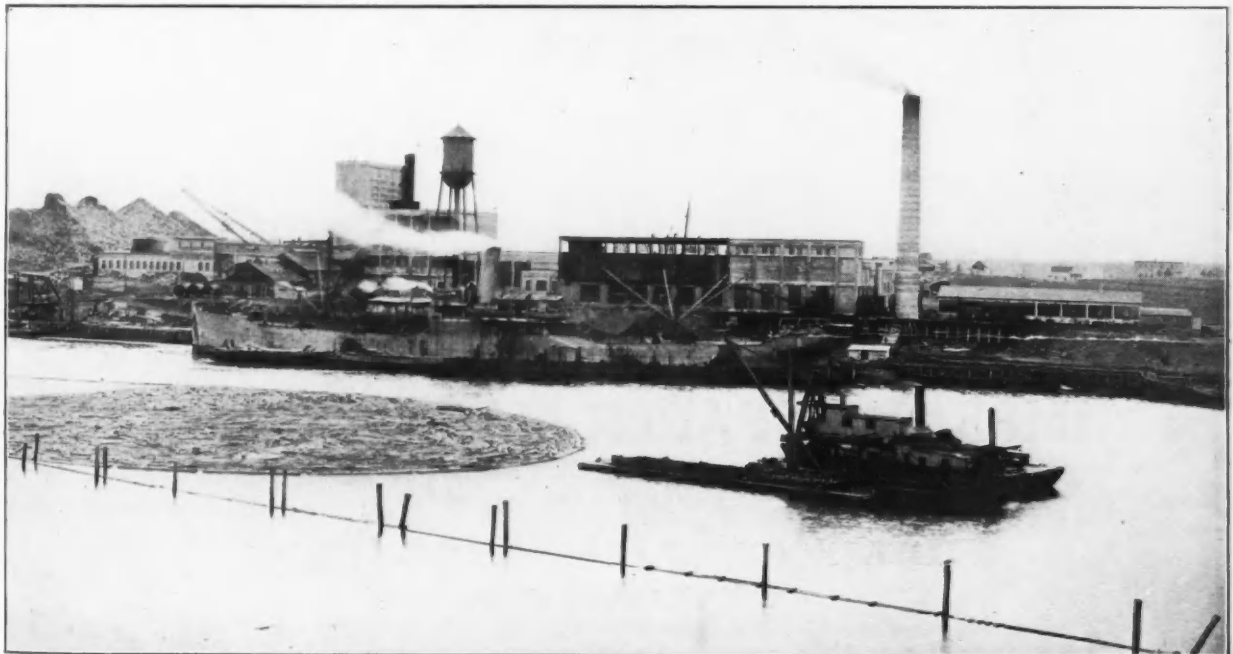
WAR SAVINGS STAMPS

The machinery by which the purchase of a Thrift Stamp or a War Saving Stamp is to be made as easy and convenient as the purchase of a spool of thread or a pound of nails, in every community in the United States, is rapidly being established. Already 185,000 War Savings Stamp Agencies have been established, and by the close of January this number will have been increased by 350,000.

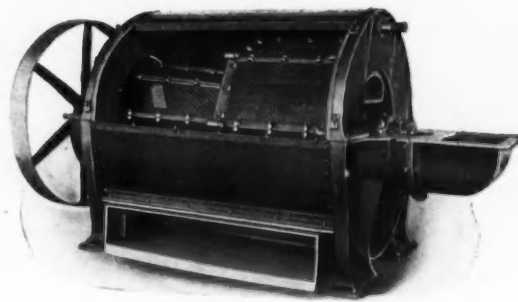
In addition to these agencies there will be 1,000,000 "sales stations," which do not receive direct authorization to make the sales from the Secretary of the Treasury, but obtain their stamps from authorized agents and sell them over their counters at their cashiers' windows, and other places.

Fifty thousand post offices now have War Savings Stamps on sale and 29,000 banks and 8,000 individual firms and corporations have been appointed agents. Nine thousand interstate corporations having places of business in several States will constitute 115,000 additional agencies.

An intensive campaign is now on for the establishing of War Savings societies which can be organized by 10 or more persons in any community, school, club, church, factory or office and can be affiliated with the National War Savings Committee at Washington upon application.



BATHURST LUMBER CO., LTD., PULP & PAPER DIVISION, BATHURST, N. B.



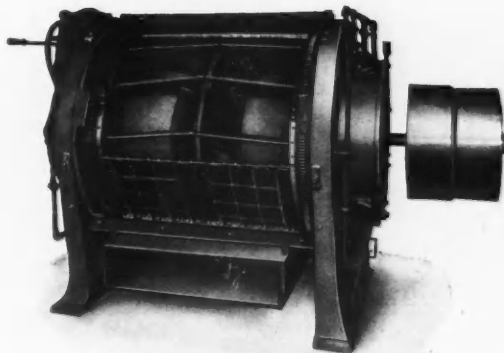
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IMPROVED PAPER MACHINERY CO.

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SHERBROOKE MACHINERY CO., Limited

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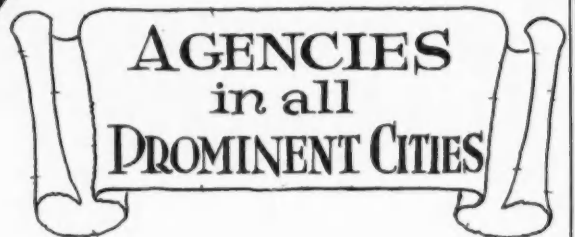
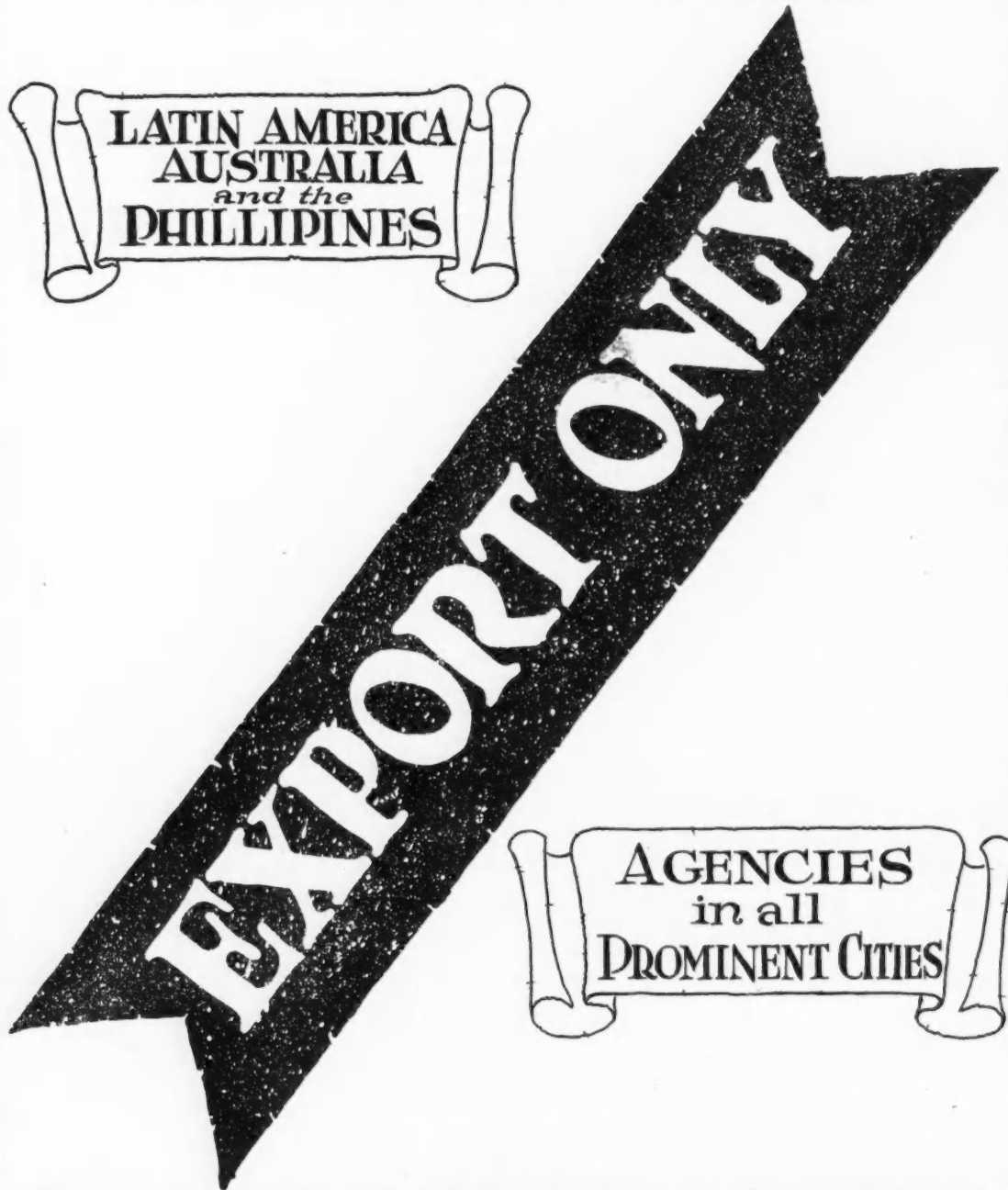
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SHERBROOKE, CANADA

ESTABLISHED 1870

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ALL GRADES PAPER AND BOARDS

Quebec and the Maritime Provinces Prosper

Although the Past Year Was Undoubtedly One of the Most Difficult in Many Respects That Manufacturers of Paper and Pulp in This Country Have Ever Experienced It Has Also Undoubtedly Been One of the Most Prosperous for Those Engaged in This Industry That the Country Has Ever Experienced—Price Regulation, However, Restricted Expansion That Otherwise Might Have Taken Place.

Written for the Annual Number of The Paper Trade Journal by C. L. Sibley

The year 1917 was undoubtedly one of the most difficult and worrying years that the people in the pulp and paper industry in this country have ever known. Equally it was without doubt the most prosperous year the industry has ever known. Before the war the industry was making creditable progress while beset with many difficulties, prominent among which were lack of sufficient capital in many instances and prices which competition had reduced to too low a basis for general prosperity. The war brought about a wholesale readjustment. The gradual elimination of overseas competition, not only in Canada, but in every country with which Canada was doing business, or might do business, and in particular in the United States, created a demand which, by the end of 1916, brought about something like a famine in all lines of pulp and paper. The immediate result was a tremendous rise in the prices, the consumers of paper entering into a fierce competition with each other in order to get supplies. Every mill in the country had a waiting list of customers, and conditions were such that they had to accept delivery when the mills were ready to supply them, and in many cases, not at an established price, but at the price prevailing on the date of delivery.

Contracts Generally Prevented Big Profits

Taken as a whole, the Canadian mills were not able to take advantage of the higher prices because of contracts with customers, and it was only when these contracts came to be renewed for the year 1917 that they began to reap the full benefit. Then the money began to roll in in larger volumes than the most sanguine had ever dreamed of, and the immediate result was to enable the whole industry to be established on a sound and adequate basis as regards capital, and at the same time to pay dividends which in some cases were of a handsome character, and in all cases gave a good return on the money invested.

Prospects of a tremendous expansion of the industry began to loom up, but then the fly began to appear in the ointment. There is no industry so susceptible to public pressure as the news print industry. The reason is that the consumers are the owners of the organs of public opinion, and they are able to exert a pressure on their respective governments which the latter are unable to ignore. Thus in both the United States and Canada the newspapers demanded and obtained government regulation of prices—a thing that even the general public had been unable to obtain in any very large measure for any other commodity, not excepting foodstuffs.

Uncertainty Caused by Price Regulation

It was this price regulation, with the disposition of the respective government to fix a price somewhat blindly at a lower figure than was compatible with sound business methods, that created a feeling of uncertainty in the industry unparalleled in its history. The price of 2½ cents per pound, which seemed to be accepted as the official standard, was one that could only be arrived at by ignoring the rise in the cost of material and labor with which the manufacturers were struggling. The paper makers began to lose heart,

and the majority of the extensions and developments which had been planned were postponed or abandoned, for with so many remunerative enterprises in which to invest money, it was not likely that anybody would care to sink capital in making news print on which little or no profit could be made, or upon which an actual loss might be sustained. This condition of things lasted from the early part of the year until the close, and consequently the ample returns which their contracts allowed of in many cases were counterbalanced by the worries incident to the prospect of being called upon to play a more or less losing game.

Confidence Largely Restored

Confidence now, however, has been largely restored, as a result of the investigation at the instance of the United States Government. It was shown by those conducting this investigation that there was a determination to deal with the paper makers fairly. The paper makers, on their part, were quite ready to meet the government on this basis. Hence the tentative fixing of a price of 3 cents per pound for news print in the United States, with the prospect of a similar price in Canada. On the basis of a fair price and a reasonable return on capital and enterprise, there is no reason why, in the coming year, the industry in Eastern Canada should not develop to an amazing degree, for at the head of it there are some of the most astute and enterprising men on the continent, who are prepared not only to take the place of overseas competitors in the United States permanently, but also to build up a great trade in other countries, and even in Europe, where Canadian pulp and paper has made an initial entry, despite the shortage of shipping.

Good Record Also in Other Lines

This much as regards the pulp for news print and for the manufactured news print itself.

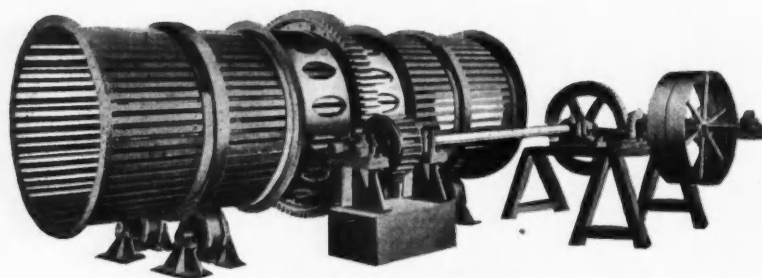
As regards sulphite pulp for the higher grades of paper, and the manufacture of book and bond papers for the domestic market, Eastern Canada has done remarkably well during the year. The mills of Quebec and Ontario have increased their output of bond and book papers to such an extent that they are within reasonable distance of supplying the whole requirements of the domestic market, while the manufacture of the highest grades of sulphite pulp has given Canadian mills pre-eminence in American and other markets which promises to put the export trade to all parts of the world on a permanent basis. Considerable exports have been made even to Great Britain, where the Canadian product has found much favor.

Car Shortage Causes Trouble

Apart from government interference with the business, which threatened at one time to be of a most arbitrary character, but which, as regards both news print and book papers, now assumes a more reasonable character, a great source of difficulty during the year has been the shortage of cars. During the latter portion of the year this shortage was of the most acute character, and

DOWNINGTOWN MANU

EAST DOWNINGTOWN,



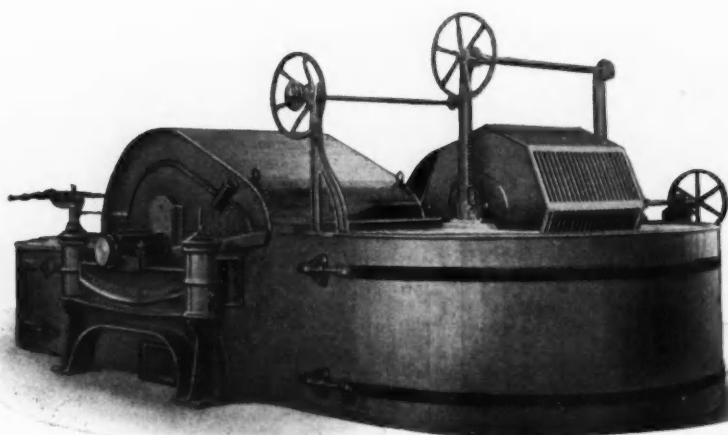
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Duplex Beating Engines

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Stuff Pumps Stuff Chests

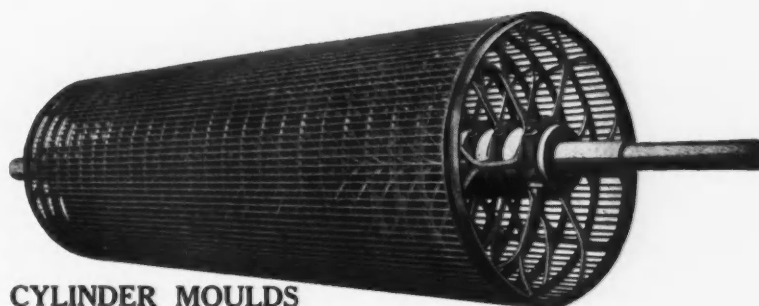
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Copper Covered Felt Rolls

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Governors

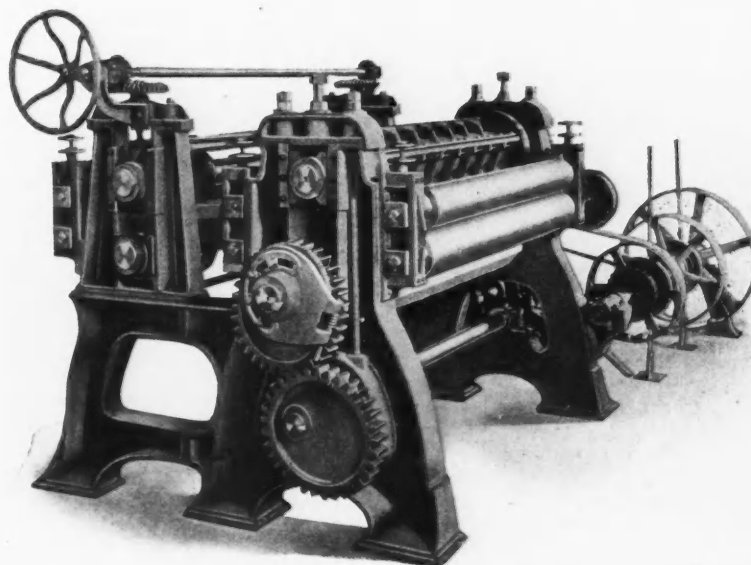
Electrical Grinder

Governors

Sliver Screens

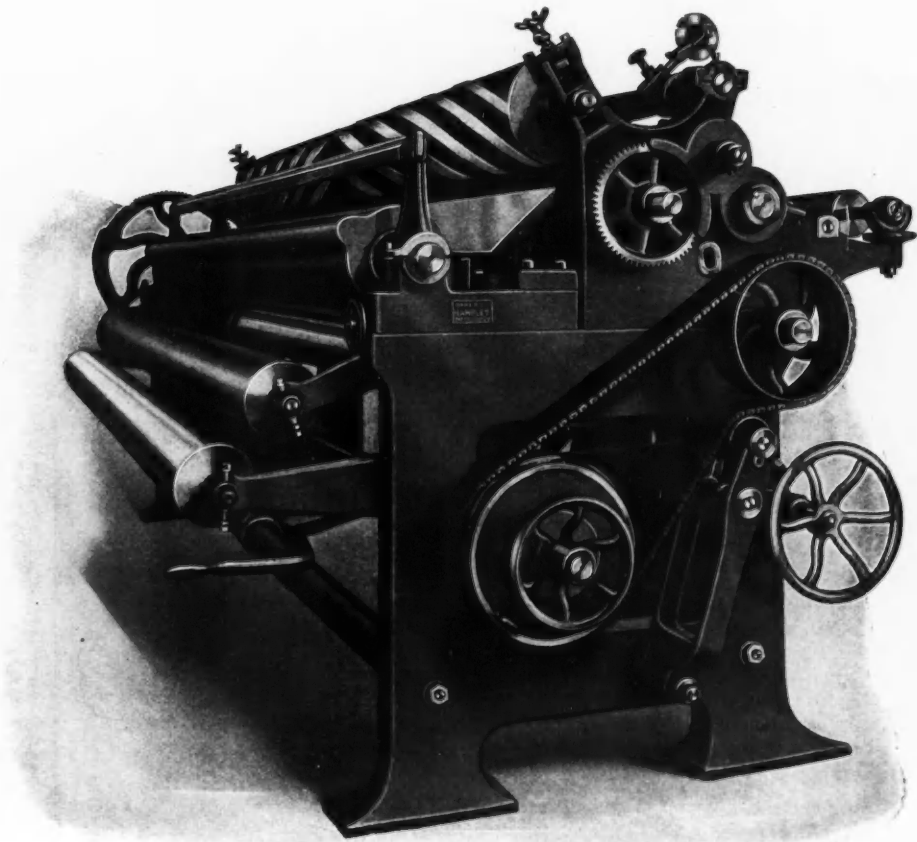
Patent Rotary Press
Machines

White Water Screens



WALL BOARD CUTTER

Extra Heavy Type Cutter



Single or Duplex

HAMBLET MACHINE COMPANY

LAWRENCE, MASS.

greatly hampered shipments to the United States. Some mills could only get from 25 to 50 per cent. of their car requirements, and there were instances where only the most strenuous exertions and expedients enabled enough shipments to be made to keep big American papers supplied. The American public little knows how near some of their big papers came to a temporary suspension of publication as a result of the car shortage. The difficulty was unnecessarily exaggerated by the action of American railroads, which sought to make up for their own car shortages by keeping every Canadian car for their own use. Thus during the last months of the year there were about 25,000 Canadian cars in the United States, as against four or five thousand American cars in Canada, and neither love, threats, nor money could induce the American roads to return them. Naturally the Canadian railways became shy of allowing their cars to pass over the border, and much unnecessary work and delay was caused by holding up shipments until American cars were sent in to take them out, or in trans-shipping at the border. This difficulty, however, was in a fair way of being solved at the end of the year, owing to the joint action and co-operation of the two governments, and particularly by the fact that the United States Government took over all the American railways, while the Canadian government also took over the Canadian Northern Railway, and exercised greater control than ever over the remaining privately-owned lines.

Taken on the whole, therefore, the industry entered upon the new year with high hopes of unprecedented development and continued prosperity.

Forest Conservation

As far as Quebec Province was concerned, the year was marked by further developments in the policy of forest conservation in which the province has led every other province or state on the continent. Stringent laws have been passed for perfecting the already excellent system of fire prevention, and plans for the immediate future even provide for the establishment of aeroplane patrols throughout the main forest areas. The Provincial Government and the people generally have become thoroughly awake to the importance of the pulp and paper industry, and the consequent great source of wealth which the splendid forests of the province represent. This awakening has been brought about to some extent by the excellent results of the province's embargo on the export of pulpwood from Crown lands, which has resulted in the establishment of some important pulp and paper industries in the province.

The fact that more than half the pulpwood now cut in Canada comes from Quebec province shows the magnitude the industry is assuming there.

Value of Forest Reserve Increasing

How great a field there is for further development is shown by an estimate made public by the Hon. W. G. Mitchell, the provincial treasurer, who estimates that while the total forest wealth of Canada is 1,600,000,000 acres, of which between 300,000,000 and 400,000,000 acres are covered with timber of merchantable size, no less than 130,000,000 are in the province of Quebec.

The value of this great forest reserve is continually increasing. Thus in 1900 the average price received by the public treasury for timber berths was \$111 per square mile. In the following year it was \$138 per square mile, while by September, 1917, the bids averaged \$440 per square mile, with one substantial tract going for \$1,000 per square mile. The vast majority of the timber lands are the property of the people, and the profits are now beginning to assume great importance in keeping down the taxes. That there is no direct taxation in the Province of Quebec is wholly attributable to the income from the forests. Last year no less a sum than \$1,683,000 was taken by the Quebec Government as forest revenue, and this paid a great part of the expenses of public administration, road construction, public buildings, etc.

Forest Exhaustion Looming Up

Great as is the forest reserve in the province, however, the spectre of forest exhaustion has begun to loom up on the horizon. The Provincial Government is taking serious notice of the statements made by some of the limit holders before the news print inquiry, to the effect that they are reckoning on the depletion of their limits within periods ranging up to 50 years, and the government officials are now studying methods for still further conservation of the forests, in order to make them a permanent asset. One result has already been the formulation of plans for greatly extending the forest nurseries. The Berthierville nursery is to be extended to 3,000,000 seedlings annually. Of these the majority will be Norway spruce, which is held to be the most suitable for pulpwood production. More than a million and a half trees have already been shipped from the nursery, mainly for the reforestation of burned-over non-agricultural lands. Some of the larger pulp and paper companies are also establishing nurseries of their own, and are devoting great attention to the reforestation of cut-over lands. In this great work, the Laurentide company is taking the lead.

Conservation of Water Power

Water powers are linked up with forest wealth in the prosperity of the pulp and paper industry, and the Provincial Government have taken similarly farsighted measures for the conservation of these as well.

For one thing, the Government has passed a new law by which it assumes absolute control over all the rivers and streams in the province. Henceforth nobody will be able to develop the power of any running water, nor to construct dams or other works on running streams, without first obtaining permission of the Government. The idea is that the water power belongs to the people and must be utilized in the public interest and be made to yield a return to the public exchequer.

As showing the possibilities of water power development, the district around Montreal may be instanced. It is estimated by C. R. Coulee, a member of the Canadian Society of Civil Engineers, that 6,000,000 horse-power could easily be developed on the St. Lawrence river above Montreal, and 1,500,000 on the Ottawa river, which joins the St. Lawrence just above Montreal.

Work at Shawinigan Falls

Shawinigan Falls, 90 miles from Montreal, is another centre of enormous water power development, and here the most important extension of the year has been the new water power development of the Laurentide Company, the marketing of the power from which has been taken over under contract by the Shawinigan Water & Power Company, which supplies many important new industries, besides some important pulp and paper manufactories. J. E. Aldred, of New York, the president of the Shawinigan Company, recently said: "We have here in this province the greatest power situation in the world. We are using up power faster than in any zone similar to Shawinigan on the continent." The whole power of the St. Maurice river at this point is now being utilized, and for the major portion of the year, no water whatever runs to waste over the falls. As one example of the extensions that are constantly going forward, it may be stated that an aerial span 5,000 feet long supported by towers 325 feet high, has been built across the St. Lawrence at Three Rivers. This is one of the largest undertakings of the kind ever carried out in electrical transmission.

The power capacity on the St. Maurice at Shawinigan and at many points above it will be enormously increased this year owing to the fact that the great dam built by the Government far up the river at La Loutre rapids is now practically completed, and will be in operation this year. The dam will create the largest artificial storage reservoir in the world, at a distance 237 miles above Three Rivers, where the St. Maurice discharges into the St. Lawrence. The surface of the artificial lake thus made will be 304 square miles.

Specifications
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 require the best
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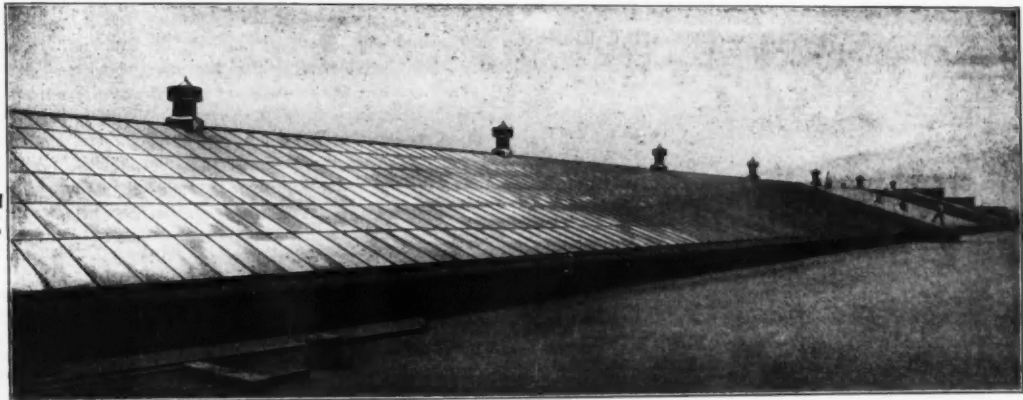
The value of Van Noorden Skylights as an aid to more efficient, quicker and better work in mills has been demonstrated in hundreds of cases.

"DAYLITE"—outdoor light with indoor security—is the choice of engineers in the majority of mills where the first essential is proper working illumination.

VAN NOORDEN SKYLIGHTS are first choice—because they best meet the needs of modern factory construction.

Also Ventilators, Metal Windows, Kalamein Doors, etc.

E. VAN NOORDEN & COMPANY : : BOSTON, MASS.



and the capacity of it 160,000,000 feet. The increase in water power to falls already developed, owing to the regulation of the flow, will be about 175,000 horse-power, and big developments will be made possible in future power harnessing at other places. For instance, development at the Gres Falls power site has been decided on by the Shawinigan Company, and will be put in hand immediately. These falls were purchased from the old Union Bag & Paper Company.

Another big government dam for the conservation of water has been built on the St. Francis river, on which there are important industries, including pulp and paper industries, that will be affected. This dam will also be in operation this year.

Other Important Improvements

Two other developments of importance to the industry during the past year have been the completion of the Quebec Bridge and the purchase by the Dominion Government of the Quebec and Saguenay Railway. The fact that there are no fewer than eleven Canadian and American railways entering Quebec shows how greatly the Quebec bridge will affect transportation for the better. By connecting up the north shore with the south shore of the great river, millions of dollars' worth of pulpwood in the forests tapped by the new Transcontinental Railway will be made easily available for the mills of the province and the Eastern States. In fact, the richest pulpwood region in all Canada will be made available for the first time for American markets.

As regards the Saguenay railway, the Dominion Government has announced the intention of proceeding immediately with its completion from Quebec to Murray Bay, along the north shore. Big pulpwood forests are tapped by it along the whole route, and the pulpwood will find an easy outlet over this new railway and the Quebec Bridge.

Paper Makers in the War

A feature of the year has been the departure of hundreds of men from the pulp and paper industry overseas, to fight in the ranks of the Canadian army, or to take part in the work of the Forest Battalions in Great Britain and France. Prominent among these have been Capt. J. H. A. Acer, formerly president of the Canadian Pulp & Paper Association, who after a period of active service, was invalided home, and Sir William Price, the head of Price Bros. & Co., who recruited a battalion and took them overseas, and then reverted from the rank of lieutenant-colonel to that of captain, in order to go to the front and fight for his country.

New Brunswick in Forestry Work

As regards the Maritime Provinces, the most important development has been the forward policy of the New Brunswick Government in forest conservation and exploitation. The Provincial Government is carrying out a complete forest survey, so as to have an inventory of the whole forest wealth of the province. There are in the province 7,500,000 acres belonging to the Crown, and it is estimated that the harvesting and marketing of the timber on it will bring to the provincial treasury a sum of not less than \$300,000,000.

The Halifax Disaster

In Nova Scotia the Halifax disaster affected the industry to the extent that it wiped out the establishment of the Richmond Printing Company, wholesale paper dealer. In the explosion one of the members of the firm, David Orr, lost his life, and another member, William Orr, was posted among the missing; while still another member, Samuel Orr, lost his wife and five children. The company's warehouse was destroyed.

Injury to Balsam Fir and White Pine

Some anxiety has been caused throughout Eastern Canada by the fact that balsam fir is found to be dying out as a result of attacks of spruce bud-worm, while the white pine is seriously threatened by blister rust. White pine represents, by the way,

about one-fifth of the value of the standing timber of the province of Quebec. The most extensive stands of it are at the head of Lake Temiskaming, on the eastern side of the St. Maurice river, representing approximately 30,000 square miles. The total stand of white pine in the province represents 20 billion feet of timber, valued at \$80,000,000. Nearly 300,000,000 feet are cut annually on public and private lands, and the provincial revenue from this is approximately half a million dollars, while a total of \$6,700,000 is represented by returns for stumpage, labor, etc. The seriousness of the disease can therefore be realized. The Government is thoroughly alive to the danger, and is taking every possible step to stay the ravages of blister rust, and also of the spruce bud-worm.

Pulpwood for the American Market

Regarding the cutting of pulpwood, a point of interest is that the nephew of the late Mr. Menier, who has inherited Anticosti Island from the dead chocolate king of France, is continuing the policy of the latter in exploiting the pulpwood resources of the island for the American market. Fifty thousand cords of pulpwood are being shipped out annually from the island, and the policy of forest conservation to ensure a perpetual supply is being rigidly adhered to.

Principal Expansions in the Industry

The principal expansions in the industry in Quebec and the Maritime provinces during the year are as follows:

The St. Maurice Paper Company's new paper mill, sulphite mill, and kraft mill at Three Rivers, Que., came into operation early in the year, on a basis of 100 tons of news print per day, 100 tons of ground pulpwood, 60 tons of sulphite, and 50 tons of kraft.

The Wayagamack Pulp & Paper Company, of Three Rivers, Que., extended their plant, so as to bring their capacity up to 200 tons of kraft per day.

The Riordon Pulp & Paper Company, of Montreal, acquired a site near Temiskaming, on the Upper Ottawa River, for the building of a large sulphite mill and paper plant, and the opportunity is being taken to develop a model town adjacent to the mill site for the housing of employees. A site overlooking Lake Temisgaming has been chosen, and the plan for the town has been prepared by Thomas Adams, of the Commission of Conservation as consulting engineer, with the assistance of Messrs. Ewing, Lovelace and Tremblay, of Montreal. It is expected to develop the most picturesque and most up-to-date town in Canada.

Price Bros. & Co. have completed extensions and improvements to their plant at Jonquieres, Que., entailing the expenditure of around a quarter of a million dollars. The news print production here has now been brought up to 250 tons per day.

The Howard Smith Paper Mill, Ltd., of Montreal, has carried out extensions and improvements at the Crabtree Mills at a cost of around a quarter of a million dollars. These mills are to be devoted to producing high-grade bond papers for the home market, instead of news print.

The Brompton Pulp & Paper Company purchased an additional 162-inch paper machine, for news print.

The new sulphite mill of the Bathurst Lumber Company, of Bathurst, N. B., has been completed and put into operation. The capacity is now 100,000 lbs. per day of sulphite and 120,000 lbs. of sulphate.

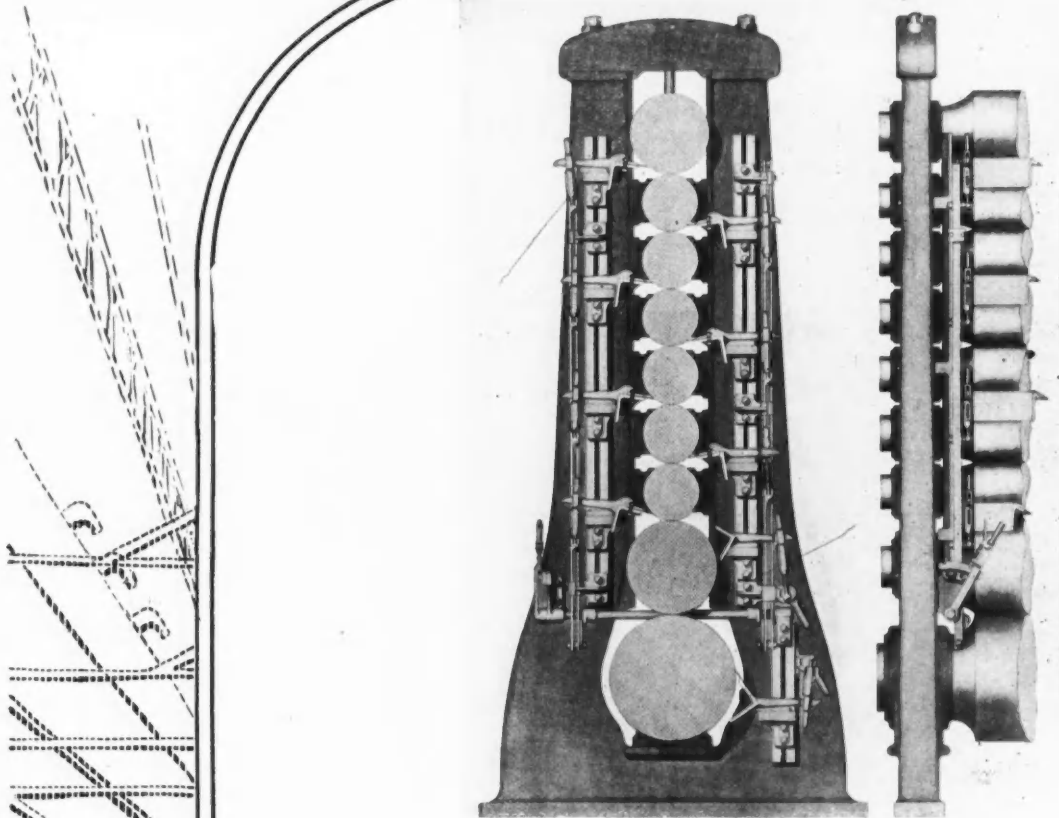
The New Brunswick Sulphate Fibre Company erected a mill on the ashes of the plant of the New Brunswick Pulp & Paper Company, which was destroyed by fire some time ago. The mill has a capacity of 15 tons per day.

The old ground wood mill of the Peribonka Company, Ltd., on the Little Peribonka River, near Lake St. John, has been renovated, and is now turning out 20 tons per day.

The Chicoutimi Pulp & Paper Company has carried out improvements to its mill that considerably increase its capacity. This is a ground wood mill.

The Canada Box Board Company, of Montreal, has carried out

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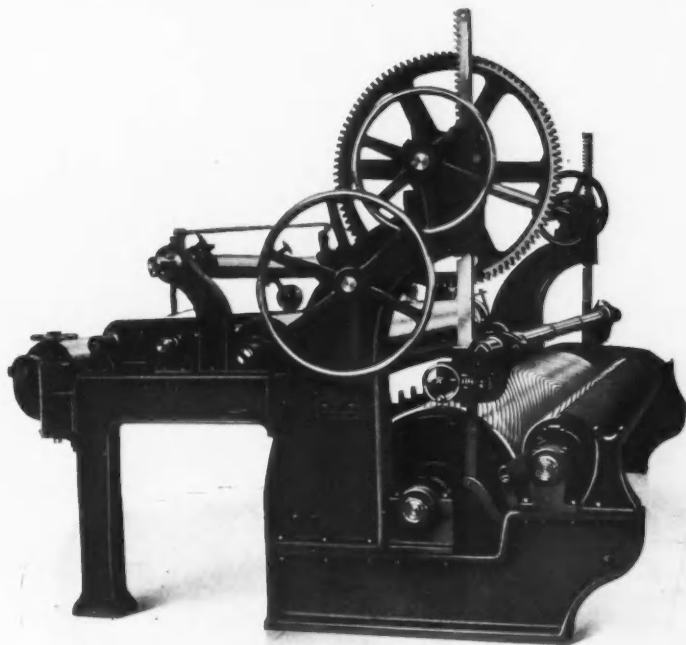
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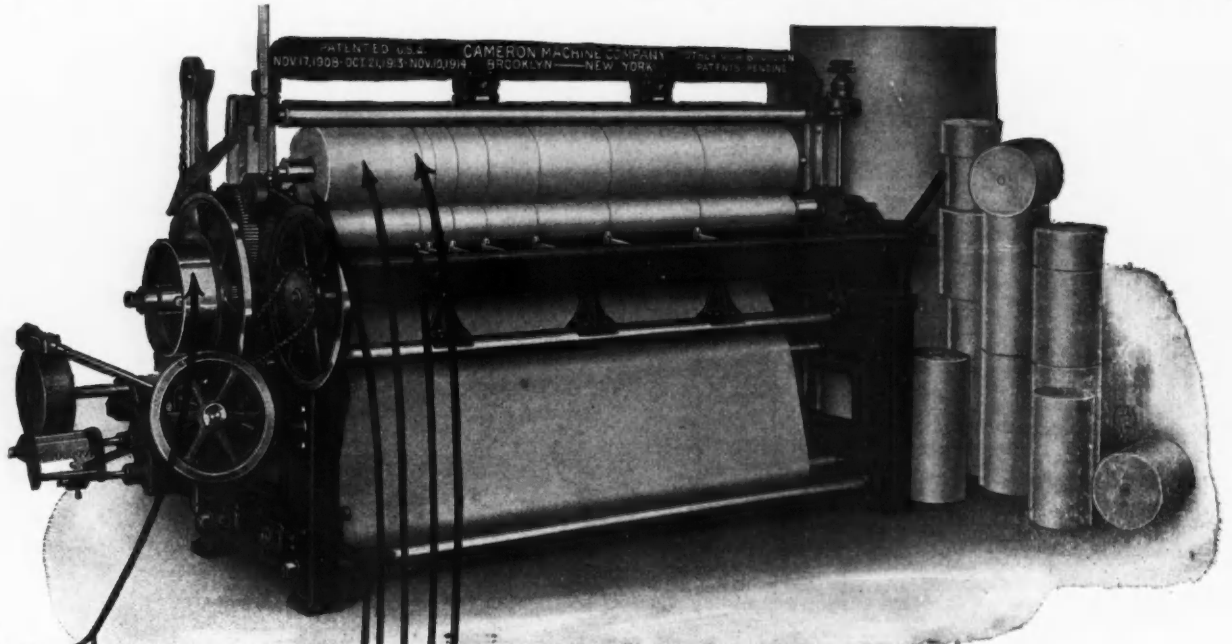
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Paper Tubes, Containers, and Paper Products of all kinds, will find the Universal Type 6 Cameron Slitting and Rewinding Machine ideal for their purpose.

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6. The same features which make the "Score Cutter" efficient for light duty, make it equally serviceable for heavy duty, as it will handle work from the sheerest tissue paper up to boxboard.
7. Re-spacing of "Score Cutter" is quickly done by simply releasing the spring pressure on all the cutters at once, and sliding the cutter holders to the new positions.
8. Re-spacing of "Score Cutters" requires only five to ten minutes for any new arrangement of widths. When Gang Spacers are used for narrow strip, even less time is required.
9. Removing or replacing a cutter requires only to lift it on or off its support-holder and all—without disturbing any other cutter or any part of machine.
10. Any width or assortment of widths can be spaced from one-quarter inch up.
11. Strip as narrow as one-quarter inch can be produced by special "Score Cutters."
12. The waste or trim at the edges may be extremely narrow.
13. The rolls produced do not interweave or stick together.
14. Injury to the operator by this method of slitting is impossible.

Cameron Machine Company
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extensive improvements at its plants in Montreal and Frankford, Ont. The capacity of the mill in Montreal has been increased to 33 tons per day of chip-board and chip specialties, while at Frankford the output has been enlarged to 50 tons daily of straw board and filled wood board.

The Great Eastern Pulp Company, at Madeleine River, Gaspé County, Que., has constructed a ground wood mill and sawmill, the former with a capacity of 30,000 tons per annum, and the latter with a capacity of 10,000,000 feet of long lumber annually.

The Donnacona Pulp & Paper Company, whose original plant at Donnacona, Que., has been doubled, making the capacity 200,000 lbs. of news print per day, has during the year completed extensions which make it entirely self-supporting as regards its pulp supply.

The Ha! Ha! Bay Sulphite Company, Ltd., of Bagotville, Que., has completed the construction of its new sulphite mill during the year, and is now producing 300,000 lbs. of sulphite per day.

A pulp mill has been erected at Edmundston, N. B., by Fraser, Ltd., of Fredericton, N. B., the owners of a considerable number of lumber mills throughout New Brunswick and Southeastern Quebec.

The Forest Products Laboratory, of Montreal, a Dominion Government institution affiliated with McGill University, has erected an experimental pulp mill in a new two-story building. The mill includes a sulphite digester and a sulphate digester, each with a capacity of 125 pounds. Experiments will be made with various woods and also with a view to improving the present processes of pulp manufacture. Experiments in ground wood manufacture are to be carried out by experts sent out to existing plants. The mill will be in operation shortly.

The Belgo-Canadian Pulp & Paper Company, of Shawinigan Falls, Que., is planning the erection of a 100-ton ground wood mill at Three Rivers, Que.

A new factory for the manufacture of roofing and building paper has been completed in Montreal by Alexander McArthur & Co., makers of wall hangings and colored papers.

The Nashwaak Pulp & Paper Company, which took over the old Partington Mills at St. John, N. B., has increased the capacity of the plant, which now has a capacity of 150,000 of bleached sulphite fibre per day.

New Companies

Among the new companies formed during the year are the Atlantic Pulpwoods, Ltd., with headquarters at Montreal and capital of \$500,000, to deal in lumber and pulpwood; La Compagnie Generale de Pulpe, Ltd., with head office in Montreal, and capital of \$49,000, to manufacture pulp and paper; the Wax & Glassine Paper Company, which has erected a plant at Cookshire, Que., for the manufacture of wax, glassine and greaseproof papers; the Fraser Companies, Ltd., with headquarters at Plaster Rock, N. B., and an authorized capital of \$10,000,000, to carry on the various Fraser lumber businesses and to construct and operate pulp and paper mills; the Peribonka Company, Ltd., with headquarters in Montreal, and capital of \$1,000,000, to take over the ground wood mill of the Delmas Pulp & Paper Company, in the Lake St. John district, which had been idle for four years; the Pontiac Lumber & Pulp Company, with headquarters at Makamik, Que., and capital stock of \$49,000, to manufacture and deal in lumber and pulpwood, pulp, paper, etc.; the Hoyle Industrial Company, Ltd., with headquarters in Montreal, and capital of \$250,000, to carry on business in lumbering and pulp and paper manufacture; Paper Sales, Ltd., to act as selling agents for several paper mills; the Parker Pulp & Timber Company, Ltd., with head office in Montreal and capital stock of \$49,000, to manufacture and deal in lumber, pulp, pulpwood, etc., and the Budge Carbon Paper Manufacturing Company, Ltd., with headquarters in Montreal, and capital of \$10,000, to manufacture and deal in carbon paper, etc.

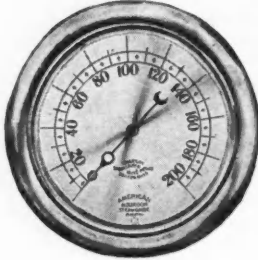
KALAMAZOO PAPER CO. INCREASES STOCK

The Kalamazoo Paper Company, Kalamazoo, Mich., has increased its capital stock from \$540,000 to \$1,080,000 by means of a 100 per cent stock dividend. None of the stock is for sale. During the past 24 months the Kalamazoo Paper Company has enjoyed unusual prosperity even for this successful institution. It has added a fine six-machine coating department, a turbine power plant and a finishing room to its No. 2 mill. All the machinery in the No. 2 mill has been thoroughly overhauled and rebuilt and the number of employees increased by a full hundred. The capital covered none of these improvements.



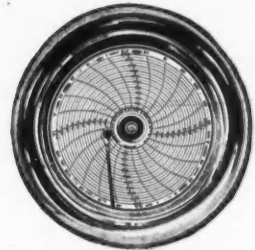
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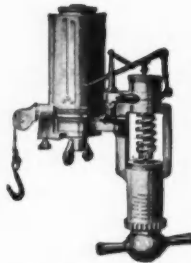


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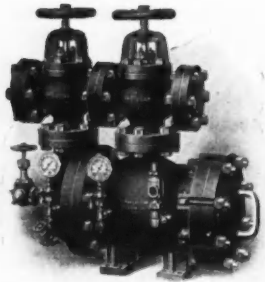
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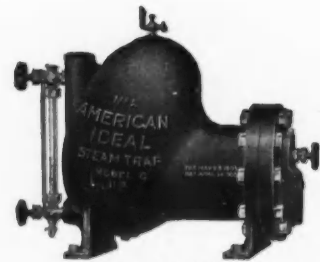
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Paper and Pulp Much Discussed in Ottawa

Action of the Newspapers in Forcing the Government to Regulate the Price of News Print and Fix a Tentative Price of 2½ Cents First Attracts Attention to the Industry and This Is Followed by the Realization That Within the Past Few Years the Industry Has Become the Most Important in the Whole Country—Remarkable Growth of Foreign Trade.

Written for the Annual Number of The Paper Trade Journal by G. L. Sibley.

Ottawa and District

There is no single industry in the Dominion of Canada which has aroused so much interest and discussion during the past year as the pulp and paper-making industry. First of all there came the action of the newspapers in forcing the Government to regulate the price of news print, and fix a tentative price of 2½ cents per pound, pending an investigation into the industry, to ascertain what would be a fair selling price. Then there came the inquiry itself, in which a mass of information regarding the growth and conditions of the industry was made public. Following upon this there came the general realization that the pulp and paper industry had within the past few years become the most important manufacturing industry in the whole country.

Remarkable Growth of Foreign Trade

The growth in the value of the news print and pulp exports during the past year has been remarkable. The Department of Trade and Commerce reports that in the twelve months ending March 31 last the Canadian shipments of news print to the United States were of a value of approximately \$23,594,000, and of pulp and wood pulp and like products of approximately \$29,000,000, or a total of over \$50,000,000. The remarkable manner in which this industry has grown is shown by the following table of exports for the past five years:

Exports of News Print		
Fiscal year.	Cwt.	Value.
1912.....	2,935,833	\$3,291,926
1913.....	5,851,579	5,692,126
1914.....	7,292,047	11,386,845
1915.....	9,264,080	14,091,662
1916.....	.....	17,974,292
1917 (approximately).....	.....	23,594,000

Exports of Chemical Wood Pulp		
Year	Cwt.	Value.
1912.....	835,239	\$1,587,535
1913.....	1,112,457	2,100,842
1914.....	1,515,633	2,923,083
1915.....	2,424,328	4,806,622
1916.....	3,494,816	6,801,011
1917.....	.....	14,032,950

Mechanical Wood Pulp		
Year	Cwt.	Value.
1912.....	5,023,568	\$3,506,770
1913.....	4,749,719	3,408,702
1914.....	4,816,170	3,441,741
1915.....	6,163,702	4,459,539
1916.....	4,649,203	3,575,537
1917.....	.....	6,371,133

Export Trade Now Over \$50,000,000 Per Year

Thus in the space of five years the pulp and paper industry has raised its total exports from under \$10,000,000 per annum to over \$50,000,000 per annum, and the indications are that when the returns for the present fiscal year ending March 31, 1918, are presented they will show a total export of paper and pulp of between \$60,000,000 and \$70,000,000, for during certain months of the year it has already reached over \$5,500,000.

Naturally an industry which does such a large export trade is of the utmost value in preserving a balance of trade, especially with the United States, from which Canada is such a large importer. This consideration has been strikingly brought home to

the Dominion authorities during the year, in view of the need of preserving exchange on an equitable basis, and there is every possibility, therefore, that, from a Government point of view, everything will be done to foster the industry and prevent it from being handicapped by such price regulation as would frighten away capital from it.

The News Print Investigation

The Government investigation into the cost of manufacturing news print occupied a good deal of attention during the latter half of the year. This inquiry showed that the value of the news print consumed in Canada was only around \$3,000,000, as against \$21,000,000 exported. It further showed that news print could not be manufactured and sold at a profit for 2½ cents per pound. The accountant engaged by the Government to go into the costs of production in the leading news print mills presented the following statement as to the cost per ton of manufacturing news print in the thirteen leading mills in Canada:

Mill.	Month.	News Print Cost.	Ex-pense.	Inter-est on Capital.	Crown Dues.	Selling Price.
Brompton Pulp & Paper Co.....	May....	\$59.99	\$0.22	\$7.00	\$0.94	\$59.15
Canada Paper Co.....	June-July.	83.09	2.19	6.50	...	62.00
Ontario Paper Co.....	July....	45.32	.56	7.28	...	53.16
St. Maurice Paper Co.....	August..	41.34	1.25	17.22	.84	60.65
I. R. Booth.....	May....	57.17	1.09	10.81	.40	62.42
Belgo-Canadian P. & P. Co.....	June....	48.27	1.20	5.66	.56	55.69
Abitibi Power & Paper Co.....	August..	45.99	2.29	6.49	.28	55.05
E. B. Eddy Co.....	September	46.90	2.00	10.81	.63	60.34
Donnacona Paper Co.....	August..	44.75	1.20	9.43	.47	55.85
Spanish River P. & P. Co.....	September	43.88	.91	8.51	.42	53.72
Price Brothers.....	August..	43.77	1.20	13.00	.94	58.91
Laurentide Paper Co.....	July-Aug.	45.71	3.70	10.00	.94	59.85
News Pulp & Paper Co.....	August..	38.81	.72	7.76	.94	48.23
Total.....	.....	\$598.99	\$18.33	\$120.47	\$7.36	\$745.15

These figures show that the average cost of producing a ton of news print is \$46.08, to which must be added a selling cost of \$1.41, interest and return on capital invested \$9.27, Crown dues \$0.51, making a total cost of \$57.33. It is obvious from these figures that if the Government persists in a fixed price of \$50 per ton matters will come to a crisis by the manufacturers flatly refusing to supply paper to the Canadian publishers at a loss.

Factors That Caused Complication

The question of fixing the price of news print was complicated by the election which took place in December. The original Order-in-Council fixing a tentative price of 2½ cents per pound for news print expired on the last day of October. There is no question whatever but that the Government was hurried into passing this order by the practically united action of the newspapers, which were able to hold a big stick over the politicians. It was therefore recognized as a matter of political expediency that the Government should postpone the fixing of the price of news print on a permanent basis until after the election. Doubtless by the time this article appears in print the price will have been fixed.

While the uncertainties of the Canadian situation had a most disturbing effect on the industry, the Government action in the United States in regard to the price of news print was even more

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Paper Box Board

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disturbing. A number of the big Canadian companies were among those proceeded against by the Government for violating the Sherman Anti-Trust law, which case resulted in the dissolution of the News Print Manufacturers' Association. One result of this case which has proved very satisfactory to the trade in Canada is the agreement reached by the Federal Trade Commission, the Department of Justice and the manufacturers, fixing a maximum price for news print of 3 cents, from January 1 to April 1. This price allows of a reasonable profit on the manufacture of news print, and it was felt that the Canadian Government could not do otherwise than follow the example.

Controller Appointed

In Canada, up to the time of writing, the one tangible result of the news print investigation has been the appointment of the investigating Commissioner, R. A. Pringle, K. C., as Controller of News Print in Canada "during the continuance of the war, unless otherwise ordered." Mr. Pringle was invested with power to exercise public control over the supply of and prices of news print in Canada; to fix the quantity and price of all paper furnished by the manufacturers to the publishers during the continuance of the war; to fix the price of pulp, sulphite and sulphate; and to make such orders as he may deem necessary for the distribution and delivery of paper to the publishers, and for the distribution and delivery of pulp, sulphite and sulphate to the manufacturers of news print and other paper. Penalties for the contravention of any of the Controller's orders by any manufacturer are made punishable under the War Measures' Act, and the Controller was authorized to co-operate in his work with the Federal Trade Commission of the United States.

Value of Pulp Wood on the Stump

Some most interesting points came out during the news print investigation. There was, for instance, the question of the value of pulpwood on the stump. Hitherto it has been more or less a custom to regard pulpwood on the stump as having no value and to base the cost on the expenditure necessitated to get it to the mills. Many manufacturers contended, however, that the wood had a value in itself, and that the capitalized value of such wood should be taken into consideration in fixing the cost of news print manufacture. Commissioner Pringle was favorable to this view. He said that surely the wood on the stump must have a market value. "I know it is contended," he remarked, "that pulp-wood has no value except that given it by what it costs to cut. This question is of the greatest importance to the country, and my idea is that when a company is established and spends millions of dollars on its limits, it brings a value to the wood. I have a strong idea that it has a value, and it strikes me at the moment that \$2 a cord is not an unreasonable price." Some of the manufacturers present contended that \$3 was a reasonable value. At any rate the principle seems to be established that a reasonable valuation should be put on the pulpwood in figuring costs.

The figures presented at the inquiry showed a total production of about 2,000 tons of news print per day in Canada.

May Give Up Making News Print

While a number of new mills have started during the year, it was stated at the inquiry that the E. B. Eddy Company, of Ottawa, was contemplating giving up the manufacture of news print, while the Crabtree mills of the Howard Smith Paper Company is also discontinuing the manufacture of news print. The latter is concentrating on the production of high-grade bond and writing papers, while the Eddy Company finds other lines more profitable.

The Book Print Investigation

Another development during the year has been an investigation into the prices of book papers. This inquiry was postponed just before the close of the year, in order that a questionnaire might be sent out to the manufacturers, calling for detailed information

as to cost, supplies, selling prices, etc. Meanwhile there was some hope that an arrangement might be effected between the manufacturers and publishers which would preclude further investigation. One of the contentions of the publishers was that Canadian mills should reduce their prices, because paper can be imported from the United States cheaper than it can be bought from domestic producers. The manufacturers deny this, saying that when the duty of 35 per cent. is added, in addition to the war tax of 7½ cents and the freight, the Canadian price is lower, but that even admitting American paper was cheaper, the cost of production in Canada is much higher. The production of book paper in Canada is only about 90 tons per day.

Outlook for 1918

Thus while the year ended with the important question of price regulation in a fair way towards a reasonable solution, the fact that no permanent settlement had been effected, either in Canada or the United States, added considerably to the uncertainties of the outlook for 1918. The manufacturers could not overlook the fact that the 3-cent rate fixed for news print in the United States was only until April 1, but, on the other hand, there was comfort in the fact that they will be allowed to appeal to the United States Circuit Court if the decision arrived at by the Federal Trade Commission is not considered to be equitable. As to Canada, there was still the possibility that the 2½-cent rate might be made permanent.

Other factors add to the uncertainty of the outlook. First of all there is the possibility of peace being declared, with what effect on prices and trade nobody can attempt to forecast. Then there is the increasing scarcity of coal, labor and raw materials. The fact that conscription has gone into effect in Canada is bound to affect the labor supply seriously. The railway situation also offers ground for uncertainty. To the already high prices of everything will now be added the increased cost of transportation, owing to a 15 per cent. increase being granted on all tariffs on the Canadian railways.

Early Demand for 1918 Not So Active

The year 1918 did not open with such an overwhelming pressure of demand on all the mills as was in evidence at the opening of 1917. Since the middle of the year prices generally showed a tendency to decline, owing to the falling off in orders. Ground wood fell during the year from \$40 to \$45 to \$32 to \$35, and easy bleaching sulphite from \$110 to \$115 down to from \$65 to \$76. News grade sulphite eased off from \$90 or \$100 to \$50 or \$60, and bleached sulphite to \$105 from \$160. Sulphate was selling at the close of the year at \$80 instead of \$110 to \$120. Book papers also eased off in price, as did all other makes of papers. This did not argue that the manufacturers were necessarily making less money, because many were working on contracts at the beginning of the year which were below market prices.

The Question of Water Power

Next to the question of price regulation, the most interesting development of the year to the trade was the question of water power. The great shortage of power from Niagara and the difficulties of getting back for Canada power which was being exported to the United States, brought matters to a climax, and resulted in the appointment of a Controller of Water Power. The Government has been giving the most careful attention to the whole question of water power development, and some drastic remodelling of the laws governing the utilization and conservation of water powers may be expected.

One scheme which has been having the careful consideration of the Government is that put forward by the Power Development Company, Limited, of Montreal, which applied for permission to dam the St. Lawrence River at Coteau Rapids, just above Montreal, and create something like a million horse power. Great alarm was shown over this scheme, many protests being made against such a valuable franchise being given to private interests.

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The Commission of Conservation made strong representations to the Government on the subject, and submitted that the whole power situation in the provinces of Quebec and Ontario should be carefully considered by the Government, with a view to the water powers being developed by the public for the public. This the Government will possibly do, and there is little prospect that vested interests will be allowed to exercise monopolies.

In this connection it is interesting to note that the public ownership and development of water powers in the province of Ontario has made great strides during the year. The Hydro-Electric Power Commission of Ontario purchased the assets of the Ontario Power Company for \$22,669,000, and thus greatly enlarged its sphere of operations.

Canada's Natural Resources

The Commission of Conservation has created a good deal of

satisfaction in the trade by compiling a comprehensive and authoritative directory of Canada's natural resources. This directory sets forth, among other things, the forest wealth of the various provinces, the available water powers, etc. It is considered that it will be of great value in the solution of after-the-war problems. Inventories of the various sections of the country are arranged and published geographically, provinces having similar resources being grouped together.

The local developments in the industry have not been numerous during the year. Chief among them has been the erection by John R. Booth of an additional sulphite mill, increasing the firm's output by **55 tons per day**.

A new lumber company was formed in Pembroke by W. L. Hunter, J. C. Hunter and W. B. Wilson. The company acquired 50 miles of limits and has been busily engaged in getting out pulpwood.

PORT ARTHUR PULP & PAPER CO. COMPLETES MILL

The Port Arthur Pulp & Paper Company, Limited, has just completed its plant at Port Arthur and expects to begin operations immediately. Work was started early in April, which makes the construction period about nine and one-half months which, it is believed, is a record for a plant of this size.

Capital of the Company

The authorized capital of the company is divided into \$1,000,000 common stock, \$1,000,000 preferred stock and \$1,000,000 bonds.

The directors and officers are: I. H. Weldon, president, Toronto, Ont.; S. F. Duncan, secretary and treasurer, Toronto, Ont.; A. B. Connable, Kalamazoo, Mich.; S. B. Monroe, Kalamazoo, Mich.; J. M. Mackie, Montreal, Que.

The mill officials include: A. G. Pounsford, general manager;

A. G. Hinzki, superintendent; T. R. H. Murphy, chief engineer; C. A. Gardner, woods superintendent; A. G. McCormack, traffic manager; H. C. Garrett, accountant, all of Port Arthur, Ont.

Plant Has Capacity of 60 Tons Per Day

The plant has a capacity of 60 tons per day of air dry high grade sulphite. This is made up of 35 tons easy bleaching and 25 tons bleached.

The equipment consists of 2-16 by 54 feet Manitowac Digesters, 3 365 Wicks' boilers, 3 Rogers' wet machines, slasher, chippers screens, sulphur burner; furnished by the Waterous Engine Works, Brantford, Ont.

Valves, piping and small motors by the Canadian Fairbanks Morse Company. Large size motors, Canadian Westinghouse Com-



PORT ARTHUR PULP & PAPER CO., LTD., PORT ARTHUR, ONT.

Marathon Paper Mills Company

Manufacturers of

Special Papers for Remanufacture

Equipment of this mill is the most complete of any in the United States for the manufacture of special papers for special purposes.

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combining

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Marathon Bond for Regular or Offset Printing pleases every customer.

Papers from 24x36-20 lb.—480 to 24x36-300 lb.—480

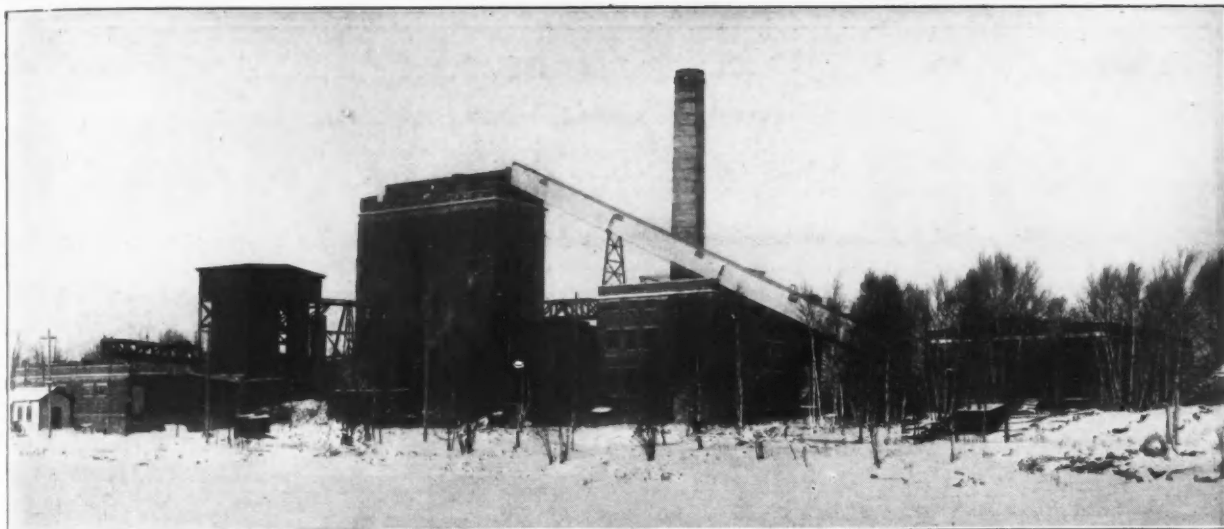
DAILY CAPACITY

Unbleached Sulphite 200,000 lbs.
Bleached Sulphite 150,000 lbs.
Ground Wood Pulp 60,000 lbs.
Paper 200,000 lbs.

EQUIPMENT

1 Cylinder Machine Trim 100"
1 Fourdrinier Machine Trim..... 120"
2 M. G. Yankee Machines..... 120"
2 Super Calenders 60"

Mills and General Office, Rothschild, Wis.
Sales Office, 1126 Conway Bldg., Chicago, Ill.



ANOTHER VIEW OF THE PLANT OF THE PORT ARTHUR PULP & PAPER CO., LTD., PORT ARTHUR, ONT.

pany. Sub-station equipment, Canadian General Electric Company. The tower acid system to be used in connection with the plant; the limestone was obtained from Stonewall, Man.

The foundation work was done by the J. F. Hewitson Company, Port Arthur.

The superstructure by the company's own organization, assisted by W. J. Trimble of Niagara Falls, N. Y.

The mill site is covered by a land grant by the City of Port Arthur at Bare Point, consisting of 125.4 acres and water lot of 24 acres inside the breakwater.

Provisions are all made for a 150-ton pulp and paper mill for future developments.

The company has one camp in operation at Sucker Creek, northeast of Port Arthur, and also has permit to cut pulp wood on Sibley Reserve, 18 miles from Port Arthur. Present indications of this year's cut of pulp wood in this district for the company are very promising. The labor situation while bad is much better than at some other points.

The company has sufficient quantity of coal on the docks at Port Arthur to keep mill in operation for some time.

BERKSHIRE HILLS PAPER CO. DOUBLES ITS CAPACITY

The Berkshire Hills Paper Company, of Adams, Mass., has completed the second unit to its mill, thus doubling the capacity of the company.

The need for the construction of new mill buildings, new machinery and paper mill equipment to supply a second unit was found necessary as early as the latter part of 1916. Then the plans for expansion were only in a formulative stage, but in February, 1917, announcement was made that the productive capacity of the plant would be doubled.

Expansion Speedily Accomplished

With all possible speed the new buildings were erected, including a new beater and drainer building, located east of the original beater and drainer room; a new power house to the north; a new finishing department, 80 feet by 100 feet, with dry lofts above connecting what is known as the southeast building of the first unit with its dry loft. The latter is now a first-class storage and shipping department. The old buildings of the concern were so located that the installation of the new unit was not a difficult task. The layout of the plant is one of the most economical and up-to-date, and gives the company a very modern paper mill. The plant has been fitted with the latest improvements of an up-to-date mill.

When the Berkshire Hills Paper Company was first organized in 1904 by Fred R. Shaw and Henry L. Harrington, the original equipment consisted of one 80-inch, Rice, Barton and Fales Fourdrinier, and four beating and two washing engines. Since that time, two additional beating engines, and two additional washing engines, along with the necessary equipment, were installed to

take care of the steady increase of business, owing to the constantly growing demand for the ledger, bond, linen, papeterie, index bristols and typewriter papers, for which this company is noted. The output of the first unit early last year was about six tons of high grade papers daily, but with the additional unit this has now been increased to about 12 tons.

The New Equipment

The new equipment now installed on both machines includes new Lith-Walk screens, by E. D. Jones & Sons, of Pittsfield, Mass., new Millspaw suction rolls, the product of the Sandusky Foundry and Machinery Corporation, of Sandusky, Ohio, and a new Harris-Corliss engine, of 1,500 horsepower, furnished by the Harris-Corliss Engine Company, of Providence, R. I. In the new unit is the new 90-inch Rice, Barton and Fales Fourdrinier, with the necessary beating and washing engines.

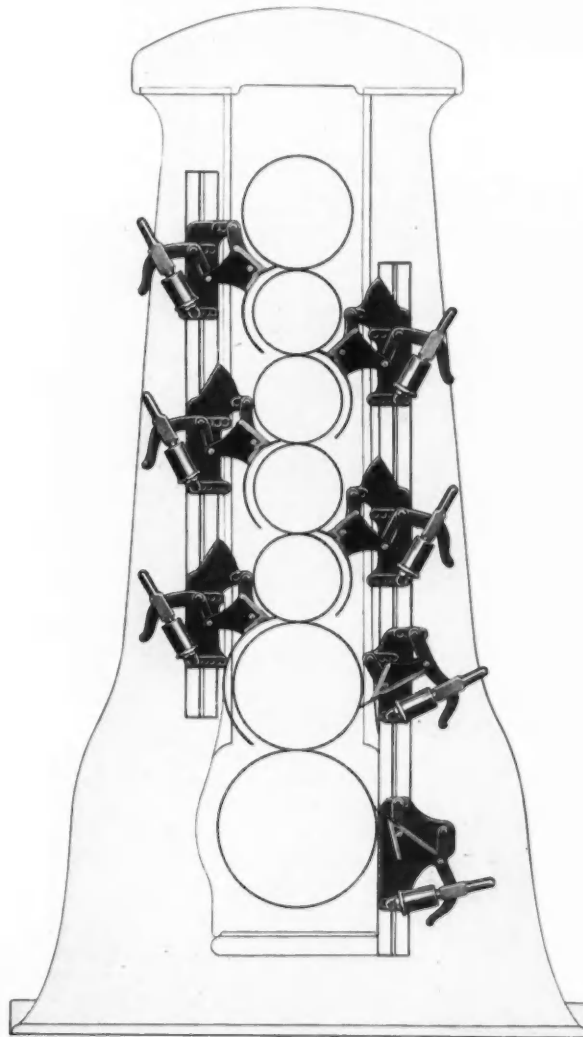
The materials used in the construction of the new buildings are brick, with brick and cement floors throughout. The buildings have been built for strength and durability, and nothing has been overlooked to make them such.

The company has for its source of wash water supply a number of artesian wells that furnish the entire plant with an abundance of pure water.

The company manufactures mostly papers with its own watermark, which are all well known in the trade. It is one of the largest plants manufacturing exclusively animal-sized, loft, pole, dried papers in this section of the country.

Officials of the company are very enthusiastic over the growth of business.

DILLON MAC LAWRENCE, PAPER MILL



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CHINE CO.

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DILLON DOCTORS will cure all your Calender troubles. They are regular equipment in a great many of the Paper Mills in this Country and Canada, and large numbers of them have been furnished for machines in the mills of Europe.

The Dillon Doctors are hung up to the rolls by means of steel levers and links, and, owing to their construction, they are self-adjusting and will follow the rolls in any position. THIS IS THE ONLY DOCTOR WHICH HAS THIS FEATURE. By means of springs, these Dillon Doctors can be set at any tension desired.

Our Doctors are also fitted with an automatic feed attachment which feeds the paper down through the calender rolls. These feeds will prevent the many accidents which are bound to occur when the paper has to be fed into the rolls by hand.

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Unusual Year in the Industry of Newfoundland

Harmsworth Mills Ran Steadily During the Spring and Summer with the Idea of Sending the Entire Product to England—Shortage of Ships, However, Interfered With This Plan and Caused the Company to Seek New Markets Which Were Found in the United States, to Which Considerable Quantities of Its Products Were Sent.

Written Especially for the Annual Number of the Paper Trade Journal by P. T. McGrath

During the past year pulp and paper operations on a large scale have been carried out in Newfoundland by the Anglo-Newfoundland Development Company, or, as it is better known in the Colony, the Harmsworth (or Northcliffe) Company's mills at Grand Falls, and the Albert E. Reed Company at its plant at Bishop Falls, ten miles distant, which makes ground wood pulp only, as well as by the Horwood Lumber Company, at its factory at Campbellton in Notre Dame Bay—producing the same material. But the year has also been remarkable for the launching of at least two more projects of unusual magnitude in regard to the future expansion of the pulp and paper possibilities of Newfoundland.

New Markets Found in United States

During the spring and summer the Harmsworth Mills kept running full time, with the idea of transporting the entire product to England, but the growing shortage of shipping in the North Atlantic, and the restrictions in England on the consumption of paper as part of the scheme to substitute foodstuffs and other essentials, compelled the principals of the company to cast about for new markets, and these they fortunately found in the United States, because until an arrangement was made for shipping their product there it looked as if the mills might have to shut down and abandon further work entirely. Very luckily, though, this contingency was averted, and what promises to be a very profitable and lasting market was opened up in America. This was sufficiently large and assured to absorb the entire annual output of, say, 60,000 tons of paper and 20,000 tons of pulp, if it had been possible to supply that amount, but of course the requirements of the company's own newspapers in the British Isles had first to be met to such extent as was possible, and only the surplus product was shipped to America. It is understood that this material has been used during the latter half of 1917 in between three and four hundred newspaper offices in the United States, stretching from New York as far West as Kansas City, and proving entirely satisfactory from a mechanical standpoint.

How Shipments Were Made

About 30,000 tons in all were shipped, and some fifteen steamers were employed in the trade. These involved some novel ships for these waters, namely motor engined steamers built on the Great Lakes and sent out through the Canadian canals to make their way round to New York, which were directed in their initial voyage to pass out through Belle Isle Strait and down to Botwood, the shipping port of the Harmsworth Company on the northeast coast of Newfoundland, where they loaded full cargoes comprising pulp and paper, and then continued their voyage to New York. Besides these motor-driven vehicles, which according to the reports of the crews proved entirely satisfactory, there were several other newly constructed ships from the Great Lakes as well, and also some built along the Atlantic seaboard, including the "War Wasp," constructed by the Nova Scotia Steel Company at New Glasgow, Nova Scotia, and the first steel steamer to be built in Maritime Canada. In addition to these vessels, a number of ships also called at Botwood on their

way back from various points in Europe, in ballast, and they took on board full cargoes and brought them to various American ports. This arrangement proved very satisfactory, it is understood, to all concerned, and one of the results of it has been to justify the operating of the Grand Falls mills at full capacity all through the year. Not alone was paper sent, but goodly quantities of mechanical pulp were also shipped by vessels to the United States under similar conditions, and virtually all the pulp production of the smaller mill at Bishop Falls found a market in American centres through this means.

Northcliffe Mills Increase Capacity

During last year the Northcliffe Mills added to their equipment two new digesters and tower, with the accompanying tubes, acid tanks, blow pits, etc., to enable them to double their output of sulphite pulp, the idea being that a much larger production of this material might be carried out, as the opportunities for the sale of it and its utilization in connection with the manufacture of book and other papers were thought likely to be largely increased. Two years ago the company installed two new paper-making machines, and in the latter part of 1917, with the addition of the new sulphite installation of the past season, the output of the mills might be said to have doubled itself. The company made large cuts of logs for some years past, its total annual provision in this regard being about 150,000 cords, but owing to the intermittent character of the activities of the mills in the first year or two of the war, much of this material was allowed to remain in the region where it was cut, and a great deal of last year's stock of logs was not driven down the rivers to the mills at all. It is therefore unlikely that the operations in the woods this winter will be more than half that of last year; first, because of the reason already mentioned; second, because the supply of labor is shorter than usual, owing to the demand for workmen in the Colony, because of the large number who have gone on active service; third, because the company has found it possible to buy large stocks of wood cut to serve as pit props in the collieries in England, and as supports in the trenches in France, but which could not be ferried across the Atlantic because of the scarcity of shipping; and fourth, because the present winter in Newfoundland has been the mildest for a generation; and up to the latter part of January no snow worth while had fallen anywhere, so that the men in the logging camps were able to do little or nothing.

American Market Will Afford Outlet

During 1918 it is expected the American market will afford an outlet for much of the material manufactured, both at Grand Falls and Bishop's Falls, though the present prices of ground wood pulp do not offer much inducement for dealers to ship the material to the United States. At the same time it is a great advantage to these mills, now that it is next to impossible to maintain a business connection with the British Isles, to have an alternative market in which they are sure of disposing of the quantity of their product which would otherwise be unsalable, and which enables them at all

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times to keep their plant working at a rate which will more than account for the overhead expenses, even if affording no very large margin of profit.

May Erect Sulphite Mill

The Bishop's Falls mill produces nothing up to the present except mechanical pulp—about 100 tons daily—but there has been talk for some time of erecting a sulphite mill in the vicinity, and linking up another river, known as Great Rattling Brook, in order to enlarge the supply of electric power, so as to justify the company entering into the manufacture of news-print paper and other materials as well.

Horwood Co. Ships Pulp to United States

The Horwood Company's mill at Campbellton is much smaller than either of the foregoing, having a capacity of only about 25 tons of mechanical pulp per day. It shipped one cargo of pulp to the American market last summer and will have another ready for shipment as soon as navigation opens in the spring. At present the region in which this mill operates is beset by winter conditions and heavy ice floes and is not accessible except by railroad and by horse or dog teams over a large stretch of river from the nearest railway station. In the summer, of course, it is always accessible by water, and as it lies near the outer coast this advantage is no slight one.

Projected Enterprises

The enterprises projected during the past year were two in number. The first applies to the south coast and plans the merging of several timber properties, totaling about 3,200 square miles, into one operation. All these areas are very well wooded and they front on a section of coast which is ice free the whole year round, and are therefore open to navigation. It is proposed to make the headquarters of the industry at Roti Harbor in Fortune Bay, and to use the waters of the Main River, flowing into that inlet, and several subsidiary streams, the whole body of water being capable of such handling that over 60,000 horse power can be generated in electric energy. As this would supply a very substantial surplus over that required for the manufacture of pulp and paper designed for the enterprise, which is to be roundly 200 tons per day, or the equivalent of the Harmsworth mill at Grand Falls, it is contemplated to erect in the vicinity also a modern flour mill, through the agency of which it is expected to grind all the flour that is used in Newfoundland, about 400,000 barrels annually. The scheme is that steamers coming to this place to load cargoes of pulp and paper would bring grain from the elevators of American and Canadian seaports, which grain would be ground into flour at the mill and then distributed to all parts of Newfoundland, or that the steamers would also bring general cargoes for the use of the mills at Roti Harbor and those at Grand Falls, Bishop's Falls, and other centers. In order to make this scheme thoroughly feasible it is proposed, as another feature of the plant, to construct a line of railway due north from Roti Harbor. This would be about 100 miles long, through a country offering no serious constructional difficulties, and understood to be extensively mineralized, so that it is quite within the bounds of possibility that mineral enterprises might be developed along the line which would contribute in a material way toward making it self-supporting. As, moreover, the mill at Roti Harbor would be at tidal water, and in an area never obstructed by ice, it is obvious that this would have a great advantage over the existing mills which are located in sections of the country where ice renders them inaccessible, at any rate for steamers, for from four to five months each year, and where the companies have consequently to freight the entire output either to St. John's or some convenient port during the winter, over 270 miles of railroad, and pay a heavy freight rate thereon. The idea is that after this enterprise took shape, and this new line of 100 miles of railroad was built, all the winter export of the Harmsworth and Bishop's Falls mills would find their way to the seaboard over this

line, and that during the whole of the year much of the requirements of large sections of the whole country in foodstuffs and the like would be met in reverse order by the cargoes the steamers would bring to the Island, which would take away the pulp and paper.

Development of Timber Areas

Another project which was being put into form last year related to the development of large timber areas on the northwest coast beyond Bonne Bay. Certain sections of country there are well wooded and the rivers are capable of developing water powers to the extent of 20,000 horse power. American capitalists were interested in this, as in the other flotation, and one feature of the project was that steps could be taken whereby the timber cut from certain sections of the country could be used in the building of wooden vessels between the coast and the United States, and that these in their turn could be utilized to convey to the United States, during the first year or two, large quantities of wood for conversion into paper and pulp. This is, under normal conditions, prohibited in Newfoundland, the Colony not allowing the export of any unmanufactured timber, but the parties in question claimed that the wood used in the construction of the ships would give an equivalent in labor to what it was proposed should be removed unmanufactured, and that this removal should only be permitted during the period the mills for manufacturing it were being constructed and equipped, and that the right to export should automatically cease as soon as the mills were ready for operation. The territory in question is understood to be one of the easiest in Newfoundland to work, and the construction of the proposed plant is held to offer few engineering difficulties, so that it was hoped, as soon as spring opens, and it is possible for work to be set on foot on the northwest coast again, the necessary steps will be taken for this end.

This enterprise, too, while planned for a section of the coast which is icebound for some months of the year, can overcome that difficulty by the fact that a railroad is now partly completed toward Bonne Bay, and its extension for some twenty miles northward would enable it to serve these mills all the year round and make possible the export of the finished product from Port aux Basques, the western terminus of the Island railway, at any season of the year.

The Reid Newfoundland Co. Project

Both these projects were, of course, only minor ones as compared with the famous enterprise set on foot by the Reid Newfoundland Company early in 1915, but which has not yet taken actual form as a result of the difficulty of obtaining the necessary funds during the course of the war. This company owns the Newfoundland Railway system and the service of steamers around the coastline, and in fact the major portion of the seaboard and inland transportation utilities of the Colony. It also possesses vast tracts of land in the interior, and among them a splendidly wooded area around the shores of Grand and Deer Lakes, with water powers vastly superior to any other in the Island. This company proposed to establish at Humbermouth, Bay of Islands, the outlet of the Humber River, an enterprise colossal in its proportions. It comprehended the manufacture of calcium carbide, the production of phosphate of ammonia fertilizer, of papers of various grades, sulphite and mechanical pulp, and various by-products. The intention was to utilize the woods of the Grand Lake and Deer Lake areas as a principal constituent, and to obtain requisite supplies of lime from Marble Mountain, a huge hillside forming one of the shores of the Humber River, sulphur being obtained in turn from pyrite iron deposits in the same vicinity, and phosphate rock being brought from Florida. The merits of the project were carefully tested by large American underwriting and capitalistic concerns, and everything seemed promising for the flotation of the company, which was to transmute the scheme into an actuality, but with the growth of the war and the demands for money in other directions, and the

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uncertainties as to shipping and other problems which entered largely into the business or otherwise of the scheme, it was decided to postpone it until the termination of hostilities. In the meantime much preparatory work has been done; surveys of the rivers, determination of the waterflow, and other facts of essential value have been carried out, and it is the confident expectation of those interested that it will become a reality within a short period after the present war ends.

Output of the Saw Mills

The return of the output of the sawmills in the Colony during the fiscal year ending June 30, 1917, shows the following results:

CUT BY	FEET B. M.	VALUED AT
7 mills operated by holders of licenses to cut timber under Crown Lands' act	10,672,370	\$215,067.52
77 mills operated under License Section		
1, Saw Mills act.....	860,516	11,186.68
69 mills operated under License Section		
2, Saw Mills act.....	6,675,680	100,135.03
	18,208,566	\$326,389.23

This cut from 153 mills as compared with the cut of 16,001,969 feet from 153 mills of the same classes from which returns were obtained for the year 1914-15 shows an increase of 2,280,603 feet B. M.

There are under license in the Colony a total of 350 saw mills, of which during the year under review 197 were either not working or made no returns.

Pulp Wood Cut During the Year

The quantity of pulp wood cut by the Anglo-Newfoundland Company and the A. E. Reed Company (Newfoundland), Ltd., during the year was 136,208 cords or the equivalent of 58,104,000 feet B. M.

The customs returns show that during the year there were exported to Great Britain and France 76,002 cords of timber to be used as pit props, valued at \$407,724. Owing to the shortage of shipping, a considerable quantity of timber cut for this purpose

(estimated at 60,000 or 70,000 cords) still remains in the Colony.

The report of the inspector appointed under the authority of the Logging Act shows that during the season he visited and inspected 91 logging camps belonging to various companies, in which there were 2,153 men. No complaints of any kind were made to him, and, generally, the camps were in a satisfactory condition; the food supply was ample and of good quality, and the employers willing to comply with the provisions of the law.

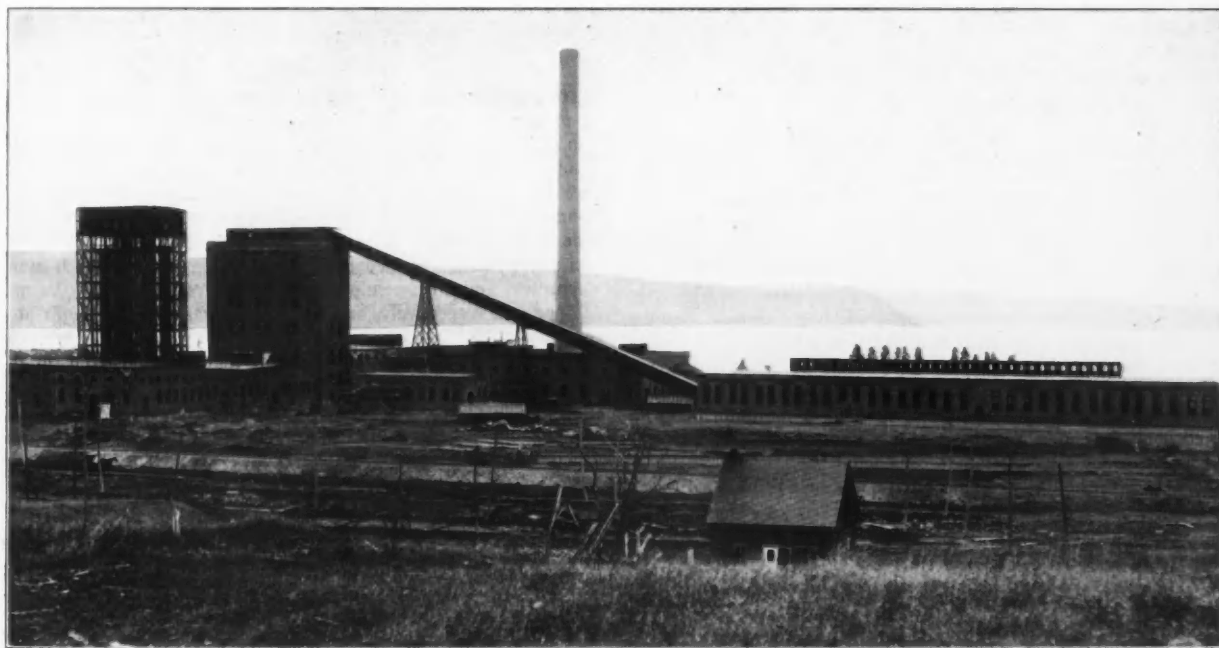
The number of men employed in connection with lumbering operations, with the exception of those employed in cutting pit props, is estimated at 4,200. These would be employed for about five months at an average wage of \$30 per month with board.

Forest Protection

For the protection of the forests, under the Chief Woods Ranger, the usual patrol was continued with good results. The number of wardens under his direct control and paid by the Crown Lands Department was 30. Eight others were also under his direction, but paid out of the funds of the Newfoundland Fire Patrol Committee. The number of fires reported by these was 1,203, an increase of 860 over the number reported during the year 1915-16. Only three of the fires reported reached considerable proportions, and of all the fires reported two only are reported to have caused any serious damage to the forest, owing to the promptitude of the patrol in dealing with them. The number of fires reported by that patrol working under direction of the committee at Grand Falls was 845, or 90 more than during the season of 1915-16.

HA! HA! BAY SULPHITE CO. COMPLETES PLANT

The sulphite plant of the Ha! Ha! Bay Sulphite Company, Limited, which has recently been completed at Bagotville, P. Q., Canada, has a daily capacity of 120 tons. The plant consists of twelve buildings of structural steel frame, brick and reinforced concrete, a steam-electric power plant, complete water supply and sewerage systems; also, a 236-foot brick stack. The construction work was performed by the J. G. White Engineering Corporation under the direction of H. S. Ferguson, consulting engineer.



PLANT OF THE HA! HA! BAY SULPHITE CO., BAGOTVILLE, P. Q.

A Year of High Prices for Paper in England

Paper Users, However, Face the Prospects of More Limited Supplies at Higher Values in 1918—Great World Tragedy Has Affected the Paper Trade of the United Kingdom to as Great a Degree as Almost Any Industry, But the Manufacturers Have Faced the Situation in a Manful and Businesslike Spirit—Paper Commission Gives Notice That Paper Imports Will Be Further Restricted.

Written Especially for the Annual Number of the Paper Trade Journal by A. L. Wise

The dawn of the fourth year of the war brings with it small promise of an early termination of the great world-tragedy which fills all minds, but nevertheless, there is a general feeling of hopefulness that the blessings of peace will be restored before the end of the 12 months upon which we are entering. It is safe to say that the paper trade of the United Kingdom has felt the effects of the war to as great a degree as almost any industry that could be named, but the manufacturers have faced the difficulties with which they have had to contend in a truly manful and business-like spirit, and made the best of unfavorable conditions with advantage to their customers and profit to themselves. The calling up of older men within the military age-limit further depleted the labor forces in the mills and although women have filled the breach to some extent, and done excellent work, they could not entirely replace male workers, and, but for the fact that raw material supplies were not equal to the demand, the effect upon production would have been more pronounced.

Paper Making a Non-Essential Trade

Under the terms of the National Service Act the paper making industry was classified as a restricted or non-essential trade, and employers may not now engage new men between 18 and 61 years of age; consequently many young boys and old men are now earning good wages in paper mills. Early in the year the British Government, being dissatisfied with the apparent lack of control of exports from Norway, prohibited the exportation of coal to that country, and the immediate result of this embargo, which of course affected the chemical pulp mills very seriously, was to put the price of news sulphite up to £34 per ton, moist mechanical being quoted at that time £5 per ton. With gradually decreasing stocks and the prospect of further restrictions, not only of raw material, but also of the finished article, newspaper proprietors naturally began to feel anxious about the future, and a deputation waited upon the president of the Board of Trade, asking that preferential treatment should be given to newspapers, which were giving considerable space, free of charge, for propaganda purposes. Sir A. Stanley gave the deputation a sympathetic hearing, and stated that, while a further reduction of imports from five-sixths of the 1916 tonnage would have to be faced, news print should have preference over other grades, but not at the expense of food or munitions, and he urged upon the publishers the need for the greatest economy and the limitation of consumption to only what was absolutely necessary. On the whole, this sound advice was acted upon, and sizes of sheets being cut down and the number of pages reduced to almost extreme limits. This was toward the end of January, when the price of news print was about 2½d to 3d (6 cents) per pound.

Possibilities of a Paper Famine

In the early days of February the German threat of unlimited submarine frightfulness, which might have been expected to create some excitement on a market entirely dependent upon ocean transport, was calmly received here, but had the effect of keeping

neutral steamers in port for the time being, bringing a paper famine within the bounds of possibility. Gradually, however, shipping was resumed and vessels arrived with supplies, but these were inconsiderable, the scarcity of coal in Scandinavia compelling the curtailment of railway facilities to such an extent as to hamper, and in some cases altogether stop, the transport of pulp to seaboard. A Government call for a declaration of stocks held by newspaper publishers and others seemed to indicate that the authorities contemplated taking over the control and distribution of available supplies, but nothing has been done in this direction. The Board of Trade issued an order prohibiting the manufacture of poster paper exceeding 20 x 30 inches and the exhibition of contents bills except at the premises of the actual publisher, and although the regulation as to posters was relaxed later in the year, the contents bill prohibition is still in force, and its absence left a blank in more respects than one for some little while, but in these times of constant and rapid changes what seemed to be a necessity yesterday is a luxury today, if, indeed, it has not been entirely forgotten. Certain it is that the disappearance of the contents bill has had no unfavorable effect upon circulations, as far as the daily and weekly newspaper is concerned, though it may have borne hardly upon weekly publications of other classes, and it is a fact that many of the less important of these have ceased to exist.

Paper Commission Criticized

The Paper Commission was subjected to much adverse criticism by manufacturers and publishers alike in regard to the cancellation of import licenses at the end of February, and to the unofficial mind it would seem to be grossly unfair not to make some allowance for delay in shipment caused by the submarine activity, but license-holders had to forfeit their rights in respect of quantities ordered for delivery before the date mentioned, but which did not arrive within the specified time limit. By the end of March moist mechanical and strong sulphite pulps were selling at £4.10/- and £33 per ton, respectively, and news print was readily bought at 9 cents per pound, a price in comparison with which the figure paid by consumers in the United States at that date appeared, in the eyes of the British newspaper owner, aggravatingly small, and in spite of the enormously high freight rates quoted by the transatlantic shipping companies American mills could have booked orders for very large quantities, which, however, had to be refused, owing to there being practically no space for anything but foodstuffs and munitions of war. Freight and insurance rates from Scandinavia to east coast ports rose very rapidly in the early Spring; 70 shillings per ton being paid for space and 10 per cent for war risk and marine premiums, as compared with 17 shillings and 2 per cent, respectively before February. Two or three weeks later prices of raw material had soared to £45 per ton for strong sulphite and only very small quantities were obtainable, even at these high levels. Not yet, however, was the limit reached, and it was not long before "strong" was quoted at £52 per ton and moist

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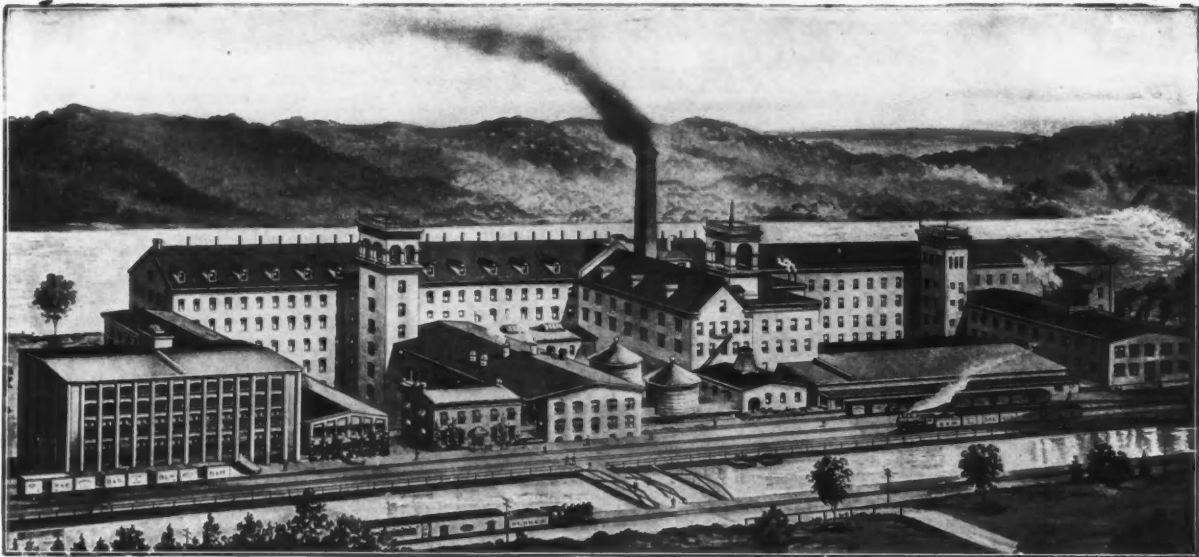
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mechanical at £14 to £15. The days when the former commodity was easily obtainable at £6 and the latter a drug on the market at 35/- per ton seem very remote indeed, but manufacturers will hardly sigh for the "good old times" when they compare this year's balance sheets with those of three or four years ago, and the theory that high prices mean small profits has received a nasty jar.

Prices Advance with Scarcer Raw Materials

With raw material becoming scarcer every day it is not a matter for surprise that prices of all classes of paper advanced correspondingly. The price of news print was fixed from time to time by the Paper Commission, the maximum for the year being equivalent to about 9½ cents per pound, but this applied only to contracts made under the commission's regulations, whereby mills are bound to supply their customers with a certain percentage of the tonnage delivered to them in 1914, and free paper, i. e., any surplus which a mill may have had over and above its contract obligations, was readily salable at much higher figures, as much as 12 and 14 cents being paid. This, too, in many cases for a very poor quality, as some of the mills resorted to the expedient of repulping old newspapers, the result being a sheet very much under the standard of strength; publishers, however, were too glad to get supplies to be hypercritical as to quality.

Further Restrictions After March 1

Towards the end of the year the Paper Commission issued a notification to the effect that paper imports are to be still further restricted after March 1, 1918, the reduction being one-third of the 1917 tonnage, or about 21 per cent of the quantity imported in 1914. This was a consequence of the requisitioning by the Government of shipping accommodation for the transportation of war material and other necessary commodities, and the gradual approach of paper imports to vanishing point will put publishers in an uncomfortably tight corner. Everything has to give way to the exigencies of the war, and the newspaper proprietors, realizing this, have taken their gruel in true sportsmanlike fashion, hoping for better times in the not too far distant future and making the best of present conditions. Before the end of the year shipment of paper in any quantity from the United States to Great Britain had become a practical impossibility, and freight quotations for what little space was available were in the neighborhood of \$2.50 per cubic foot, or over £37 per English ton. A good deal of talk has been heard during the year about Blue Book rates, but the

consumer who has been fortunate enough to get paper in there-with is yet to be discovered, and the shipping companies, who would probably resent any suggestion of profiteering on their part, are calmly asking for and obtaining (for the trader is entirely at their mercy) almost twice as many pounds sterling as they were glad to get shillings per ton in pre-war days.

Wrapping and Other Papers Affected

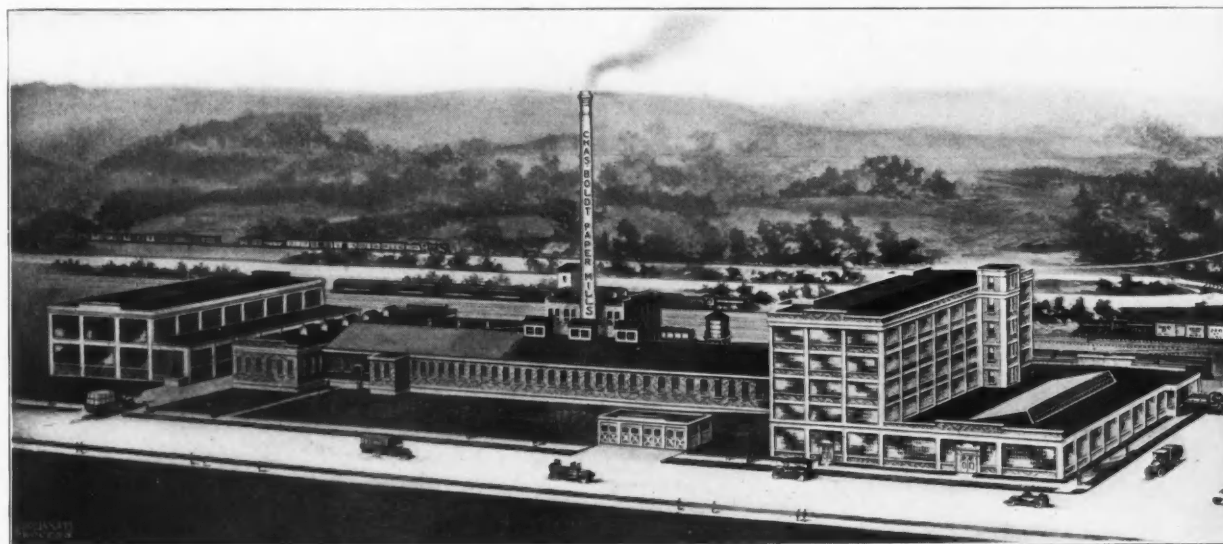
Wrapping papers of all grades were naturally affected, equally with other papers, by the scarcity of raw material. M. G. sulphites have sold for up to one shilling (24 cents) per pound and grease-proofs have been taken at twice that figure, but of the latter there is next to nothing available. Kraft browns of good quality which three years ago sold at about £13 per ton, were quoted in December as high as £105 per ton, while common browns have fetched up to £45 as against £8 or £9 formerly. Strawboards have been more difficult to obtain month by month, the most recent consignments from the Dutch mills finding eager purchasers at £45 per ton. At the end of the year mechanical pulp, dry, stood at the record figure of £30 to £35 ton c. i. f. English ports, moist being quoted at about £11, while strong sulphite was sold for £45 to £46 per ton.

With E. S. papers up to 11d per pound, printings at 10d, tub-sized papers 10½ to 11d, the end of the year sees record prices for all grades, and paper users have to face the prospect of still more limited supplies at higher values in 1918.

CHARLES BOLDT CO. STARTS BOARD PLANT

The new mill of the Charles Boldt Company, recently started at Red Bank, a suburb of Cincinnati, Ohio, for the manufacture of high grade colored suit board and jute container board, is one of the most modern plants of the kind in the country. It has a capacity of 100,000 pounds per day. The equipment consists of one Beloit six-cylinder machine, trimming 108 inches, five 2,000-pound Diltz beaters and three Jordans. The five-story building is devoted entirely to the corrugated box department and the one story saw-tooth building is devoted to the solid fibre shipping case department. The building is strictly fireproof, being constructed of concrete and red brick with gypsum tile roof.

The plant was built and put in operation in ten months' time under the supervision of Max Zimmerman, superintendent. It is located on the Pennsylvania Railroad.



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It is just that sort of Power Transmission Machinery that makes HILL CLUTCH EQUIPMENT recognized as the best obtainable for heavy, severe 24-hour service such as encountered in Paper and Pulp Mills.

The day has past when arguments are necessary in support of the now recognized fact that the HILL COLLAR OILING BEARING is the best lubricated shaft bearing ever devised—the bearing best adapted to exacting service, and most dependable under difficult conditions.

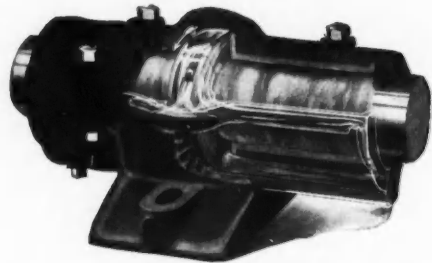
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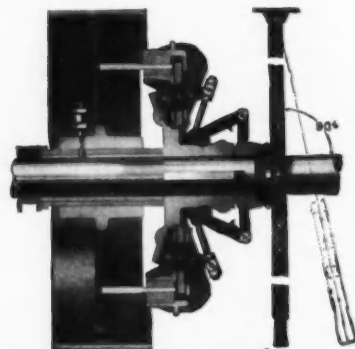
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Paper Bills in Congress During the Past Year

Five Bills and Five Resolutions Have Been Introduced in Both Houses of the National Government Directly Relating to the Paper Industry—All of These Bills and Resolutions Are Still Resting in the Committees to Which They Were Referred, With the Exception of the Reed Resolution and the Smith Resolution Which Was Recently Defeated in the Senate by 36 to 32.

Written especially for the Annual Number of The Paper Trade Journal by L. M. Lamm.

In view of the importance of legislation at the Capital the trade will doubtless be interested in knowing what bills have been introduced during the Sixty-fifth Congress which opened in April.

Up to the time of this writing five bills and five resolutions have been introduced in both houses of Congress directly relating to paper. Of this number three bills were introduced in the House, two in the Senate; one House Joint resolution; three Senate Joint resolutions; and one Senate resolution.

All of these bills and resolutions are still resting in the committees to which they were referred save the Smith resolution which was defeated and one resolution introduced by Senator Reed asking the Federal Trade Commission for information which was passed. These cover all bills introduced in Congress since the last annual number of the PAPER TRADE JOURNAL in which may be found the bills introduced for the Sixty-Fourth Congress. Following are the bills and resolutions in full.

The Curtis Bill

*The following bill was introduced by Senator Curtis and referred to the Committee on the Judiciary "to prevent unfair discrimination in the sale of print paper by persons engaged in commerce, and for other purposes."

That the meaning of the word "commerce," "person," and "persons," whenever used in this Act, shall be the same as defined in an Act entitled "An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes," approved October fifteenth, nineteen hundred and fourteen.

SEC. 2. That it shall be unlawful for any person engaged in commerce, in the course of such commerce, either directly or indirectly, to discriminate in price between different purchasers of print paper, which print paper is sold for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, where the effect of such discrimination is to sell to purchasers and consumers of large quantities of print paper at a lower or less price and under more advantageous conditions or contract than is charged or given purchasers of smaller quantities of the same commodity; and also it shall be unlawful for a person or persons to enter into a contract for the sale, resale, or disposition for future delivery of print paper with purchasers of large quantities of such commodity and refuse to enter into similar contracts with purchasers of smaller quantities of the same commodity: *Provided*, That nothing herein contained shall prevent discrimination in price between purchasers of commodities on account of differences in grade or quality of the commodity sold, or that takes only due allowance for the difference in the cost of selling or transportation.

SEC. 3. That any person violating any of the provisions of this Act shall be guilty of a felony, and upon the conviction

thereof shall be punished by a fine not exceeding \$10,000 for each offense or by imprisonment in the penitentiary not exceeding five years, or by both such fine and imprisonment; *Provided*, That whenever a corporation shall violate any of the provisions of this Act, such violation shall be deemed to be also that of the individual directors, officers, or agents of such corporation who shall have authorized, ordered, or done any of the acts constituting in whole or in part such violations: *And provided further*, That a corporation and its different officers, agents, and servants may each be prosecuted separately for violation of this Act, and the acquittal or conviction of one shall not abate the prosecution of the others.

SEC. 4. That it shall be the duty of the Federal Trade Commission to take all necessary steps to carry out the provisions of this Act.

The Robinson Bill

Senator Robinson introduced the following bill "to declare print paper a public utility and to empower the Federal Trade Commission to fix a reasonable maximum price therefor, and for other purpose." It was referred to the Committee on Interstate Commerce.

That paper used for printing newspapers, magazines, periodicals, books, and other publications is hereby declared to be a public utility. The Federal Trade Commission is hereby authorized and empowered, after full hearing, to fix a reasonable price as a maximum to be charged for such paper. All charges made for print paper shall be just and reasonable and every unjust and unreasonable charge for such paper is prohibited and declared to be unlawful.

SEC. 2. That the Federal Trade Commission shall have full authority and power at any time to institute an inquiry upon the complaint of any corporation, partnership, individual, or community or on its own motion in any case as to any matter or thing in relation to or connected with the charges for print paper. And the said commission shall have the same powers and authorities to proceed in any inquiry instituted on its own motion as if it had been appealed to by complaint of petition.

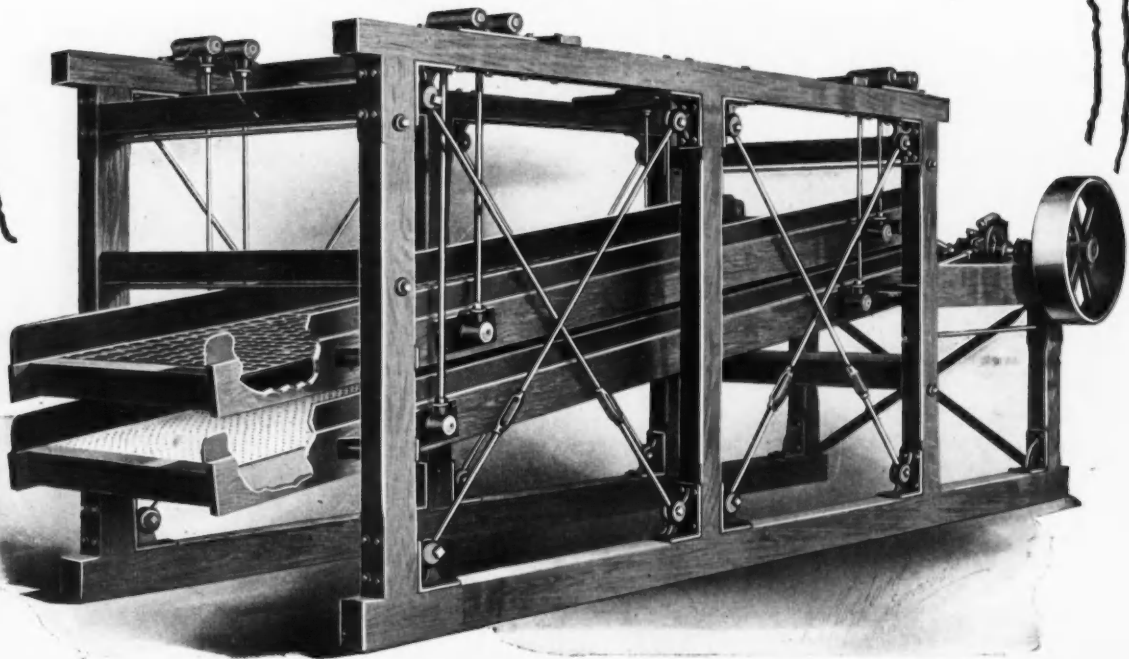
SEC. 3. That the Federal Trade Commission is hereby authorized and empowered to make an order or orders, after full hearing, that the dealer who deals in print paper shall cease and desist from charging for print paper an amount above the maximum found by the commission to be reasonable. Any dealer or manufacturer of print paper, or officer, representative, or agent of such manufacturer or dealer, or any receiver, trustee, lessee, or agent of either of them who knowingly neglects to obey any order made under the provisions of this Act shall forfeit to the United States the sum of \$5,000 for each offense. Every distinct violation shall be a separate offense, and in case of a continuing violation each day shall be deemed a separate offense. The forfeiture shall be payable into the Treasury of the United States, and shall be recoverable in a civil suit in

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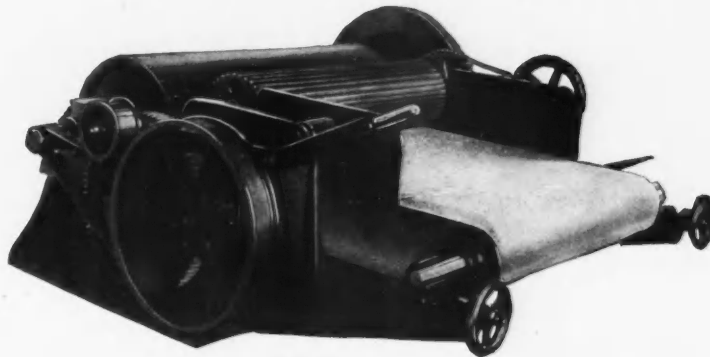
THE RYTHER SHREDDER is firmly established in America's paper mills as the machine for the preliminary reduction of dry, partly dry and partly frozen pulp laps, sheets and boards. The largest mills in the country can attest to the efficiency of Ryther Shredders. You will find them recently installed in

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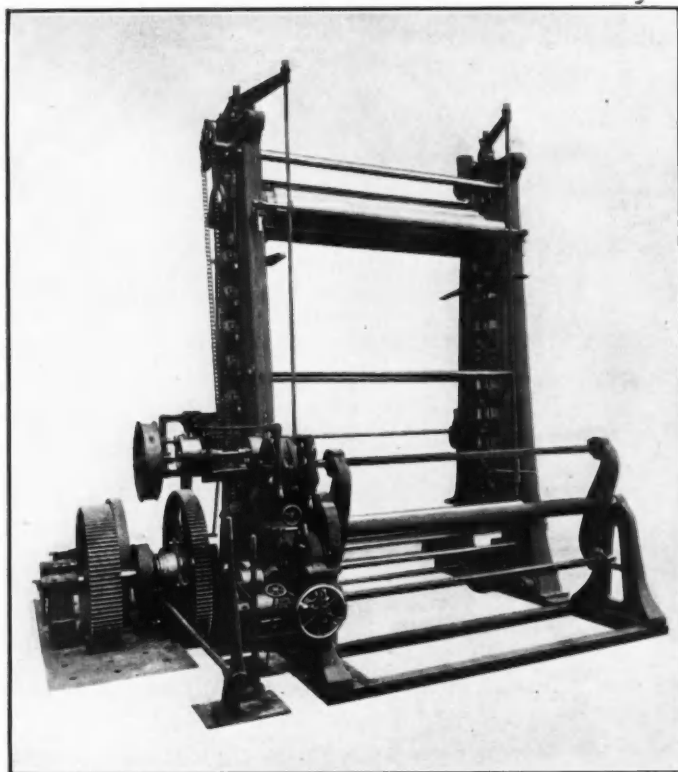
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the name of the United States, brought in the district where the manufacturer or dealer has its or his principal office. It shall be the duty of the various district attorneys, under the direction of the Attorney General of the United States, to prosecute for the recovery of forfeitures.

Sec. 4. Every manufacturer and dealer in print paper shall file with the Federal Trade Commission within sixty days after the passage of this Act and keep open to public inspection a price list showing all the prices and charges for print paper of different grade and character. No changes shall be made in the prices or charges which have been filed in compliance with this act except after thirty days' notice to the commission, which notice shall plainly state the change proposed to be made in the price schedule then in force, and the time when the changed prices and charges will go into effect; and the proposed changes prices and charges shall be shown by printed new schedules, or shall be plainly indicated upon the schedules in force at the time and kept open to public inspection: *Provided*, That the commission may, in its discretion, and for good cause shown, allow changes upon less than the notice herein specified, or modify the requirements of this section in respect to publishing, posting, and filing of price schedules, either in particular instances or by a general order applicable to special or peculiar circumstances or conditions.

Sec. 5. That all hearings by the Federal Trade Commission under the provisions of this Act shall be public.

The Reed Resolution

Following is the Reed resolution calling for information which was passed by the Senate. The answer was published in the PAPER TRADE JOURNAL.

Whereas pursuant to the resolution of the United States Senate of April twenty-fourth, nineteen hundred and sixteen, the Federal Trade Commission began the investigation of the combination existing among the manufacturers of news print paper; and

Whereas two reports have been made to the Senate by said commission, dated, respectively, March third, nineteen hundred and seventeen, and June thirteenth, nineteen hundred and seventeen; and

Whereas said commission finds as a fact and reports that there exists a combination of paper manufacturers which extorts unreasonable prices, and that by reason of said combination free competition has been restricted, and that within the past year prices have been advanced to large consumers as much as \$50 per ton, and to small consumers in some cases as much as \$180 per ton; and

Whereas said commission has reported that by concerted action said combination of manufacturers has discouraged the production of print paper, and has arbitrarily divided customers and territories among themselves and thus limited and controlled competition; and

Whereas said commission has further found and reported that because of said unfair and illegal practices, small publishers have already been driven out of business, that more are likely to suffer the same fate, that large publishers will be financially ruined, and others rendered unable to make any profit from their legitimate business ventures; and

Whereas all of said acts and practices are in violation of the laws of the United States prohibiting monopolies, restraints of trade, unfair practices, and so forth; and

Whereas the Government of the United States is a large consumer of news print paper, and as such is the victim of the illegal combination practices and extortions aforesaid; and

Whereas the Federal Trade Commission in its report of June thirteenth, nineteen hundred and seventeen, expressly states that "the efforts of the commission to restore competitive conditions have failed," and the said illegal and oppressive practices are being continued: Now, therefore, be it

Resolved, That the Federal Trade Commission is hereby directed to inform the Senate of the United States, with all due dispatch, why it has not issued and caused to be served upon the offending persons and corporations aforesaid appropriate orders commanding them to desist from the said illegal and unfair practices to the end that the same shall be discontinued, and if not, that appropriate proceedings may be had in the courts of the United States to enforce said orders of the commission.

The Smith Resolution

The famous Joint Resolution of Senator Smith, recently defeated by a vote of 36 to 32 is as follows:

To provide further for the national security and defense by insuring to the Government of the United States an adequate supply of print paper at a fair price and by insuring a supply and equitable distribution at fair prices to the industries of the United States.

Whereas by reason of a state of war now existing it is essential to the national security and defense for the successful prosecution of the war to assure a supply of print paper and its equitable distribution at a fair price in order that the Government of the United States may be assured an adequate supply of paper products and that all proper news may be generally and efficiently disseminated: Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever during the continuance of the war and for six months thereafter the President shall deem it needful, he may direct the Federal Trade Commission to supervise, control, and regulate the production and distribution of print paper and mechanical and chemical pulp and their products in the United States and that such mills producing and such agencies distributing print paper and mechanical and chemical pulp and their products in the United States as the President shall designate shall be operated on Government account; that these products be pooled in the hands of the Federal Trade Commission for the term of the war and the emergency occasioned thereby and equitably distributed at a price based upon cost of production and distribution plus a fair profit per ton, as determined by the Federal Trade Commission: *Provided*, That if the compensation so determined be not satisfactory to the person, company, or corporation entitled to receive the same such person, company, or corporation shall be paid ninety per centum of the amount so determined by the Federal Trade Commission and shall be entitled to sue the United States to recover such further sum as, added to said ninety per centum, will make up such amount as will be just compensation for such paper, pulp and pulp products, and jurisdiction is hereby conferred on the United States district courts to hear and determine all such controversies.

SEC. 2. That the President is authorized and empowered to take all proper steps to secure the co-operation of the Government of the Dominion of Canada in the creation of a similar agency as herein provided, with like functions; and the Federal Trade Commission is authorized and empowered to act in conjunction with such Canadian agency, when appointed, to the end of fully effectuating the objects of this Act.

SEC. 3. That the President, during the present war emergency, shall have power by proclamation to declare that such imports of mechanical and chemical pulp and their products as he shall deem necessary in order to fully effectuate the objects of this Act, shall be made only on account of the United States of America, to or through the Federal Trade Commission.

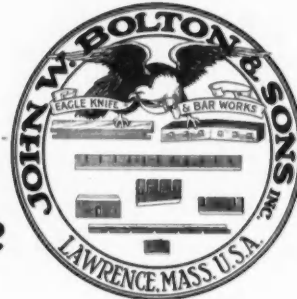
SEC. 4. That compliance with all orders and regulations of the Federal Trade Commission made in accordance with this Act shall be obligatory on any individual, firm association, company, corporation, or organized manufacturing industry, or the responsible head or heads thereof, and shall take precedence over, all other orders and contracts heretofore placed with such individual, firm,

Eagle Knife and Bar Works

JOHN W. BOLTON & SONS, Inc.



High-Grade



KNIVES, BARS, PLATES

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JORDAN FILLINGS

OF EVERY DESCRIPTION

*High Grade Steel Products
for Use in Paper Mills*

LAWRENCE, MASS.

company, association, corporation, or organized manufacturing industry; and any individual, firm, company, association, corporation, or organized manufacturing industry, or the responsible head or heads thereof, failing to comply with the provisions of this Act shall be deemed guilty of a felony and upon conviction shall be punished by imprisonment for not more than three years or by a fine of not exceeding \$20,000, or both.

The Owen Resolution

Senator Owens' Joint Resolution which was referred to the Committee on Manufactures is as follows:

To provide further for the national security and defense by insuring the supply and equitable distribution of print paper.

Whereas by reason of a state of war now existing it is essential to the national security and defense for the successful prosecution of the war to assure a supply of print paper and its equitable distribution at a fair price, in order that all proper news may be generally and efficiently disseminated: Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be, and he is hereby, authorized and empowered to appoint an agency under the jurisdiction of the Department of Commerce to take over and to operate on Government account for the term of the war or the emergency occasioned thereby all mills producing print paper and mechanical and chemical pulp in the United States, or so many thereof as shall be necessary to effect the purposes of this Act; and such Government agency shall cause the supply of paper to be equitably distributed at a reasonable price, based upon the cost of production and distribution, allowing a fair profit per ton to the owners of such mills.

SEC. 2. That the President is further authorized and empowered to take all proper steps to secure the co-operation of the Government of the Dominion of Canada in the creation of a similar agency as herein provided with like functions; and the Government agency appointed by the President is authorized and empowered to act in conjunction with such Canadian agency when appointed to the end of fully effectuating the objects of this Act.

SEC. 3. That the President shall have power, by proclamation, to declare that imports into the United States during the present war emergency of paper and mechanical and chemical pulp shall be made only on Government account, to or through the Government agency by him appointed, if and whenever he shall determine such step to be necessary in order to fully effectuate the objects of this Act.

Another Smith Resolution

Another resolution which was introduced by Senator Smith, and referred to the Committee on Printing follows:

To provide further for the national security and defense by insuring to the Government of the United States an adequate supply of paper at a fair price and by insuring a supply and equitable distribution at fair prices to the industries of the United States.

Whereas by reason of a state of war now existing it is essential to the national security and defense for the successful prosecution of the war to assure a supply of print paper and its equitable distribution at a fair price in order that the Government of the United States may be assured an adequate supply of paper products and that all proper news may be generally and efficiently disseminated: Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Trade Commission is hereby authorized and empowered to supervise, control, and regulate the production and distribution of all paper and mechanical and chemical pulp in the United States, and that all mills producing and all agencies distributing print paper and mechanical and chemical pulp in the United States be operated on Government account; that these products be pooled in the hands of the Federal Trade Commission for the term of

the war and the emergency occasioned thereby and equitably distributed at a price based upon cost of production and distribution plus a fair profit per ton.

SEC. 2. That the President is authorized and empowered to take all proper steps to secure the co-operation of the Government of the Dominion of Canada in the creation of a similar agency as herein provided, with like functions; and the Federal Trade Commission is authorized and empowered to act in conjunction with such Canadian agency, when appointed, to the end of fully effectuating the objects of this Act.

SEC. 3. That the President shall have power by proclamation to declare that imports into the United States during the present war emergency of paper and mechanical and chemical pulp shall be made only on Government account, to or through the Federal Trade Commission, if and whenever he shall determine such step to be necessary in order to fully effectuate the objects of this Act.

Bills Introduced in the House

Representative Dillon introduced the following Joint Resolution in the House which was referred to the Committee on Interstate and Foreign Commerce:

To provide further for the national security and defense by insuring the supply and equitable distribution of print paper.

Whereas by reason of a state of war now existing it is essential to assure a supply of print paper and its equitable distribution at a fair price, in order that all proper news may be generally and efficiently disseminated: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That for the term of the war and the emergency occasioned thereby the President be, and he is hereby, authorized and empowered to supervise, control, and regulate the production and distribution of all paper, pulp, and pulp products in the United States, and, if necessary, he is authorized and empowered to take over and operate on Government account any or all mills producing paper, pulp, or pulp products in the United States; and the President shall cause the supply of paper to be equitably distributed at a reasonable price, based upon the cost of production and distribution, allowing a fair profit per ton to the owners of the mills. All charges made for print paper shall be just and reasonable, and every unjust and unreasonable charge for such paper is prohibited and declared to be unlawful.

SEC. 2. That the President is further authorized and empowered to take all proper steps to secure the co-operation of the Government of the Dominion of Canada to the end of fully effectuating the objects of this Act.

SEC. 3. That the President shall have power, by proclamation, to declare that imports into the United States, during the present war emergency, of paper, pulp, and pulp products shall be made only on Government account, if and whenever he shall determine such steps to be necessary, in order to fully effectuate the objects of this Act.

The Fuller Bill

The following bill "to amend the law granting second-class mail privileges to certain publications, and for other purposes," relating also to paper, was introduced in the House by Representative Fuller and referred to the Committee on Post Offices and Post Roads:

That to conserve the supply of print paper, and to limit the consumption thereof, until prices return to a normal basis, commencing thirty days after the passage of this Act, and continuing for one year thereafter, no weekly or semi-weekly newspaper containing more than twelve pages, no daily newspaper containing more than sixteen pages, no Sunday newspaper, or Sunday edition of a newspaper, containing more than twenty-four pages, and no magazine containing more than one hundred pages, shall be entitled to second-class mail privileges, or be admitted to the mails at second class rates as now fixed by law.

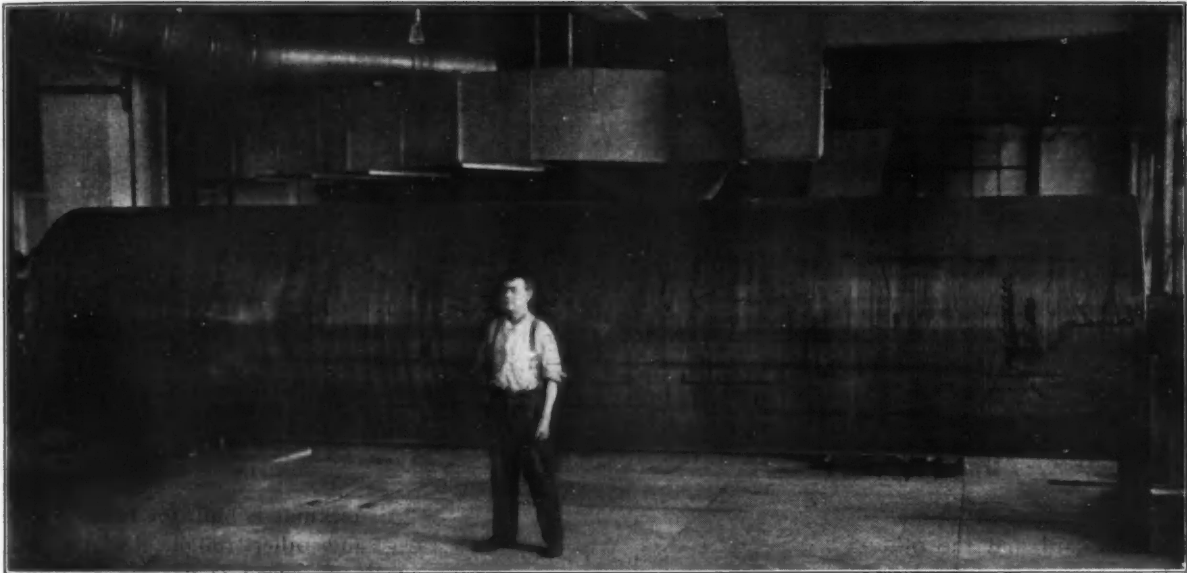
Kenwood Felts



New Wool Scouring Plant

WWE have tried to meet the increased demand for our Felts and Jackets by additional buildings and by new equipment and machinery in all departments. Delays in delivery have been discouraging but part of the new machinery is now in operation,

Kenwood Jackets



New Felt Drying Cylinder
Length 264 in. Diameter 5 ft. Wgt. 18000 lbs.

some is being installed, some is in transit and the remainder will be delivered during the next few months, on orders placed more than one year ago.

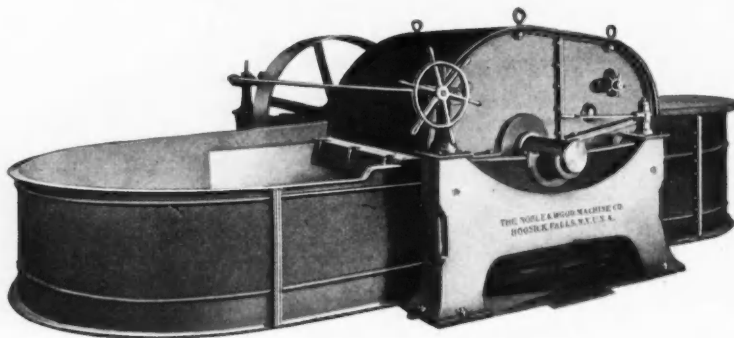
F. C. Huyck & Sons

Albany, N. Y.

THE NOBLE & WOOD MACHINE CO.

HOOSICK FALLS, N. Y.

Beating
Engines
Washing
Engines
Mixing
Engines
Cooking
Engines
Breaking
Engines
Wood or Iron
Tubs



Stuff
Chests
Pumps
Rag
Cutters
Fan
Dusters
Pin
Dusters
R. R.
Dusters

Special machines for
Fibre Board
Binders' Board
Leather Board

Two Patterns, one for ordinary sizes of Board and the other extra heavy for making large sheets for special markets.

Patent Digester

Quick process for reducing old papers and broken papers to half stock.

Laboratory Equipments

Experimental Beaters
4 Sizes

Experimental Jordan
1 Size

These are not "toys" but practical working machines.

The U. S. Government are using 8 of our machines in their experimental stations, as well as a number of Paper Mills and Chemists.

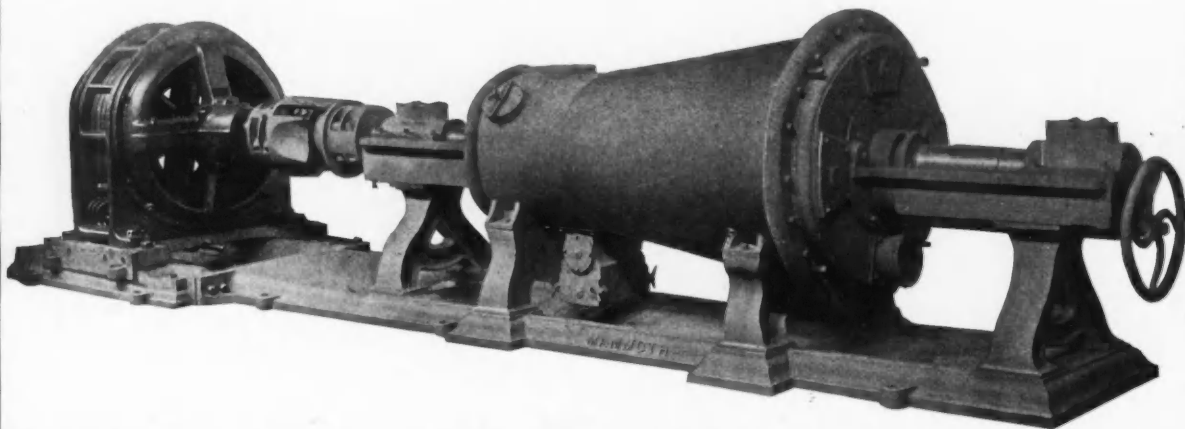
These machines are money makers in any Paper Mill.

Bull Dog Grinder

Made for Hard Knocks

This machine is built for Roofing and other rough stocks, where a Jordan is not strong enough to stand up to the work. It is invaluable in this kind of a mill.

Pays for itself quickly by reducing Beating time.



Jordan Engines—Six sizes—1, 10, 24, 30, 40 and 60 tons capacity. Belt or Motor Drive.

Sec. 2. That for the period of time mentioned in section one of this Act no newspaper or other publication, the major part of which consists of advertisements, shall be entitled to second-class mail privileges, or be admitted to the mails as second-class rates as now fixed by law.

The Raker Bill

Representative Raker introduced the following bill, which was referred to the Committee on Printing:

That the Public Printer is hereby authorized and directed to provide, either by purchase or erection, or both, a pulp and paper mill or mills for the manufacture of print and all other kinds of paper for the Government of the United States, said mill or mills to have a daily capacity of not less than fifty tons of paper; to be located at a place or places in some convenient location or locations in the Pacific Coast States approved by the Joint Committee on Printing, with special reference to utilization of the forests, minerals, water power, and other resources on the public lands.

If the location or locations so selected are on the public lands, the President of the United States is hereby authorized and empowered, in his judgment, to take from the lands of the United States such site or sites and the rights of way thereto as are necessary for the purpose of carrying out this Act. And if the United States owns no suitable site or sites, authority is hereby given to acquire by purchase, condemnation, or gift such site or sites and the rights of way thereto as may be necessary.

The Public Printer is further authorized to construct, maintain, and operate, in connection with any site or sites so designated, dams, locks, improvements to navigation, power houses, and power and other plants and equipment necessary or convenient for generation of power and for the production of pulp and other materials required in the manufacture of paper for the Government.

Sec. 2. That for the purpose of manufacturing paper as provided herein the Secretary of the Interior and the Secretary of Agriculture are hereby authorized and directed to sell to the Public Printer at a fair price such available wood, minerals, and other materials on the public lands under their respective jurisdictions as he may require; and the Secretary of Agriculture and Secretary of Commerce are hereby authorized and directed to render such assistance to the Public Printer as he may request and they may deem necessary to carry out the purposes of this Act in the construction and operation of a suitable plant for the manufacture of pulp and paper for the Government. If sufficient or suitable materials for the manufacture of paper cannot be obtained from the public lands, the Public Printer is hereby authorized to purchase such materials in the open market at the lowest and best prices obtainable therefor after due advertisement; and he is hereby directed to give due consideration and encouragement, by experiments or otherwise, in co-operation with the Department of Agriculture, to the manufacture of paper from fibrous plants. Paper manufactured under the supervision of the Public Printer shall conform to such standards and inspection as are provided for in the printing Act approved January 12, 1895, and amendments thereof.

Sec. 3. That the products of such mill or mills shall be used by the Public Printer for the public printing, binding, and wrapping to the extent that he may deem necessary, and any surplus which he shall determine is not so required shall be sold and disposed of by him at not less than cost, under such regulations as he may prescribe, with the approval of the Joint Committee on Printing, first consideration being given in the sale of such surplus to the needs of other branches of the Government service, which shall procure from the Public Printer at cost all the paper for their respective requirements that he may be able to furnish them.

Sec. 4. That the Public Printer shall keep an accurate and itemized account of the cost per ton of the product of such mill

or mills and publish an annual statement of the same, together with a detailed report of the operations, receipts, and disbursements of said mill or mills as soon after July first of each year as possible.

Sec. 5. That for the purposes of this Act the sum of \$1,000,000 is hereby authorized to be appropriated out of any money in the Treasury of the United States not otherwise appropriated. The expenditures for drafting, technical, expert, and clerical assistance necessary shall be paid from said appropriation, and the Public Printer is hereby authorized and empowered to employ such assistance as in his discretion may be necessary to enable him to carry out the purposes of this Act.

The Snook Bill

The following bill was introduced by Representative Snook and referred to the Committee on Interstate and Foreign Commerce.

That by reason of the existence of a state of war it is essential to the national security and defense and for the successful prosecution of the war to assure an adequate supply and equitable distribution of paper used for printing newspapers, magazines, periodicals, books, and other publications, such paper being hereafter in this Act designated as print paper; to prevent, locally or generally, scarcity, monopolization, speculation, manipulations, and private controls, affecting such supply and distribution; and to establish and maintain governmental control of such paper during the war. Such print paper and mechanical and chemical pulp used in the manufacture thereof is hereby declared to be a public utility, and for the purposes named in this Act the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed.

Sec. 2. That words used in this Act shall be construed to import the plural or the singular as the case demands. The word "person," wherever used in this Act, shall include individuals, partnerships, associations, and corporations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any official, agent, or other person acting for or employed by any partnership, association, or corporation within the scope of his employment or office shall, in every case, also be deemed the act, omission, or failure of such partnership, association, or corporation as well as that of the person.

Sec. 3. That there is hereby established a governmental control of print paper, mechanical and chemical pulp, which shall extend to and include all the processes, methods, activities of, and for the production, manufacture, procurement, distribution, and sale thereof, which shall be exercised and administered by the President for the purposes of this Act; and all such print paper, mechanical and chemical pulp, processes, methods, and activities are hereby declared to be hereby affected with a public interest. And in carrying out the purposes of this section the President is authorized to enter into any voluntary arrangements or agreements, to use any agency or agencies, to accept the services of any person without compensation, to co-operate with any agency or person, to utilize any department or agency of the Government, and to co-ordinate their activities so as to avoid any preventable loss or duplication of effort or funds: *Provided*, That the authority granted by this section shall be limited to the making or entering into of voluntary arrangements or agreements for the purpose of carrying out the provisions of this Act.

Sec. 4. That the President is hereby authorized to license the importation, exportation, manufacture, or distribution of print paper, mechanical or chemical pulp, in order to carry into effect any of the purposes of this Act, and when the President shall publicly announce his intention to do so no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, exportation, manufacture, or distribution of any print paper, mechanical or chemical pulp, as set forth in such announcement unless he shall secure



Appleton Wire Works, Appleton, Wis., U. S. A.

“APPLETON WIRES

are

GOOD WIRES”

“As Usual”



“AS USUAL” your orders for

FOURDRINIER WIRES

CYLINDER WIRES

WASHER WIRES

Will be much appreciated and receive our best attention.



APPLETON WIRE WORKS

APPLETON, WIS.

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U. S. A.

and hold a license issued pursuant to this section. The President is authorized to prescribe such regulations governing the conduct of the business of licenses as may be essential to prevent uneconomical manufacture and inequitable distribution of such print paper, mechanical or chemical pulp, and otherwise to carry out the purposes of this Act. Such regulations may also include requirements for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them, with or without oath or affirmation, and the inspection by the President's duly authorized agents of the books and accounts of licensees and the inspection by such agents of the places of business of such licensees. Whenever the President shall find that any rate, charge, or practice of any licensee is unjust, unreasonable, discriminatory, or unfair, and shall order such licensee, within a reasonable time fixed in the order to discontinue any such unjust, unreasonable, discriminatory, or unfair rate, charge, or practice, thereafter, unless such order is revoked or suspended, such licensee shall, within the time prescribed in the order, discontinue such unjust, unreasonable, discriminatory, or unfair rate, charge, or practice. The President may, in lieu of any such unjust, unreasonable, discriminatory, or unfair rate, charge, or practice, find what is a just, reasonable, nondiscriminatory, and fair, or economical rate, charge, or practice; and in any suit in any Federal or State court of competent jurisdiction such finding of the President shall be prima facie evidence. Any person who, without a license issued pursuant to this section, knowingly engages in or carries on any business for

which a license is required under this section, or willfully refuses to discontinue any unjust, unreasonable, discriminatory, and unfair rate, charge, or practice, in accordance with the requirement of an order issued under this section, or any regulation prescribed under this section, shall, upon conviction thereof, be punished by a fine not exceeding \$5,000 or by imprisonment for not more than one year, or both: *Provided*, That nothing contained in this section shall be construed to authorize the fixing or imposition of a duty or tax upon any article imported into or exported from the United States or any State, Territory, or the District of Columbia.

SEC. 5. That the President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this Act.

SEC. 6. That the sum of \$50,000 is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to be available immediately and until expended, for the payment of such rent, the expense of such printing and publications, the purchase of such material and equipment, and the employment of such persons and means, in the city of Washington and elsewhere, as the President may deem essential.

SEC. 7. That the provisions of this Act shall cease to be in effect when the national emergency resulting from the existing state of war shall have passed, the date of which shall be ascertained and proclaimed by the President. Nothing in this section shall be construed to prevent the fulfillment by the United States of any legal obligation incurred pursuant to this Act which shall be in force when this Act ceases to be in effect.

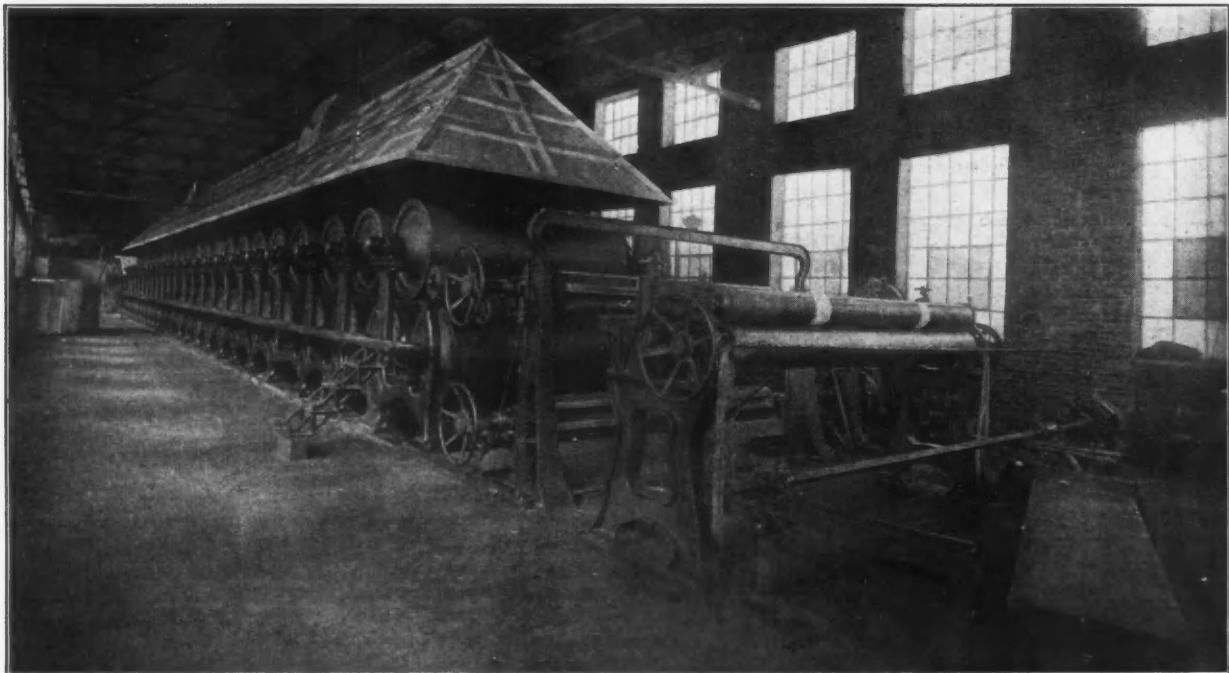
KINGSPORT PULP CORP. OPENS ITS MODERN PULP MILL

The past year saw the completion of one of the most interesting of the mills recently constructed when the extremely modern soda pulp mill at Kingsport, Tenn., of the Kingsport Pulp Corporation was opened and commenced operations.

While the mill is located in practically virgin territory for

the pulp and paper industry, the equipment is of the most complete and modern type.

The liquor causticizing process of this mill employed, together with the soda recovery department presents many advantages over the usual system of reducing the amount of labor and material



PULP DRYING MACHINE, KINGSPORT PULP CORPORATION, KINGSPORT, TENN.

COLORS FOR PAPER MAKERS

WE offer the Paper Industry of the United States all colors for the Beater, Calender and for coating, and place at the disposal of Paper Makers our well equipped Paper Laboratories for the accurate and expeditious solution of problems relating to the application and cost of colors for paper.

KUTTROFF, PICKHARDT & CO.
INCORPORATED
128 Duane Street, New York

BRANCH OFFICES:

BOSTON - - - - 86 Federal St.
PROVIDENCE - - 52 Exchange Pl.
PHILADELPHIA - - - 111 Arch St.
CHICAGO - - - 305 W. Randolph St.

needed, and insures a highly uniform liquor for use in the digesters. It is known as the Dorr system of agitation and continuous counter-current decantation.

Another feature of the mill is the new process of pulp bleaching which is known as the Bellmer system. In the usual manner of bleaching the pulp is bleached in round tanks in a rather thin consistency to permit pumping, which means that the pulp contains much excess water that would have to be bleached, making necessary a larger percentage of bleach. However, in the Bellmer process the pulp to be bleached is permitted to be a great deal thicker in consistency, which requires a much smaller percentage of bleach in proportion to a pound of pulp. These Bellmer tubs dump into chests directly below. There the water is added to the proper consistency for pumping instead of before the bleaching process was undergone. A modern boiler house with highly efficient boilers equipped with stokers has been built. All of the handling of coal and ash is done mechanically with conveyors.

The mill is situated in the southern coal belt, and therefore is well off with regard to securing the necessary quantities of fuel.

A thorough equipment of repair shops, wood and filter houses, pumping station, wood handling apparatus and necessary auxiliary buildings are maintained. The actual construction and completion of the mill was in charge of Architect George F. Hardy, of New York.

The officials of the Kingsport Pulp Corporation are: Royal B. Embree, president; G. D. Black, secretary and treasurer; Robert S. Walker, mill superintendent.

HUMMEL & DOWNING START NEW UNIT

The Humel & Downing Company of Milwaukee, Wis., manufacturer of high grade fibre and corrugated shipping cases and folding cartons, installed and put into operation on January 1, 1918, as an addition to its former plant, a second machine with all the necessary equipment which goes to make up the well-balanced unit.

The machine is a Beloit Iron Works, 140-inch 5-cylinder with



BELLMAN TUBS, KINGSPORT PULP CORP.



CONCRETE BLEACH LIQUOR TANKS, KINGSPORT PULP CORP.

sixty dryers, three presses, one special improved Millsbaugh suction press, two stacks of calenders and latest improved Beloit Iron Works rewinder.

The beater room is equipped with six 2,000-lb. beaters and four Jordans, Noble and Wood type.

The necessary power is furnished by one 1,000 h. p. Nordberg engine, rope driven to a 10-inch main line shaft; one Chandler & Taylor variable speed engine, two Chase engines, one, the constant speed engine being direct connected.

The new building is 400 feet long by 100 feet wide, four full stories and basement. In the basement is located the power; on the first floor is the machine and beater room.

Part of the second floor is given over to the paper stock sorting department equipped with two dusters, the sorting belt being 281 feet long and discharging into the beater room.

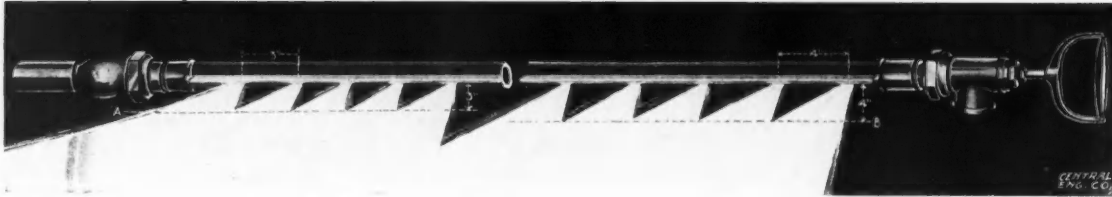
The balance of the second floor, the third and fourth floors are devoted to machinery, etc., for the manufacture of fibre, corrugated and folding cartons, more than doubling the former producing capacity. The total length of the present plant, exclusive of the boiler room, is now 765 feet.

Two hundred feet west of the main building and connected by a large subway is the new boiler room, 96 x 107, housing six Sterling and four Oil City boilers, all equipped with Murphy stokers.

The Hummel & Downing Company are the pioneers in the Fibre Container line. With the launching of their business venture a firm policy of "Quality and Service" was adopted, which has been strictly adhered to, which policy, combined with the executive ability of the firm personnel, has spelled the measure of success which they now enjoy. A few years ago the plant of this concern consisted of rented space on scarcely three floors of a much smaller building. January 1, 1912, they moved into their own plant at the present location.

Ground for the new building was broken on February 19, 1917, and, notwithstanding the handicaps of labor shortage and scarcity of building materials, the new plant was completed and started January 1, 1918—six years almost to a minute from the time the first machine was put into service.

MILLSPAUGH PATENT SHOWER PIPES



MR. MILL OWNER:

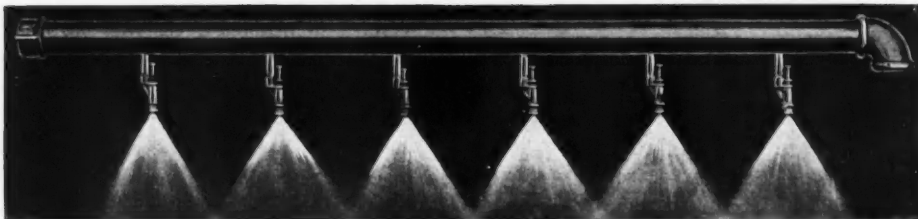
As a source of considerable unnecessary waste, we urge you to look to the shower pipes on your machines. Old style shower pipes consume much more water than necessary and at the same time are very inefficient in operation, being largely responsible for poor paper and shortlived wires, felts and cylinder molds.

Millspaugh Shower Pipes, of which there are already more than 3,000 in use in American mills, require but from 1-3 to 1-2 as much water as ordinary old style shower pipes, yet do better work. With the prevailing high cost of producing or buying power, you can appreciate the saving to be made if the amount of water necessary to be pumped for the shower pipes is reduced to 1-3 or 1-2. In addition, many mills are using very inefficient centrifugal or direct acting steam pumps for supplying their showers. In such cases the installation of an efficient Sandusky triplex power pump along with Millspaugh shower pipes is the best investment that can be made.

Millspaugh Shower Pipes deliver a continuous, knife-like sheet of water clear across the machine, striking and cleansing every mesh of the wire or felt. Better paper and longer life of wires and felts are the results. The holes are 9-64" in diameter and, of course, are less apt to become clogged than the small 1-16" holes in the ordinary pipes. Cleaner rods are standard equipment, while cleaner or flush-out valves may be fitted at slight extra cost. On paper machines it is desirable to have as small an amount of fresh water as possible going on to the molds and wires, making the use of save-alls practical. This is accomplished by using Millspaugh Shower Pipes.

We have competent engineers who we shall be glad to have go over your conditions and make recommendations as to showers. Our willingness to equip your machine with our shower pipes on a thirty day trial should be significant.

Additional literature on the subject will be cheerfully sent.



The above cut illustrates our Nozzles for killing foam over the apron, slices, head boxes and settling tanks. About 18 to 25 lbs. pressure is required, each nozzle delivering about $\frac{3}{4}$ of a gallon per minute. The nozzles are furnished with brass nipples to screw into any ordinary pipe and are spaced about 8 inches apart. Elimination of foam spots and slugs warrant the small investment. **Sent on trial.**

THE SANDUSKY FOUNDRY AND MACHINE COMPANY
SANDUSKY, OHIO

Manufacturers of Good Paper Mill Machinery

The Future Supply of Raw Material for Paper

In Spite of Numerous Experiments with Many Waste Fibrous Stalks and Other Materials It Seems Apparent That the Manufacturers of News and Book Paper, Must, For Years to Come, Depend on Wood for Their Raw Material—In Spite of This, However, the Pulp Wood Supply Is Being Allowed to Approach the Vanishing Point with Little Concern by the Government.

Written Especially for the Annual Number of The Paper Trade Journal, by Martin L. Griffin.

Until the year 1880, paper was made almost exclusively from the byproducts of the textile industry and the rags of worn-out garments. The industry, though relatively small as compared with it today, was nevertheless important. With the development of wood pulp and papers made from it, a tremendous impetus was given to the industry. The sources of wood were abundant and wood was cheap. Sawmills gave way in many instances to pulp and paper mills. For twenty years the industry expanded, with no particular thought or regard for the future of the raw material or any connection between forest cover and conservation of rainfall and stream flowage. It took but a few years to demonstrate to the manufacturers that wood was not growing as fast as it was being consumed, but nothing was done except the paying of the increasing cost and the purchasing of timber lands.

Supply Now Must Be Largely Sought in Canada

This process has been going on until the supply now must be largely sought in Canada. Meanwhile that country has built up its own paper industry in competition with the United States at every point. It has placed restrictions upon the exportation of wood, and with the aid of our own legislators has opened our markets to its products in competition with us in a struggle for the survival of the fittest, which is simply a question of the possession of wood.

I say it is not possible for our paper manufacturers to continue the industry along the lines upon which it has been built up, unless it has very material assistance from the government and co-operation of the great consumers of paper, the daily newspaper publishers.

I do not by any means absolve the manufacturers from their share of the responsibility to protect their own industry, or excuse them for exploiting the resources nature has given them and which they have not earned, nor for profiteering by any who are guilty. All such offenders should receive their just deserts.

On the other hand, we have seen the great daily news publishers organized into a powerful association, combined with every resource and instrument it could command, to force down the cost of paper. To such an extent has this propaganda been carried that manufacturers are reluctant to sit down together at their annual banquet of good fellowship lest they may be charged with some unlawful combination.

This condition of affairs is very unfortunate, not only for the two immediate parties to the controversy, but especially for the public. It is very important that a spirit of mutual confidence and co-operation should be brought about, and it is my purpose to offer some contribution to this end.

Supply Approaching Vanishing Point

Although it is generally recognized that our pulp wood supply is approaching the vanishing point, there is a firm belief among many prominent men, not connected with the industry, that there are ample supplies of waste fibrous stalks which could be used as substitutes for wood, if only manufacturers would seriously turn their attention to them. Our public men in Washington have en-

deavored for many years to prove their contention by means of investigations conducted through the Bureau of Chemistry and the Forest Products Laboratory. The net results have been experimental only, showing that it is possible experimentally to make paper from any fibrous material, and also from many woods not now used for this purpose. I doubt if these results have furnished any information to manufacturers of paper or contributed materially to the solution of the problem. So far as I know, they have contributed nothing towards a substitute for wood for news and book papers.

Stock Most Valuable Part of Wood

About ten years ago, in an article I published on the "Search for New Sources of Paper Stock," I quoted a part of the testimony of Dr. Nathan A. Cobb, a technologist for the Department of Agriculture in the Pulp and Paper Investigation Hearings. What he said was so basic and important that it may well be repeated here. He testified that the main function in the growth of the forest tree is the production of the stalk; that is, wood. The fruit amounts to little or nothing. Comparing the long growth of the tree with the short growth of the annual plant. Dr. Cobb says: "Wood is largely made up of fibrous cells. There are a few cells that are not fibrous, and the proportion by weight is comparatively small. This is reversed in the case of annual plants, in which the cells that are not fibrous exceed in volume the fibrous matter"; and he says, "this is a general statement which holds true throughout the whole vegetable world outside of the woods."

We may conclude, therefore, that the function of the annual plant, generally speaking, is not the development of a valuable stalk, as in the forest tree, but the production of flower or fruit; and having done this, the plant dies, leaving behind its waste residues of stalk.

This statement is so clear and reasonable that it ought to settle the question once for all that there is no possibility of the great paper industry, established upon wood, subsisting on the waste stalks of annual growth.

Unless wood is made available, the industry, as we know it today, must inevitably decline. It cannot live upon the uncertain by-products of other industries.

The Re-Use of Waste Papers

Consider also the re-use of waste papers, about which much has been said and claimed. So far as the reprocessing is concerned, waste papers must usually go into lower grades. The cheaper grades, as news and manila waste, usually go into news board and box board. The higher grades, as writings and printed book, go through a de-inking and cleansing process and are used over again in about the same grades. There is no difficulty in processing waste papers into merchantable products.

I may say, therefore, that waste papers do not and cannot form any considerable part of the product of news print paper from the processing point of view. The chief drawback to making a greater use of waste paper is the lack of organized means for

AMERICAN WOODPULP CORPORATION

NEW YORK,
140 NASSAU STREET

FOREIGN AND DOMESTIC

WOODPULP RAGS

All Grades Scandinavian and
Domestic Sulphite and Sulphate
Kraftpulp and Ground Wood

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DAYTON, OHIO
R. R. REED, Manager

collecting, sorting, packing and transporting to the mills so as to furnish a dependable supply. On the surface, it does appear to be an economic crime to destroy uselessly the enormous tonnage of waste paper which today is lost; but as matters stand, it is impossible to prevent, except in large centers of population and in close proximity to mills. Nevertheless, Secretary Redfield is doing his best to prove to the manufacturers and the public that waste paper is an important source of raw material. In his recent annual report to Congress, he quotes the director of the Bureau of Standards as saying: "At the present time over 25 per cent. of all paper made is collected for re-manufacture, and a very large part of it is used in making white paper." We are quite willing to trust Dr. Stratton's reports of scientific matters, based on mathematical calculations and physical measurements, but the Bureau's official stamp on this statement will carry no weight with paper manufacturers, until he has proven it more conclusively than by such an off-hand statement.

I do not wish to be misunderstood. The paper industry is in no way antagonistic to this matter and is open to be shown by anyone where it can improve its processes or devise economies.

Increased Expense of Collecting Waste Papers

Listen to what the Public Printer says: "The cost of collecting, baling and selling all the waste paper from the departments, bureaus and independent offices of the Government has increased to such a degree that this office should be relieved of that expense and no longer be required to carry it as a portion of the overhead cost, and necessarily pro-rate it in charges made for all printing and binding produced."

He states what he sold the waste for, but not what the cost for collecting was. The inference is apparent.

The question of re-using waste papers is very largely one of cost of collection and delivery to the mills. As matters stand, let me say that as the re-use of old papers increases, the price of paper will increase and not decrease. Make no mistake about this.

Newspaper comprises the larger part of all the tonnage of paper. The daily paper is disseminated far and wide to the remotest corners of the country by the cheapest modes of transportation. The people want the news; they care nothing for any by-product value the paper may have. It is idle to think of collecting any large proportion of this paper again, and impractical to think of the large news mills re-producing their product, even if the old papers were laid down at their doors.

Until municipalities and towns organize an efficient method of collecting and marketing waste paper, we cannot look for any great replacement value of paper stock by old paper, and there is little prospect of this. Even then it would be absurd to think that paper stock will not wear out and need replacement as much as anything else. Therefore, there must always be a dependable source of new raw material, and so long as it can be had, wood will be the chief dependence. And I repeat again what I said about the increased use of waste paper—the larger the use of by-product waste stalks of flax, corn, rice and sugarcane and such like, the higher will be the price of paper. As long as wood is available at almost any price, it will be preferred for dominant reasons.

Wood Increasingly Costly to Obtain

What then is the situation in reference to the supply of wood? It is increasingly difficult and costly to obtain. It forms at least one-half of the total cost of news and book papers. I can think of no other great industry where the raw material bears such a high ratio to the total cost of the finished product. The importance of the raw material, then, is a controlling factor in the price of paper.

It is regrettable that our large manufacturers have not taken more adequate means to insure their future supply of wood. If, instead of putting their money into profits and timberlands exclusively, they had put some part of it into reforesting lands they

had cut over, their future supply would have been better protected.

Importance of Reforestation

Although the necessity for protecting our forest growth has been generally recognized, the principal effort has been made in the direction of conserving what we have rather than in reforestation. It is still possible for private interests to take up the work of reforestation for their own protection, but the time is approaching when this will be no longer possible, and unless heroic efforts are made promptly the supply of wood will be exhausted before a new growth can be produced. Long ago the national and state governments should have realized this and taken steps to prevent it for the public welfare. Instead, however, they are proposing to defeat whatever initiative has been taken by fixing prices for news print paper. In a recent address before the bankers of Montreal, Elwood Wilson, chief forester of the Laurentide company, said that unless a fair margin of profit was allowed the first economies to be effected would be the abandonment of reforestation on cut-over lands and the stripping of the timber holdings by the companies to get their money out of the business no matter what the consequences to the future.

Government Not as Concerned as It Should Be

If governments feel obligated to fix the prices of news and book papers as a protection to the public against what they regard as unfair treatment by the manufacturers, they should consider honestly the elements of cost and the rapid trend of events involved. I do not complain of price fixing *per se*, but of the failure of legislators to discern that unless they make provision for reforesting the denuded woodlands by including in the cost a definite proportion for reforestation, and compelling its use for this purpose, the paper industry will suffer on the cross of an impossible wood supply very soon. To show what is being done in the matter of reforestation, I have made a study of what the Federal Government and the four principal pulp wood producing states have done and are doing in this matter.

In a word, these governments through their departments of forestry are caring for the public parks and domains within their borders, and are creating nurseries for supplying plants for these public lands and for private parties at cost. So far this work has accomplished very little towards sustaining the supply of forest products.

How Comparatively Little Has Been Done

The acting forester of our national Government informs me that ordinarily the Forest Service reforests each year about 10,000 acres on the national domain. Last year (1917), owing to bad weather conditions, only about 7,681 acres were planted. He also advises me that the approximate area planted to date (November, 1917) by the states is 51,494 acres, of which 43,000 are in New York, Pennsylvania and Massachusetts.

When we consider that the wild lands alone in the state of Maine exceed ten million acres, we can realize better how insignificant is the work of reforestation done by the Government and the states. These wild lands are probably as well wooded as any of our pulp wood producing areas in the United States or eastern Canada, and yet with this great acreage the reserves of pulp wood are being reduced at a rate which is giving the state forester anxious concern. Prompt action will have to be taken, or in a very few years the state will be stripped of spruce and fir. Already a large amount of these woods is coming in from eastern Canada, and the supply of poplar has already failed to such an extent that one soda pulp mill has closed down and production in others has been reduced.

The Largest Consumers of Pulp Wood

The four largest consumers of pulp wood in 1916 were:

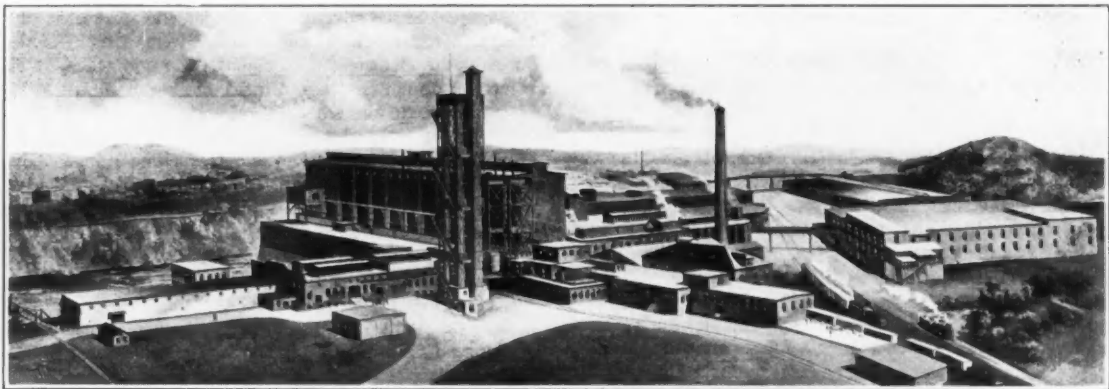
Maine	1,198,753 cords
New York	1,094,513 cords
Wisconsin	743,595 cords
New Hampshire	471,041 cords

Daily Production

600 AIR DRY TONS

HIGHEST GRADE

BLEACHED SULPHITE FIBRE



To our many friends who during ten past years have favored the Berlin Mills Company and the Burgess Sulphite Fibre Company with contracts and orders for Bleached Sulphite Fibre; we wish to express our appreciation of their business, and our confidence that, with the former two companies now merged into one, we are better able than ever before to fill their orders promptly and satisfactorily.

BROWN COMPANY

FORMERLY
Berlin Mills Company
Burgess Sulphite Fibre Company

MILLS AT BERLIN, N. H.

GENERAL OFFICES
Portland, Maine

NEW YORK OFFICE
Woolworth Building

I have made inquiry as to what reforestation these four states are doing through public and private sources.

Maine is doing no work of this kind, though some few individuals and companies are starting this work on a small scale. Reports show that 120,000 trees have been distributed to date.

New York owned, in 1915, 125,000 acres of denuded forest lands and has planted annually about 3,000,000 trees on three thousand acres in 1915 and 1916. This is three times as many as in any previous year. The total output from the state's nurseries was nearly 8,000,000 trees in 1915 and 6,686,000 in 1916. Notwithstanding this noteworthy progress, the state's forester says in his report for 1915: "It is estimated that five times as much wood is taken from the forests as is being replaced by natural growth and replanting; and the total consumption of wood within the state is fifteen times more than the amount grown."

Thus it may be seen how unequal are the efforts to replace what is being taken from the state's forests for its own uses, yet no other state is doing as much.

New York has a law providing for the planting by counties, towns and villages of communal forests, but practically no advantage has been taken of it.

Wisconsin, the third largest consumer of pulp wood, has planted, so far, 1,200 acres, and individuals about 1,500. During 1917 this state planted 432,000 trees, and during the last four years private individuals have planted 480,000 trees.

New Hampshire Doing Better Than Other States

New Hampshire has made a very creditable presentation of her situation to her people, and has shown a better realization of her destiny in this matter than other states, though her efforts so far are only indicative of this. In the state forester's report for 1916, he says there are at least 600,000 acres of barren woodlands. "With 100 portable and 275 stationary sawmills operating in the state, there are 50,000 to 60,000 acres or more of woodland cut over every year, and considerably less than half of this land re-stocks naturally to valuable forest trees within the first generation. It is evident, therefore, that more than 25,000 acres of land are added annually to our already large non-producing forest areas. The rapid increase in this class of lands constitutes an increasing burden to the owner, the town and the state." This is a true picture of the conditions generally, and should be viewed by all who have the welfare of the public at heart with anxious and serious concern and should arouse vigorous action. He says at least 30 million trees, or 25,000 acres, should be planted annually during the next few decades; but, as a matter of fact, at the present time (1916) there are only about 4,950 acres of planted forests in the state and that most of the planting consists of pine.

The total number of trees of all kinds planted to date is reported to be 952,030, of which only 139,000 are spruce.

In 1915 the state passed what appears to be a wise law, providing for the temporary holding of small tracts of land, deeded to it by the owners, which the state would reforest and care for for ten years, when it might be redeemed by the donors or payment of cost for improvements plus 4 per cent. interest. Many such small tracts have been received and the enterprise promises to be increasingly profitable and educational. The large private corporations in the state are doing nothing practically towards reforestation to protect their supply of pulp wood.

Finally, we note that the principal function of the national and state governments in this matter deals principally with the maintenance of national and state parks, reservations and public domains, and only incidentally fosters reforestation for commercial purposes.

Canada Has Made Good Beginning

The Canadian government has made a considerable beginning in this work and has established two large nurseries in the prairie provinces, one in Ontario and a large one in Quebec.

There are at least three large pulp and paper corporations which are already growing their own nursery stock and beginning to plant on an extensive scale. All of this work, both by governments and corporations is of a commercial nature.

Why Persist in Strangling the Industry?

Having shown conclusively by practice and experience that wood has no adequate substitute for the manufacture of news and book papers, comprising the greater proportion of all papers; that waste papers offer no prospect of giving relief; that the visible supply of pulp wood is becoming exceedingly costly to obtain and fast approaching the vanishing point; that governments, corporations and individuals are doing very little to conserve or restore the depleted forest resources and with no prospect whatever of overtaking the annual consumption of wood in a generation, I ask, shall government commissions and the news print publishers still persist in strangling this great industry for personal selfish gain, by hampering it instead of providing adequate remedies to sustain it? Will the manufacturers themselves, and the leading men among the people, permit such an exploiting of their interests and vested rights? Will the representatives of labor take no action to defend an industry in which labor is so vitally interested? Will it be necessary for the Government to take over this industry to be convinced of the facts as it has done with the railroads after strangling them with repressive treatment?

Has our Government any genius, capacity or virtue not possessed by the people? If there is any lack of confidence in the integrity of the leaders in this industry, as I fear there is, they should leave no stone unturned to regain it by wide open and frank reports of the condition of the business and invite suggestions and co-operation for the joint interests of all our people.

We are taking coal and oil from the earth which can never be replaced. We are stripping the surface of the forests, which fortunately it is possible to restore, and a nation-wide propaganda should be organized compelling the reforestation of a certain proportion of the waste lands in every state in the Union and the maintenance of a definite proportion of growing merchantable timber. What will we do about it?

ITALY REGULATES SIZE OF NEWSPAPERS

A new Italian decree regulates the price of newspapers and other periodicals and their size. Beginning January 1, 1918, the daily newspapers and other periodicals cannot be sold to the public at a price of less than 10 centesimi each. The subscription price for daily newspapers must be increased in proportion to the length of the subscription by at least 12 lire a year over that established for 1917. Subscriptions are not to last less than three months. Prizes and other advantages cannot be conceded to subscribers, except collective subscription with other periodicals which already shall have been made in 1917, provided the price is increased in the measure already indicated.

Daily newspapers cannot be published in a number of pages exceeding four. Ten times a month, moreover, they must be published in two pages, with the exception of newspapers having dimensions not exceeding 18 square decimeters of printed matter on each page, for which such obligation is limited to four times a month. Other periodicals which appear one or more times a week must publish in each month a number of pages at least one-quarter less than those published in the second semester of 1917. This regulation does not apply to weeklies which are published in not more than four pages.

For theatrical and motion-picture periodicals which are published one or more times a month, the number of pages must be reduced by not less than half the monthly average of those published in the second semester of 1917.

THE BIGGS BOILER WORKS

PLANT HYDRAULICALLY EQUIPPED

Builders of Spec

ROTARY BLEACH

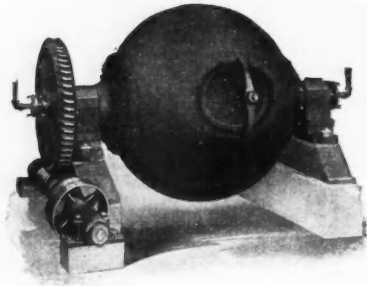


FIG. K.

Figure K Illustrates our **Experimental Type Globe Rotary Bleaching Boiler with Welded Joints, and Worm Wheel Drive.** This type is usually furnished in sizes from 3' to 5' diameters.

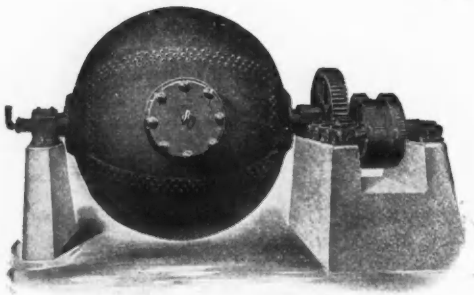


FIG. S.

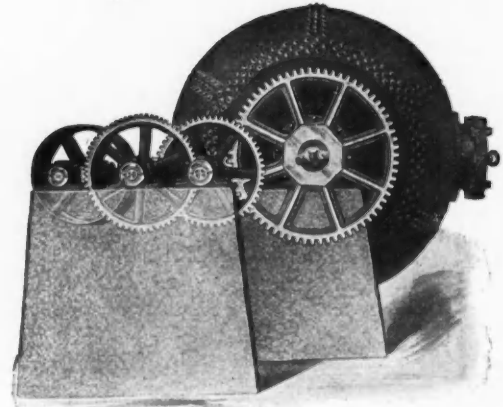


FIG. S-1.

Figures S and S-1 show one of our **Globe Rotary Bleachers with Riveted Joints and Spur Gear Drive.** We furnish this Rotary in 6'-8' and 10' diameter with either Worm or Spur Gear Drive. This type is commonly used for **Special or Experimental Work**, but is not too small for practical purposes.

Fig. B is the **Baby.** Furnished in such sizes as 6" dia. x 18" (or larger) long. Just the thing for your **Laboratory.** Complete equipment ready to operate.

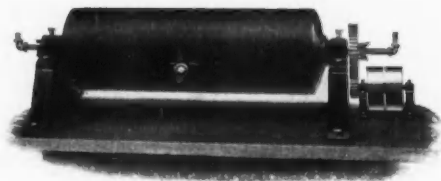


FIG. B.

**LIGHT AND HEAVY PLATE CONST
PIPE. STEEL TANKS O**

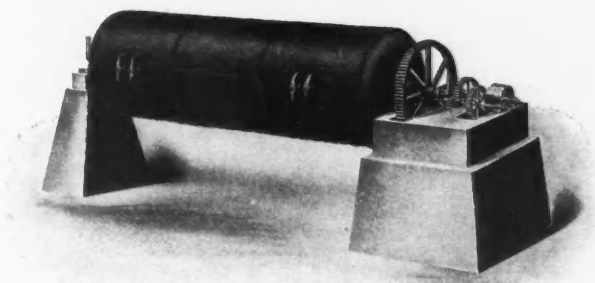
COMPANY, Akron, Ohio, U.S.A.

ESTABLISHED 1887

ial and Standard HING BOILERS

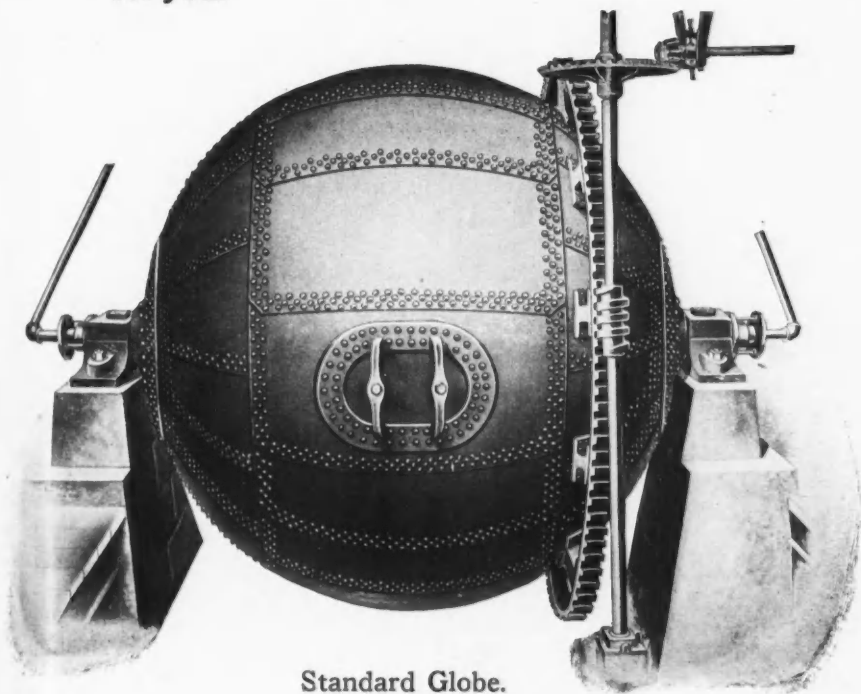
Our Cylinder Rotary Bleaching Boilers are furnished with Worm or Spur drive and in all sizes.

They are the acme of perfection in Rotary designing.



8' x 24' High Pressure Cylinder Rotary

Large Journals, Babbitted Journal Boxes and Expansion bearings save power for you.



Standard Globe.

Our 11 ft. and 14 ft. dia. Globes with Worm and Segment Drive need no introduction. They are the Standard Rotary Bleaching Boiler of today.

Furnished in any type of drive, and for any pressure.

Let us figure on your Rotary Requirements.

RUCTION. RIVETED STEEL WATER F EVERY DESCRIPTION

EVERY GUMMED PAPER OF EVERY DESCRIPTION NO. 1

EVERY WAXED PAPER OF EVERY DESCRIPTION NO. 3

SERVICE PRODUCTION QUALITY NASHUA

The SIGN and The SERVICE

FROM ALL ANGLES THE NASHUA TRADE MARK IS A NATIONAL TRADE-BUILDER. ITS SCOPE IS SO WIDE THAT IT HAS AN OFFERING FOR ALMOST EVERY LINE OF BUSINESS

NO. 1 GLAZED, EMBOSSED, LITHO. PLATE, WATERPROOF PLATE, PRINTED TRADEMARK PAPERS AND PRINTED ART LINENS.

NO. 2 GUMMED CAMBRIC, HOLLANDS, PAPER BOX STAYS, COMBINATION BOX STAYS, LABEL AND STAMP PAPER.

NO. 3 WAXED BREAD WRAPPERS, CANDY WRAPPERS, SOAP WRAPPERS, FLORISTS' TISSUES AND LUNCH ROLLS.

BACK OF EVERY ITEM IS THE NASHUA QUALITY, SERVICE AND PRODUCTION. GET IN TOUCH WITH THIS SUPERIOR LINE AT THE ANGLE THAT COMES CLOSEST TO YOUR DEMANDS

ASK FOR LATEST SAMPLES AND PRICES

NASHUA GUMMED & COATED PAPER CO. NASHUA, N.H.

PRINTED ART LINENS
NASHUA
AMERICAN RED CROSS
WATERPROOF PLATE
HOLLANDS
GLAZED PAPERS
LITHO LITHO PAPER
TRADE MARK PAPERS
EMBOSSED PAPERS
TRIANGLE LITHO PAPER
PLATE PAPERS
GUMMED TAPE
NASHUA GUMMED CAMBRIC
SOAP WRAPPERS
SANITARY WAXED PAPER
PURE WHITE WAXED PAPER
SANITARY PURPOSES
CHEWING GUM WAXED PAPERS
WRAPERS
PURE WHITE WAXED PAPER LUNCH + ROLLS
CONTINUOUS ROLL PRINTED AND WRAPPERS FOR MACHINE WRAPPING
NASHUA SELF SEALING WAXED PAPER
FLORIST TISSUES
CANDY WRAPPERS
CANDY SILK
GUMMED TAPE
CREAM PAPERS
SANITARY BREAD WRAPPERS

Forest Planting and Protection

Forests, Vast as They Are, Are Not Unbounded, and the Amount of Pulp Wood Available in This Country and Canada at Prices Which Will Permit of Manufacture of Reasonably Cheap Paper Is Not Bottomless—Some Interesting Facts About What One Paper Firm Has Done in the Way of Conservation—How Nurseries Are Conducted.

Written Especially for the Annual Number of the Paper Trade Journal by Julian Rothery, M.F., F.R.G.S.

The long journey of pulpwood from the far corners of the forest to the great paper mills and thence through the clamoring presses of a metropolitan paper, is one of the most fascinating and romantic industrial processes of today. The material from which the page you are now reading was made, may have come from the northern forest, miles beyond the last habitations of men. Cut by rough, bearded lumber-jacks in the white of winter, driven down the swift rivers in the spring freshets, and perhaps boated and railed several hundred miles to the mills, it started at the frontier of civilization, but before its voyage was completed it was woven into the intricate, industrial fabric of our modern civilization. But because the source of pulpwood is often remote,

linked with tales of the trapper, the Indian and the four-pound brook trout, we were often apt to think of the forest as limitless, the supply of wood as inexhaustible.

Pulpwood Forests Not Unbounded

Now, however, we know better. The pulpwood forests, vast they indeed be, are not unbounded and the amount of pulpwood available in this country and Canada at prices which will permit manufacture of reasonably cheap papers is not bottomless. Particularly is this true of the supplies which by location and nature are well suited for pulpwood operations. So in these times of war and destruction it is interesting to turn for a moment to see what



ONE OF THE NURSERIES OF THE PEJEPSCOT PAPER CO. SHOWING SEE LINGS AND METHOD OF SHADING THEM, DUPLICATING CORRECTIONS OF FOREST SHADE. STOCK FROM THIS NURSERY HAS BEEN SUPPLIED TO SOME OF THE BIG PAPER MILLS IN CANADA, AS WELL AS TO THE COMPANY'S OWN WOODLAND DEPARTMENT.

J. ANDERSEN & CO.

FREDERICK BERTUCH, Special Partner

Successors to Frederick Bertuch & Co.

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NEW YORK

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CHEMICAL PULPS

BLEACHED AND UNBLEACHED

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Manchester, England

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Mills at Sarpsborg, Norway, Forshaga and Edsvalla, Sweden

THE

Pulp & Paper Trading Co.

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DEALERS IN DOMESTIC

Chemical and Mechanical Pulps and Paper

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(EASTERN AGENTS)

Port Huron Sulphite & Paper Co.
PORT HURON, MICH.

New Brunswick Sulphate Fibre Co., Ltd.

MILLERTON, NEW BRUNSWICK, CANADA

paper makers are doing to secure their source of raw material, or replenish it, and to prevent its wastage by fire. Because of the large capital investments and peculiar requirements necessary to build and equip a modern paper mill and because much of the labor is of a highly trained nature, a paper manufacturer cannot, like a lumber man, follow his supply about from place to place as he exhausts it. His mill is permanent, and the nearer the supply of pulpwood comes to being permanent the better his position.

The first crude steps on forest conservation are now being taken. It is only within the last ten or a dozen years that the pulpwood forests have received the thought that their importance to the nation demands.

The Pejepscot Paper Company is one of the old established manufacturers with mills on the lower Androscoggin River in Maine and extensive timber lands both in Maine and Canada. It was also among the foremost to embark on a far-sighted policy of conservation and its New Brunswick holdings constitute the finest spruce forest the writer has ever seen and probably the finest in eastern America. Due to careful methods of cutting there is more timber upon the lands today than when operations were commenced many years ago. But it is the reforestation of the barren or open lands where conservation is the most direct and aggressive.

Nurseries of the Pejepscot Paper Co.

The Pejepscot Paper Company established nurseries at several places in its woodland properties. Here the seed is planted in

beds and shaded by screens during the summer as shown in the illustration. After a year or two in the seed bed they were set out in transplant beds to continue their nursery training for another year or two. Then they are fit for forest planting. It seems strange but probably the best suited tree for pulp is not our own natural spruce but the Norway spruce. Its fast growth, freedom from defects and disease and the quality of its fiber make it a very superior tree for pulp purposes. It is, however, useless to plant forests unless they are protected from fire while growing. Thousands of these young trees have been set out in the old pastures and clearings and are slowly filling up gaps in the woodland cover. The cost is not heavy, the returns both direct and indirect are sufficient to make it an object to continue the work each year until now, when the open areas of their large Canadian properties are nearly all restocked with valuable growing trees. They find planting is educational as well as practical, tending to promote care of the forest and impress upon observers the value of trees and forest cover.

During the last years a tremendous impetus has been given to fire protection by public and private organizations. They have carried on extensive educational campaigns and in some instances have established co-operative patrol and combative methods on huge areas, which aggregate many thousands of square miles.

Maine's Fire Guard System

The Pejepscot Paper Company was fortunate in having much of its land in Maine, under the surveillance of the State fire guards, several of whose towers adjoin its property. These guards have



YOUNG SPRUCE TREES SET OUT IN TRANSPLANT AREAS, WHERE THEY WILL REMAIN A YEAR BEFORE BEING SET OUT IN THE FOREST.

**BLEACHING
POWDER**

SODA ASH

CAUSTIC SODA

Write for Quotations

J. M. THOMSON & CO., Inc.

521-523 Broome Street

New York, N. Y.

an efficient system of look outs, and are well connected with telephone lines.

In some regions in Canada, however, the company has constructed its own towers, as shown in the accompanying illustration. One of these towers stands on a lofty hill in New Brunswick at the head of two good sized rivers and commands a view of a mighty forest stretching to the sea 20 odd miles away. A million cords of pulpwood lie under the vision of the lookout in this tower, and not a single fire scar is visible from it.

But after a fire has been detected, it must be fought and the tool box shown in the illustration contains the necessary implements. Such boxes are placed in logging camps, storehouses, fire towers, neighboring farms and along roads and at points of danger. They contain tools for about 20 men and are always readily available for use.

Fighting forest fires is largely a matter of getting at them while still small, digging and trenching about them, and cutting away the dead timber and smothering them.

Fire More Destructive Than Axe

Foresters have usually estimated that fire has destroyed more timber than the axe and any plan which aims at the control of forest fires, aims to preserve and increase the nation's supply of paper material.

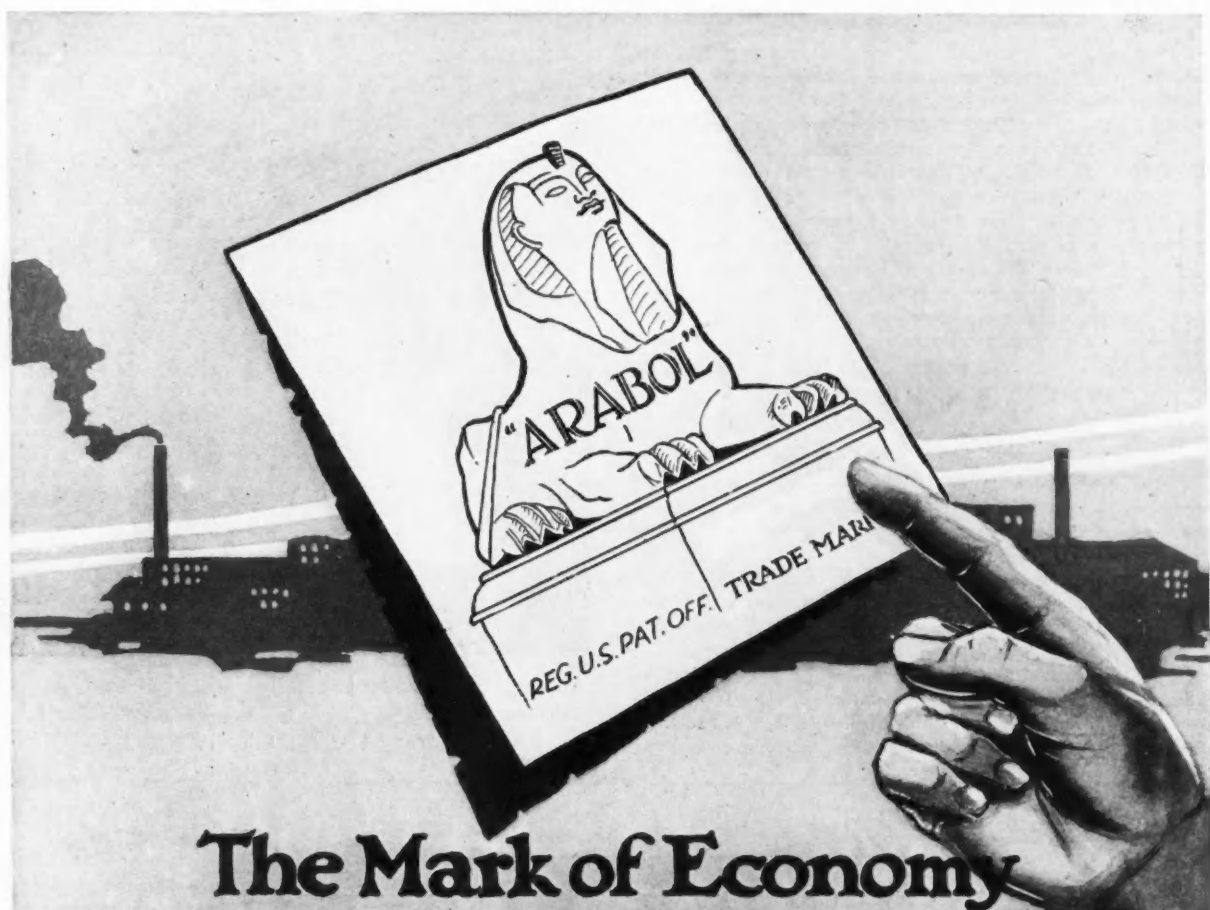
Planting and protecting are not all the ways in which conservation of timberland is practiced, but this short article may serve to show what one company has accomplished along those two lines and may bring again to mind the fact that among all nations of the earth this one was endowed by nature with the greatest abundance of native wealth and resources. If they are preserved and used intelligently this country will continue to be in the future the best place in the world for mankind to dwell in.



FIRE GUARD'S WATCH TOWER, OVERLOOKING THE SANDS OF THE PEJEPSCOT PAPER COMPANY. THE FIRE GUARD HERE STANDS WATCH OVER A VAST SUPPLY OF PULPWOOD.



TYPE OF FIRE TOOL BOX KEPT IN TOWERS, CAMPS, STORE HOUSE, OR PLACED ALONG ROADS WHERE FIRE THREATENS. IMPLEMENTS FOR 20 MEN. AUTHOR AT RIGHT.



The Mark of Economy

From 25 to 40% off your size bill. That's interesting, isn't it. Dry Size does it.

Here's the only Dry Rosin Size that will dissolve absolutely in hot water. No recocking or soda ash is needed. It takes less than one hour to dissolve.

Dry Size saves freight on water. It can be stored in any place. It will give better color effects and when necessary a hard sized, snappy sheet.

Other mills are finding out the truth of what we say here. Get in line—conserve your profits.

We also manufacture and sell

Arabol Paper Size, Splicing Gums, Sphinx White Coating Size, Liquid Rosin Size, Reliable, Nos. 1, 2 and 68, Dextrines (Imported and Domestic), Paper Mill Starches, Condensed Paste Powder (Cheaper than Flour Paste).

THE ARABOL MANUFACTURING COMPANY
100 William Street
NEW YORK

DRY ROSIN SIZE

Marked Expansion in the Kalamazoo Valley

Enlargements and Improvements Represent an Outlay of Over \$2,500,000—Interesting Features of the Improvements Has Been the Development of Water Supplies for the Various Mills Through the Medium of Artesian Wells—Résumé of Some of the More Important Improvements That Have Been Made During the Year.

Written Especially for the Annual Number of the Paper Trade Journal by Howard P. Hall

Despite the business uncertainty and the rather unsatisfactory condition of the paper market, 1917 will go down in history as one of those periods of marked expansion in the Kalamazoo valley district. More and more is this particular branch becoming a dominant factor in the industrial growth of this section of Michigan. It has reached a place where it must always be given serious and respectful consideration from every standpoint.

Summary of Improvements

Much of the program of enlargements carried out during the past year was inaugurated in 1916, though the larger part of the work was done in the past twelve months. Summarized it is discovered that the enlargements and improvements made represent an outlay of over \$2,500,000, being divided as follows:

Riverview Coated Paper Company, one machine mill, \$500,000.

Kalamazoo Vegetable Parchment Company, two machine mill, \$500,000.

Kalamazoo Paper Company, coating mill and turbine power plant, \$300,000.

Bryant Paper Company, flood preventions and improvements, \$200,000.

Monarch Paper Company, stock house, coal conveyor and equipment, \$150,000.

Western Board & Paper Company, rebuilding paper machine and equipment, \$40,000.

Hawthorne Paper Company, cutter room and coal dump, \$25,000.

Standard Paper Company, new power plant and equipment, \$50,000.

This three section panorama appearing on pages 107, 109 and 111, shows the mill district east of Kalamazoo, one of the most important in the middle west. On the extreme left is the plant of the Hawthorne Paper company. Next is the new paper mill erected by the Riverview Coated Paper company, adjoining is the Riverview Coated Paper company's coating plant, which now operates 18 coaters. Mills No. 1 and 2 of the Kalamazoo Paper company are immediately north of the Riverview plant, while on the extreme right of the picture is shown a portion of the coating mill of the Kalamazoo Paper company. Immediately at the rear of Kalamazoo Paper company's No. 1 mill is seen the roof of the plant of the Western Board & Paper company. Across Kalamazoo river and well in the background is the mill of the King Paper company.





If our ability to make quick shipment of any conceivable sort of roll means anything to you, you will send for our dimension book which contains a complete set of spaces for all dimensions and is printed in indelible ink so you can retain a press copy.

We specialize in high grade wood, metal and rubber covered rolls for hot, cold, wet and dry conditions. We also repair any make or type of roll.

The list following shows our capacity. We can serve you—well.

PRESS ROLLS
 MEASURING ROLLS
 SQUEEZE ROLLS
 MANGLE ROLLS
 CARBONIZING ROLLS
 DOFFER ROLLS
 WASHER ROLLS

FELT ROLLS
 FULLING ROLLS
 DYEING ROLLS
 STARCH ROLLS
 ACID ROLLS
 BLEACH ROLLS

also rough logs for rolls and rough turned logs with or without centre hole for shaft.

ROLLS

RODNEY HUNT MACHINE COMPANY, ORANGE, MASS.

King Paper Company, new beater rooms and equipment, \$100,000.

Kalamazoo Carton Company, buildings and machinery, \$75,000.

Kalamazoo Loose Leaf Binder Company, buildings and equipment, \$100,000.

Van Gorder Ruling Company, Machinery, \$10,000.

D. Graff & Sons, storage stock house, \$50,000.

Bardeen Paper Company, Otsego, improvements, \$100,000.

Watervliet Paper Company, Watervliet, buildings and machinery, \$150,000.

White Pigeon Coated Paper Company, White Pigeon, new mills, \$150,000.

Eddy Paper Company, White Pigeon, stock house, \$30,000.

Lee Paper Company, Vicksburg, water power, \$10,000.

Kalamazoo Improvements Over \$2,000,000

Of the items mentioned above, a list exceeding \$2,000,000 shows the value of improvements made in paper mills and paper product concerns in the city of Kalamazoo alone. The rest is apportioned throughout the district.

When 1917 opened there were 46 paper machines in operation in the valley. Early this year will see the number increased to 49, due to the erection of a two-machine mill by the Kalamazoo Vegetable Parchment Company and a one-machine mill by the Riverview Coated Paper Company. The city of Kalamazoo boasts 31 paper machines in all.

Eight coating machines have also been installed, six by the Kalamazoo Paper Company and two by the Watervliet Paper Company.

Artesian Well Developments

Another interesting feature of the improvements has been the development of adequate supplies of water for the various mills through the medium of artesian wells. Experiments by hydraulic engineers has disclosed the fact that this section of Michigan boasts a remarkable supply of pure spring water, suitable for the manufacture of the highest grades of bond, ledger and book papers. As result the various mills are discarding their old filter systems and taking the water direct from springs.

Monarch Paper Co. Expands

The Monarch Paper Company has increased its paid up capital

from \$600,000 to \$750,000. The \$150,000 is being used for enlargements to the plant. The Bardeen Paper Company, of Otsego, absorbed the Otsego Coated Paper Company and its paid in capital was advanced from \$175,000 to \$1,000,000. This same concern has also taken steps to sell \$500,000 in bonds at a future date, the money to be used to build a two-machine mill to replace the old No. 3 mill, which was destroyed by fire during December.

Changes in Officers of Firms

Some rather interesting changes have been made in the personnel of the officials of several of the concerns.

George O. Comfort has resigned as president of the Monarch Paper Company, being succeeded by Charles A. Dewing, while Alexander G. Gilman, formerly with the Wheat Paper Company, of Elkhart, comes as general manager of the Monarch plant.

F. M. Hodge has retired as treasurer and a member of the board of directors of the Riverview Coated Paper Company, his place being taken by James H. Dewing, former president of the Standard Paper Company.

James Coleman, for many years one of the well known paper mill superintendents in this section, has gone with the Cascade Paper Company, of Tacoma, Wash., while Phil G. Baltz has returned to the King Paper Company fold to assume the position of sales manager.

George E. Bardeen, for years active head of the Bardeen interests at Otsego and one of the best known paper mill executives in the United States, is taking life easy and slowly regaining his health. It was something over a year ago that he suffered a severe setback and since that time has had little to do with real work. S. B. Monroe, well known Kalamazoo capitalist, has been acting president of the Bardeen Paper Company for the period since Mr. Bardeen retired.

6,000 Paper Hands Employed in Valley

The value of the paper industry to the merchants of Kalamazoo is shown by the fact employment is given in the paper mills and the various paper product concerns to over 4,500 hands in the mill and office forces and that the daily wage scale is between \$10,000 and \$12,000. Throughout the Kalamazoo valley over 6,000 hands are employed.

Elsewhere in this journal will be found a detailed description



PRICE & PIERCE, Ltd.

30 East Forty-Second Street

New York, N. Y.

WOOD PULP AGENTS FOREIGN AND DOMESTIC SULPHITE AND KRAFT PULP

Sole Selling Agents for

Atlantic Paper & Pulp Corp.
SAVANNAH, GA.

Makers of High Grade Kraft Pulp.
Capacity Sixty Tons Daily.

Southern Paper Company
MOSSPOINT, MISS.

Makers of Machine Glazed and Fourdrinier
Kraft Paper.

Export Agents for

BATHURST LUMBER COMPANY
BATHURST, N. B., CANADA

Makers of Unbleached Sulphite and Kraft Pulp

of the improvements made by the Kalamazoo Vegetable Parchment Company, Riverview Coated Paper Company, Kalamazoo Paper Company and the Watervliet Paper Company. It is interesting to note here the various betterments made by other concerns in this section.

Bryant Paper Co. Improvements

The year 1917 has seen many very decided betterments made in the immense plant of the Bryant Paper Company. These represent an outlay of over \$200,000. It was during June, 1916, that a disastrous flood swept down Portage Creek, carrying away a large portion of the Milham division, dumping the entire beater department into the torrent and smashing brick walls and heavy concrete floors as though they were straws. To prevent a recurrence of this damage, the Bryant Paper Company has spent a large sum of money widening the creek channel and reinforcing the archway that carries the stream under the Milham division. Unless the upper Monarch mill dam should give away this new channel will be amply large to care for any rainfall that may occur in this locality.

It was late in 1916 that the wrecked beater department was turned over to a force of mechanics. They were engaged until May, 1917, before this section of the mill had been thoroughly rebuilt and all machinery installed in its proper places.

In Bryant division, No. 1, the beater room has been entirely rebuilt and new beating engines installed. Both paper machines were entirely overhauled and made as good as new by the necessary renewal of any worn parts. New iron foundations were put under each machine. The power plant of this division also came in for much alteration. Four Wicks water tube boilers were ordered and two have been installed to date, with two more to be added in the Spring. These boilers are equipped with Murphy stokers.

In Mill No. 3 of the Bryant division concrete floors have been put in the wet end of the machine room. They are supported by heavy steel I beams.

In the Superior division, a 125 horsepower engine has been installed to drive the constant speed of the two paper machines, while the big stock house has been practically rebuilt, a new roof added and concrete floors put in many departments.

Bryant Co.'s Artesian Water Supply

The Bryant Paper Company has abandoned its big pond and filter for water supply and will replace this source with twelve 12-inch artesian wells, each capable of furnishing 1,000,000 gallons every 24 hours. Seven of these wells have been sunk and five more are to follow. They go the depth of approximately 200 feet and assure a supply of the purest water for paper making. The water is pumped by compressed air into a reservoir and from there is forced through the various departments of the plant by centrifugal pumps.

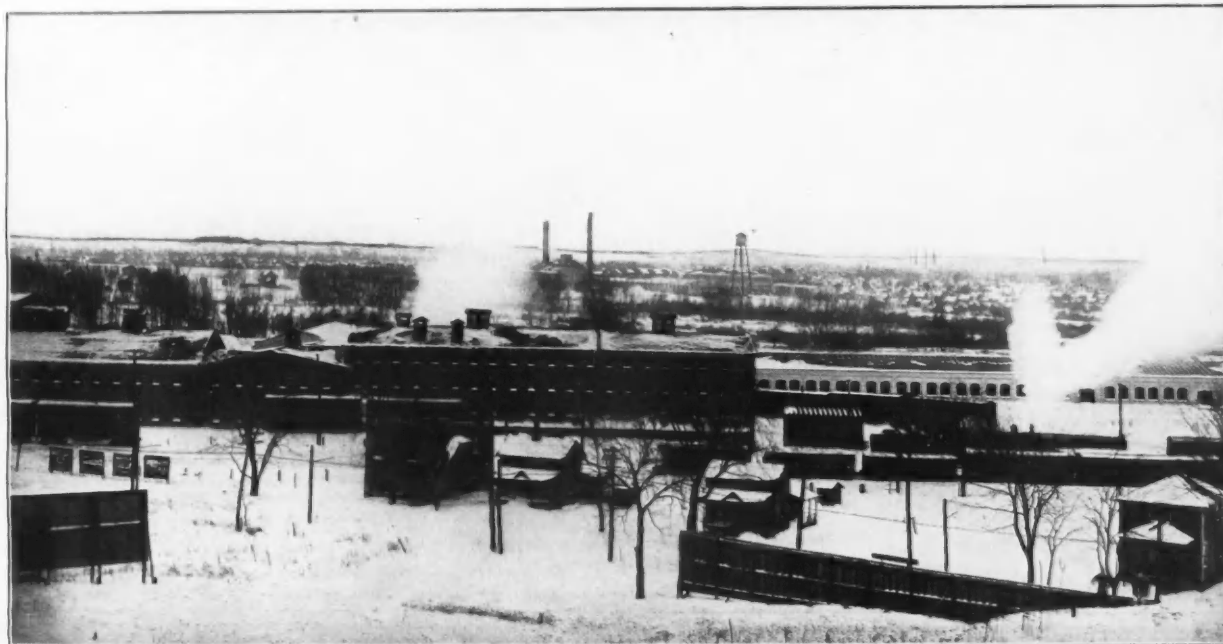
One of the very noticeable improvements at the Bryant plant is the installation of many conveniences for the betterment of the employees. Among these can be numbered rest rooms, first aid rooms, shower baths and retiring rooms. Thousands of dollars have been expended in beautifying the grounds and the mills now set in a veritable park.

Hawthorne Co. Doubles Capacity

During 1916 the Hawthorne Paper Company doubled its capacity and made numerous improvements that have been previously reviewed in these columns. The course of expansion continued during 1917. A structure, 75 by 40 feet in dimensions and two stories high, was erected to house the cutter room. It is now completed and the cutters are being removed from the old quarters in the basement to the second floor. The first floor is to be used for stock and storage purposes. The building is of the standard, slow burning type, so common in the better grades of factories.

The company's offices have been moved from the north front to the south front of the building, while the old office space has been converted into a large lounging and first aid room for the female help. It is comfortably furnished and has at hand easy chairs, couches and reading matter for use at any time.

Along with other Michigan concerns, the Hawthorne Paper Company has been forced to battle with the fuel question. To prevent shortages in the future the company is erecting a 250-foot coal trestle that will carry the loaded cars over a very large storage area and make possible the storing of a big reserve supply in the years to come.



Established 1842

Incorporated 1887

CHENEY BIGELOW WIRE WORKS

Springfield, Mass.

FOURDRINIER WIRES DANDY ROLLS
CYLINDER MOULDS

CYLINDER COVERING A SPECIALITY

Large Wire Signs for Mill Roofs

BRASS, COPPER AND
IRON WIRE CLOTH

OFFICE RAILINGS AND
GRILL WORK

SEND FOR CATALOGUE

Western Board Co. Spends \$40,000

The Western Board & Paper Company has expended \$40,000 during the past three months and has thereby increased the output of the mill from 60,000 pounds to nearly 80,000 pounds every 24 hours. This has been accomplished by adding a complete deck of dryers to the cylinder paper machine and by certain changes in the auxiliary equipment. In addition the company has ceased to draw its water supply from the Kalamazoo river and has sunk two artesian wells that will supply 2,000,000 gallons daily.

The Standard Paper Company has increased the capacity of its boiler house by the installation of two highest type Wicks water tube boilers. The mill has been entirely overhauled and repaired and the coal storage increased. The cost of these betterments aggregated about \$50,000.

Monarch Paper Co. Improvements

The Monarch Paper Company is now erecting a new stock house of slow burning construction that will carry 2,000 tons of additional raw stock. It is five stories high, 200 feet long and covers a triangle plot of ground. It is a much needed improvement.

The old system of hand stoking has been done away with and an electric coal conveyer has been installed for handling all fuel to the furnaces. In conjunction with this is a cinder removal plant that is another great saver in labor costs. The Monarch is another company to resort to the artesian well system for its water supply. Four wells are now being sunk that will give a daily supply of 4,000,000 gallons of spring water. The present reservoir pond and filter system will be retained for use in unforeseen emergencies.

Alex. G. Gilman, now general manager of the company, is now working out improvements and changes in the mechanical equipment, which are to be made in the immediate future. Their exact nature has not been divulged to date. At a special meeting last September, the Monarch Paper Company increased its paid up capital from \$600,000 to \$750,000, the additional \$150,000 to be used in improvements on the property.

King Paper Co. Improvements

Under the direction and supervision of J. H. O'Connell, general superintendent, the splendid plant of the King Paper Company has been entirely overhauled during the past twelve months and is now in better physical condition than at any time in its history. Superintendent O'Connell successfully essayed the task of laying a new concrete floor in the beater room, without suspending operations in that department a single day. Ten thousand square feet of concrete surface were put down, the beaters being removed, entirely rebuilt and replaced in pairs.

The Sturtevant system of drying has been installed for the entire coating plant. It was first given trial under five machines and proved so successful that it was ordered for the four additional. Dry heat is used and the temperature in the coating room proper is reduced from 120 degrees to about 95 to 100 degrees. In 1916 two stocks were erected and in the past twelve months most of the great mill structure has been equipped with new roofs and in addition new ventilating monitors have been placed on the roofs of the two machine rooms. One of the things to be done this Spring will be to paint the interior of the entire mill in white enamel, thus insuring the greatest possible light and cleanliness. The mill has also been greatly improved to care for the needs of the employees. Both male and female help are now supplied with adequate shower baths and retiring rooms, as well as rest rooms and first aid departments.

During the past twelve months the King Paper Company has had installed seven artesian wells with a capacity of 7,000,000 gallons every 24 hours and will no longer be forced to use its old river pipe line and filter, except for emergency cases. The wells are about a half mile from the mill and the water is fed to the plant through a 20-inch main and pumped by a three phase 60

cycle motor generating set. The total cost of the improvements made by the King Paper Company will approximate \$100,000.

Improvements at Otsego

Otsego, the most important center from the point of paper manufacture in the Kalamazoo River Valley, outside of Kalamazoo, has seen many improvements made in the plants located there. The Bardeen Paper Company has expended \$100,000 during the year just past. The boiler capacity of the coating plant was enlarged by installation of two large Heiney boilers, while a 300 horsepower high speed Hamilton engine was added to the power plant. Additional machinery in the finishing department was installed, giving a 25 per cent. increase in the capacity. The mills were subjected to a general overhauling as a part in the campaign for improvement.

Valuable water power is being modernized and where only about 40 per cent. was available heretofore, the improvements now under way and representing an outlay of about \$75,000, will easily double the capacity and efficiency of the plant. Power will be available to such an extent that it will practically operate the big No. 1 mill, thus greatly reducing the amount of coal used in years past.

The year witnessed the consolidation of the Bardeen and Otsego Coating mills with a capitalization of \$1,000,000. The Bardeen company plans the erection of a new two-machine book mill and this improvement will be carried out as soon as business conditions warrant.

S. B. Monroe, acting president, has virtually the Bardeen interests in hand and has received the sanction of the Michigan Securities Commission at Lansing to issue \$500,000 in bonds whenever the company wishes to go ahead with its plans for the new mill.

An unusually splendid year is reported by the Wolverine Paper Company. S. B. Monroe is also acting president and general manager of this property and is authority for the statement that business has been unusually fine with the mill crowded with orders.

Improvements at Three Rivers and White Pigeon

The Eddy Paper Company, operating mills at Three Rivers and White Pigeon, has, with other Kalamazoo Valley mills, fared well in 1917. The White Pigeon division was enlarged the past Summer by the construction of a three-story finishing room and stock house, 212 by 74 feet in dimension. The structure is of standard factory type and of slow burning construction.

A high-grade board for coating and card middles is produced by the Eddy company. The two mills of the firm have been taxed to capacity to fill orders on hand during the entire twelve months. Kalamazoo capital is invested in this concern and a large majority of the officers and stockholders are residents of Kalamazoo.

Paper Products Concerns Gain

Four paper products concerns, all located in the limits of Kalamazoo, are worthy of mention here on account of their rapid growth the past twelve months.

The Kalamazoo Loose Leaf Binder Company has increased its capital from \$175,000 to \$500,000 and has erected an addition to its plant, making the concern one of the most complete in its line in the United States. A great deal of very valuable machinery has also been installed and the payroll now numbers in excess of 350 hands.

The Kalamazoo Carton Company was organized early last year with a capital of \$10,000. This has since been increased to \$125,000, all paid in, while the concern has erected one building 100 by 40 feet in dimensions and has under way another one that will be 100 by 140. Machinery to the value of over \$40,000 has also been installed in the plant.

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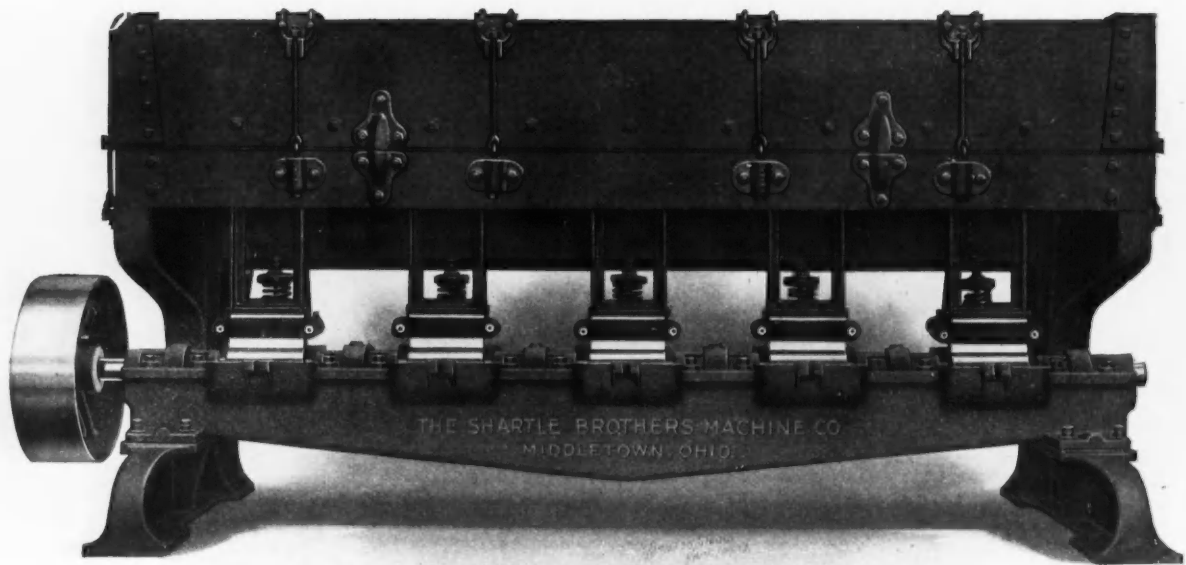
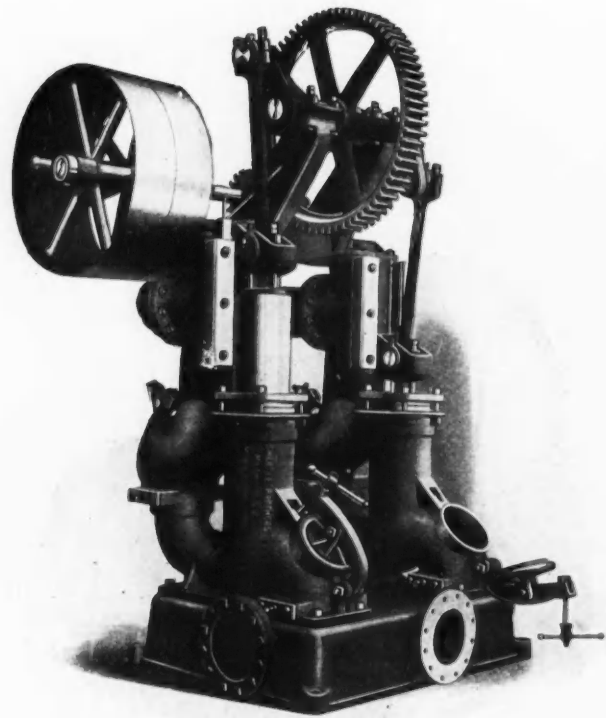
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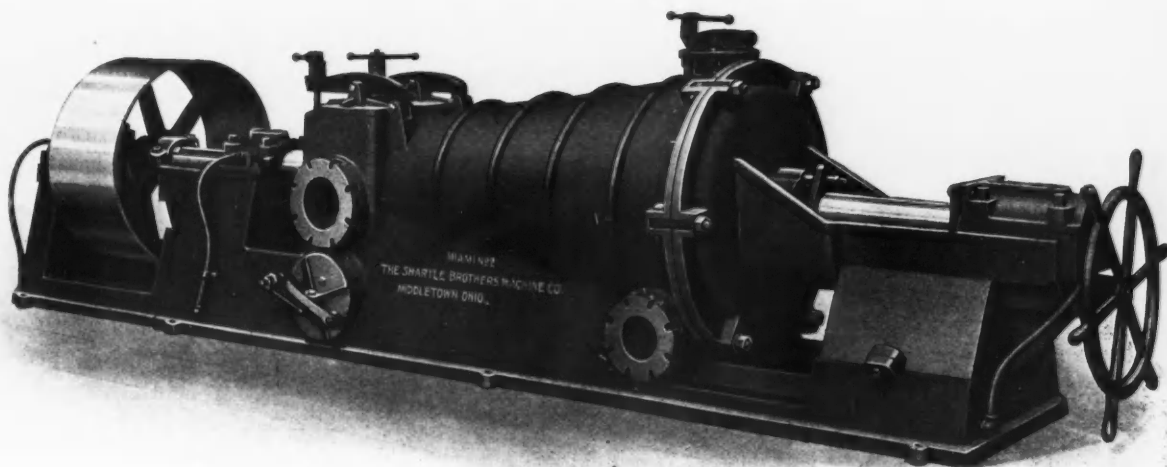
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The Van Gorder Ruling Company has moved into its own plant with plenty of modern equipment.





BY connecting your beater room to your machine with our equipment you will eliminate a large percentage of shut downs. Our machinery is built heavy and rigid, so as to outlast anything now on the market for the same purpose.



**NATRONA
POROUS ALUM**

**ALL GRADES
SULPHATE
OF
ALUMINA**

Manufactured by

**Pennsylvania Salt Mfg. Company
PHILADELPHIA, PA.**



KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO MICH.

KALAMAZOO VEGETABLE PARCHMENT CO.'S NEW PLANT

Within about 60 days the new two-machine mill of the Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich., will be in operation. It will constitute the latest addition to the paper industry in this valley and will stand as one of the finest and most efficient plants in America.

Represents Outlay of Over \$500,000

The mill represents an outlay of over half a million dollars, will produce from 250 to 275 tons of paper a week and give employment to 250 hands. The mill was built to furnish paper for parchmmentizing, the company's special product now used almost exclusively for wrapping purposes by many of the largest packing concerns in America. For this express purpose several carloads are shipped weekly to Chicago and other points where the packing houses are located.

The plant is especially adapted for the manufacture of the highest grade of paper for parchmmentizing purposes. Before a bit of dirt was handled, Jacob Kindleberger, president of the company, caused several wells to be sunk for the purpose of being certain of an adequate supply of the purest water. His efforts were successful and he was assured of being able to pump 5,000,000 gallons daily from clear flowing springs. With that end determined he held regular conferences with M. C. J. Billingham, architect and engineer, who was employed to prepare all plans and specifications. G. G. Worden co-operated with Mr. Billingham in all preliminary work and had charge of determining grades, setting the heavy foundation bases and sinking the wells.

Floor Area of Over 200,000

The mill buildings have a combined floor area of 200,000 square feet approximately. They are of concrete, steel and brick, with steel sash and practically fireproof. As added protection against a conflagration a comprehensive sprinkler system has also been installed, fed from a steel tank.

The usual mill basements are in reality first floors, being high, unusually light and airy. All floors are concrete, with heavy maple coverings in the machine and finishing departments to insure a minimum of dust and a clean finished product.

The raw stock house is four stories and basement and 200 by 84 feet in dimensions. It contains the sorting and dusting department on the top floors. While the sulphite and soda pulp will be unloaded on floors the same elevation as the beater room and carried directly through to the washers and beaters, all rag stock will be elevated to the upper floors, later to be discharged by gravity to the cookers below. The rag equipment consists of one thresher, one wheat duster, one fan duster and two cutters, all the product of the Norwood Engineering Company.

The bleach room is 28 by 84 feet and mounted on concrete pillars, so that it forms a storm shed for the unloading of the raw stock in rainy and snowy weather. The incoming bleach is unloaded from the cars and elevated to a floor on a level with the tops of the mixing tanks. It is mixed and dropped by gravity to a storage tank and from there distributed by gravity to different points in the mill.

The rotary room is two stories and basement, 48 by 80 feet. Two rotaries, each 8 by 24 feet in dimensions, from the Biggs Boiler Works, Akron, Ohio, are installed and there is room for two more. The cooked stock is discharged from the rotaries into a portable conveyor, built for storage and cooling purposes. The rags are removed from storage by an overhead trolley system and discharged directly into the washers.

The beater room is one story and basement, 80 by 240 feet in dimensions. Four 1,500 pound washers, product of the J. H. Horne & Sons Company, Lawrence, Mass., have been installed and there is room for two more. Ten 1,500 pound beaters, product of the same concern, are installed and four more can be added later without additional building. Three Jones Majestic Jordons complete the equipment of the beater room.

The Machine Room

The machine room is the same dimensions and of the same construction as the beater room and contains two machines. One is the product of the Pusey & Jones Company, and is 165 inches in width and is the largest machine in the United States devoted to the manufacture of high grade papers. The second machine is a 116-inch Harper Fourdrinier, product of the J. H. Horne & Sons Company. These machines are driven by two direct connected variable speed engines, product of the Ames Iron Works, Oswego, N. Y. There is a Hawkins overhead crane in the machine room for handling heavy rolls.

The finishing room is two stories and basement, 48 by 80 feet, while the finished stock house is 84 by 100 feet. Both are two stories and basement. The lower floor of the latter room is used for the stereotyping, electrotyping and art departments.

The turbine room is 48 by 56 feet; the boiler house, 56 by 88 feet; the pump and feed water heating room, 24 by 18 feet, and the oil house, 24 by 18 feet. The turbine room is equipped with a 1,250 k. w. turbine of the bleeder type, also a marble switchboard. Both are the product of the General Electric Company. In the boiler house are five 300 horsepower Wickes vertical water tube boilers. Each is equipped with a Murphy stoker. These stokers are supplied with fuel from overhead concrete bunkers, the bunkers being charged with fuel by means of a locomotive crane. Green

A New Mill in Washington

Among the new mills in the course of construction in the far west, is that of the Cascade Paper Company, located at the mouth of Cham-



FRANK S. BAKER
President

bers Creek, a few miles southwest of Tacoma, in the State of Washington.

The site consists of thirty acres of ground at a point on Chambers Creek scarcely a stone's throw from the main line of the Northern Pacific railway, where that road crosses the bridge under which the creek finds its way directly into Puget Sound.

Hurley-Mason & Company, contractors, who erected the cantonment buildings for the Government at Camp Lewis, and whose recent completion of an additional mill for the Hawley Pulp & Paper Company at Oregon City, characterized them as thoroughly capable of efficiently handling paper mill construction, were awarded the contract some months ago, for the buildings. These are rapidly being finished under the personal direction of J. B. Coleman, superintendent, formerly of Kalamazoo, and K. A. Hultan, engineer for the paper company.

The first machine unit, which is being built by Black-Clawson & Company, of Ohio, is to be shipped this month, and will supply twenty tons of product daily. The beaters, and a large part of the other necessary mechanical equipment, have been on the ground some weeks, and are already partly installed.

A noteworthy feature of this new mill is its

water supply. There is a sufficient flow in Chambers Creek to care for the requirements of six paper machines. The heavy floods which frequently seriously affect many streams of western Oregon and Washington, have no bearing at all upon the flow at Chambers Creek, which is exclusively spring fed. The measurement of the stream reveals no variation, whatever, either in volume or solid content, during periods of high water, when other streams occasion great damage. This extremely satisfactory condition as to water supply, assures the mill freedom from "dirt" troubles, and guarantees a permanently clean product at the outset.

The Cascade Paper Company has been financed by capital in Tacoma and in Ohio. The company is headed by Frank S. Baker, as president; D. Den Bleyker, vice-president; J. T. S. Lyle, secretary and treasurer, all of Tacoma. A. E. Mc-

Laughlin will be in charge of

the mill offices and act as purchasing agent. The sales offices for the coast are located in the Balboa Building at San Francisco, in charge of Mr. W. B. Reynolds.

While final announcement of the grades of book and writing which the new mill intends to produce have not been made, lines have been selected which, for the most part, will not duplicate those now made by older Pacific Coast mills. It is expected that actual operations will start in June of the present year.



J. B. COLEMAN
Superintendent



K. A. HULTAN
Engineer

fuel economizers and Foster superheaters are also part of this equipment. The ashes are handled by the steam jet system, which discharges them into an elevated recovery tank, from which cars or wagons can be loaded from a chute. Immediately adjoining the boiler house is a concrete coal storage, capable of carrying a 40-day supply of fuel.

With the exception of the two paper machines, all the mill machinery is electrically driven. A reinforced concrete chimney, 275 feet by 7 feet, has been erected.

Plant Unique in Many Ways

Outside its strictly mechanical features this plant is unique. It carries its own distinctive color scheme. The baseboards are of battleship gray, black striped, with white enamel side walls and ceilings. All the machinery is wine color with white striping. A heavy enamel paint is used exclusively.

RIVERVIEW COATED PAPER CO. STARTS FINE PLANT

"We are ready to make paper provided we can secure a supply of coal," remarked Felix Pagenstecher, secretary and general manager of the Riverview Coated Paper Company, Kalamazoo, Mich.

That remark was made during the latter part of December, 1917, and since that day the fuel difficulties have been surmounted to a certain degree and the company's new paper mill is in operation.

Mill of Riverview Coated Paper Co. Is Model Plant

This latest addition to the chief industry in the Kalamazoo River valley district is a mill to be proud of. In all those features that speak for efficiency and careful planning, it is representative. The mill is on the main line of the Michigan Central railroad, just east of the city limits and immediately adjoining the company's big coating plant. It is one of a group of mills, including the plants of the Hawthorne Paper Company, Riverview Coated Paper Company, Kalamazoo Paper Company, and the Western Board & Paper Company.

Represents Investment of \$2,000,000

This aggregation of plants represent an investment of well over \$2,000,000, operating eight paper machines and giving steady employment to about 1,000 hands.

The new Riverview mill has 182,000 square feet of floor space. The site was originally low ground, but has been filled in to a height of over seven feet to prevent flood damage. Heavy concrete retaining walls were erected, and then over 50,000 square yards of sand were pumped in from the bed of the Kalamazoo River. The mill is devoid of a basement, but instead has a high, airy first floor.

The plans and specifications were prepared by M. C. J. Billingham of Kalamazoo, mill architect and engineer. The general contract was awarded to the Frank L. Shoemaker Company, builders, also of this city. L. R. Klose of Kalamazoo had the contract for the wiring; the Bond Supply Company and Fred Batchelor did the piping and steam fitting and Joe Cooper did the roofing, so that a large portion of the cost of the mill found its way back into the pockets of local contractors.

Some Special Features of the Plant

The specifications called for slow burning construction for the raw stock house and finishing room and fireproof for the rotary, machine, beater, turbine and boiler rooms. Despite this extra fire precaution is taken by the installation of a complete sprinkling system, fed from an elevated steel tank.

The raw stock house is 60 x 200 feet in dimensions, five stories high. On the top floor are the sorting and dusting department, equipped with a complete battery of dusters from the Norwood Engineering Company. Dusted stock is discharged by gravity into the cookers and from there carried to specially constructed

tanks by gravity, from which tanks it is then discharged by agitators and pumps to the washing room. The rotary room is three stories, 48 x 104 feet, the beater room being 80 x 224 feet, same height. Five 2,000-pound washers and four 1,500-pound beaters, all the product of the E. D. Jones & Sons Company, Pittsfield, Mass., and two Majestic Jordons are the equipment of this department.

There are first aid rooms, rest rooms, toilet rooms, shower baths and all other conveniences for the employees to insure health and happiness. President Kindleberger is Utopian in his love and affection for his co-workers. They are like one big family and he is daddy of them all. Every year he is making the parchment plant a more desirable place to work. He encourages morally and financially all forms of sports and clean amusements. The Parchment baseball and basketball teams hold factory city championships. Among other buildings at the mill is a welfare hall for the general good of all employees and right in the front doorway of the concern is the home of the alive and hustling president. One of his known ambitions is to make "Parchment" a home for his employees. With this idea in view he is hoping that desirable plots near the plant will soon be opened for home-steading. The location can easily be made most beautiful and attractive.

Machine Room Built for Two Machines

The machine room is built to accommodate two machines and is two stories high and 232 x 80 feet in dimensions. One 156-inch Fourdiner machine has been installed to date. It was manufactured by the Pusey & Jones Company. It is equipped with a rope drive and driven by a variable speed motor. Hawkins & Co., Chicago, built a large overhead traveling crane for this department.

The finishing room is 80 x 200 feet in size and three stories. The equipment, calendars, press cutters, etc., have not been purchased for this department as yet, it being the intention to do this work temporarily in the finishing department of the coating plant.

Power for the mill is furnished by two 500 k. w. bleeder type turbines. These turbines, the surface condensers and switchboard are the product of the General Electric Company and are housed in a turbine room, 48 x 72 feet, two stories. The boiler room is 70 x 80 feet in size and has a battery of three 300 horsepower vertical water tube, Wickes boilers. Murphy stokers, equipped with Foster superheaters and Green fuel economizers are in this department. Induced draft is made possible through means of a steel stack and a fan.

Water supply for the mill is taken from a well with a capacity of 5,000,000 gallons daily.

Conveniences for Employees

In addition to the equipment to turn out high grade papers for coating purposes, this mill is one of the most perfect in this district in the matter of conveniences for its employees. There is a well fitted out first aid room, retiring room for the female help, also shower baths, all sanitary conveniences and a restaurant.

Improvements Contemplated

Speaking of the future of this concern, Mr. Pagenstecher said: "We are quite willing to suspend building operations for the present. Prices are too high and deliveries of materials are too uncertain, but in the future, when conditions are favorable and business warrants the move, we will install our second machine and auxiliary equipment and erect a new office building. This structure will be located midway between and adjacent to the mill and coating plant. We are also planning to better the looks of our whole property by proper filling and grading and landscape gardening."

Stebbins

Reinforced Concrete Tile
Lined Acid Absorption
System

Reinforced Concrete Tile
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Oxidizing Rotary Sulphur
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Modified Slow Cook Digest-
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Hayes Vitriified Acid Proof
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Construction and Equipment
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Stands for the
Latest Advancement
in the Design and
Construction of
Chemical Apparatus
for
Sulphite Mills*

**STEBBINS ENGINEERING &
MANUFACTURING COMPANY
WATERTOWN, NEW YORK, U.S.A.**

KALAMAZOO PAPER CO., MAKES BIG IMPROVEMENTS

Written Especially for the Annual Number of the Paper Trade Journal by Howard P. Hall

The Kalamazoo Paper Company will have expended \$300,000 during the twelve months of 1917 and the early months of the present year in improvements. There has been no halt in the program as planned months ago for this mill's expansion and today it is reaching out in a way that speaks for the general efficiency of its officers and directors who have piloted its business affairs for many years.

Features of the Improvements

A new turbine plant, 43 by 47 feet in dimensions and two stories, has been erected the past twelve months. Construction is of the highest type brick, steel and reinforced concrete. In this has been installed the first power unit, a 1,000 kilowatt turbine, the switchboards and all connections being the product of the General Electric Company. The condenser and condensing pump for this unit is the product of the Union Steam Pump Company, of Battle Creek.

An interesting feature of this improvement is that the construction has so been worked out that 1,000 kilowatts additional power has been added without increasing the boiler or furnace capacity of the mill. This has been planned by W. H. Scott, general engineer of the mill, and has met with the highest approval of mill engineers who have inspected the improvement. An additional unit can be installed without interfering with the operation of the original plant or necessitating new building. Such an expansion may be made by putting in heavy I-beams to carry the concrete floors and equipment.

Erection of the turbine plant was made necessary by the addition of a new coating mill, operating since last June, to the company's general equipment. This building was planned by the officers of the company, who, to make its construction possible, altered the landscape of Kalamazoo to the extent of entirely changing the course of Kalamazoo river, removing a dangerous and tortuous channel, at the same time giving the company the acreage required for additions.

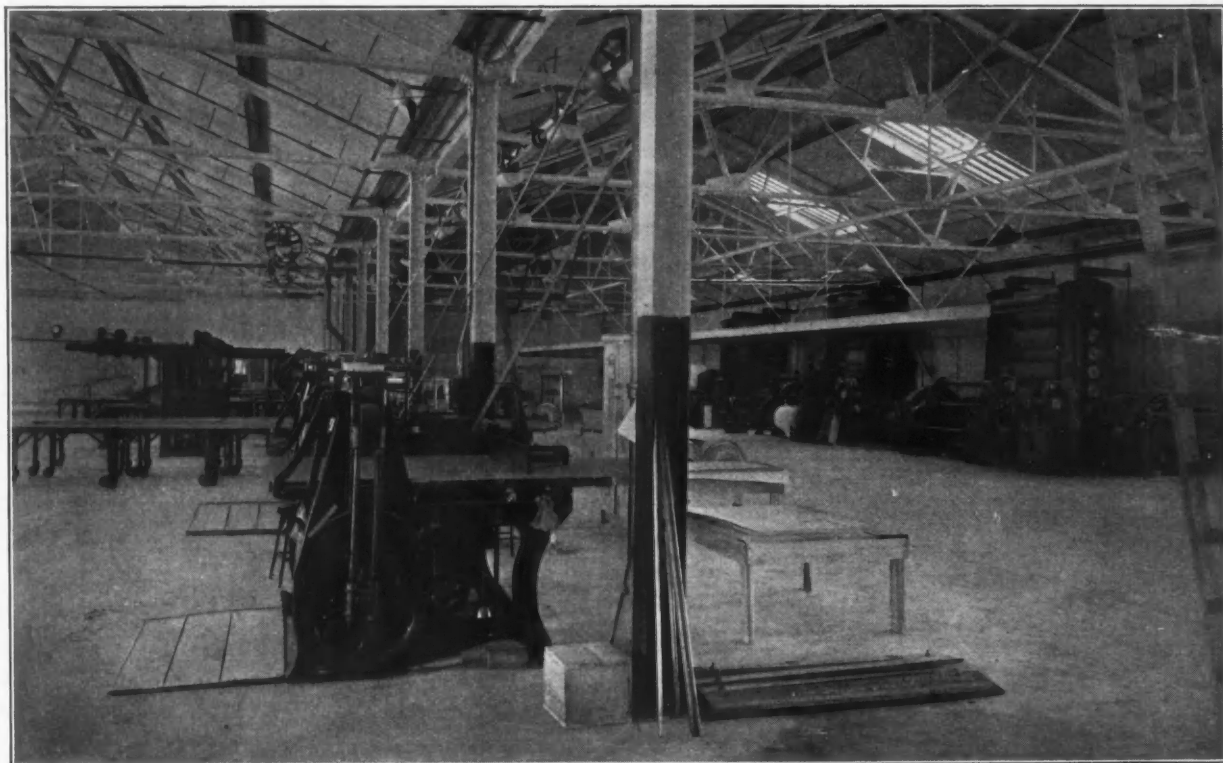
The Coating Plant

The coating plant consists of four buildings. Brick construction prevails, while the girders are of steel and the floors of concrete. It is practically fireproof. The stock room is 108 by 250 feet and is equipped with monorail carriers. Four 54-inch and two 64-inch Walden coaters are accommodated in the coating room.

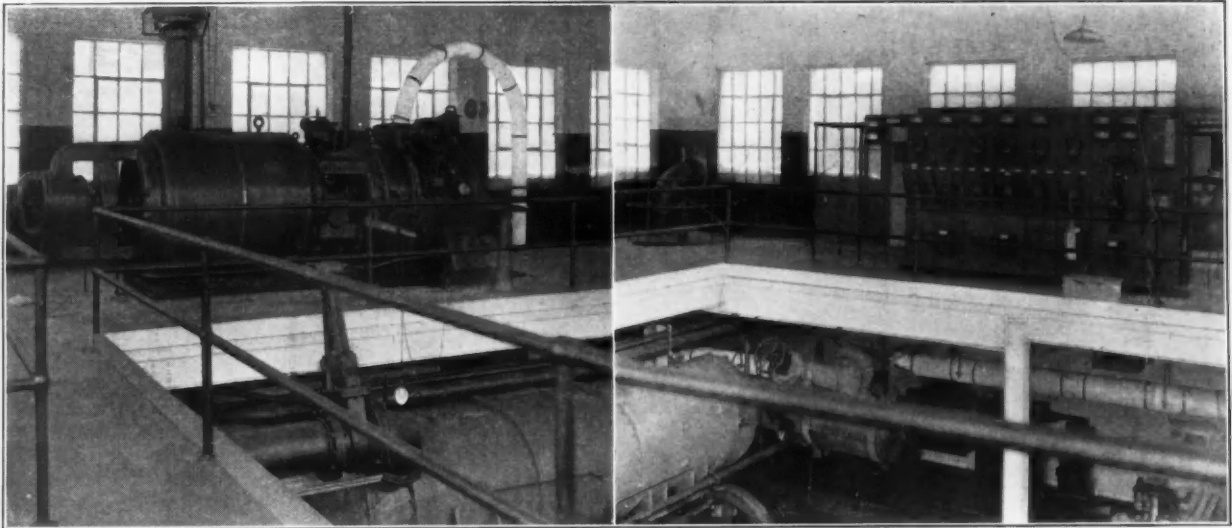
The color room is three stories, all others being but one. This apartment is 145 feet long and has an average width of 63 feet. Mixing colors is brought about by the gravity system, the process beginning at the top floor where seven agitating tanks are housed. On the second floor there are four of these tanks, while the clay pit in this department has a capacity of 2,500 tons. Cars for unloading may be run directly into the color room building.

Equipment of the Finishing Room

Dimensions of the finishing room are 108½ by 300 feet. There are three stacks of super calenders, one 68-inch and two 60-inch,



INTERIOR VIEW OF THE FINISHING ROOM OF THE NEW COATING MILL OF THE KALAMAZOO PAPER CO.



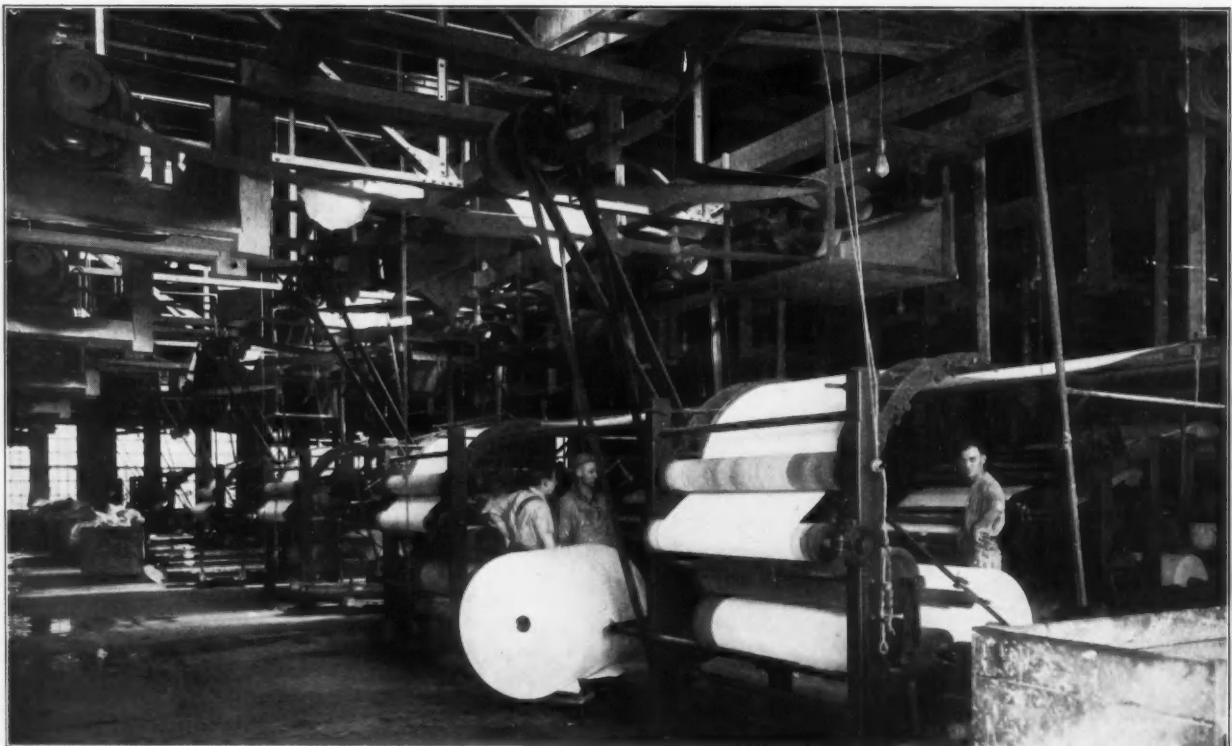
VIEW IN THE NEW TURBINE HOUSE OF THE KALAMAZOO PAPER CO.

the product of the Holyoke Machine Company. Two Hamblett cutters are installed, being equipped with lay boys, as well as two Jones and Smith under cuts, one 56-inch and the other 84-inch. The machinery is electrically driven, the calenders being directly connected to individual motors. R. J. Klose, of this city, furnished the electrical equipment. Steel tables have been placed in the finishing room to facilitate handling the paper. Officials of the company directed installation of the piping and sprinkling system. The brick laying contract was carried out by the Frank Schumaker Company.

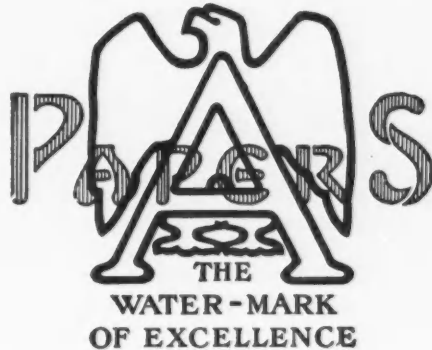
The superintendent of the plant is P. F. Denner, who came to this position from the Consolidated Lithograph Company, Montreal.

All of the six machines are now running, much to the satisfaction of the owners. The product is of high class and has sold readily. About 100 hands are now being used.

The new finishing room for No. 2 mill is being built by F. J. Miller, and is two stories and basement, 128 by 70 feet in dimensions, and of the highest type factory construction. Concrete, brick and steel are used throughout, making a fireproof building.



INTERIOR VIEW OF THE COATING DEPARTMENT OF THE WATERVLIEP PAPER CO.



FORWARD!

With the installation of the new and modern equipment to improve and increase production and bring out new lines in many of our mills—

With a renewed watchfulness and persistent care in manufacture to produce papers of the utmost-value-for-the-money—

With a constant endeavor to broaden and obtain a most complete distribution for all of our products, thus placing them within easy reach of all possible users—

With the conscience of necessarily upholding a reputation for resources, facilities, experience, and all other factors expected of the World's Largest Makers of Fine Writing Papers—and

With a most responsive and hearty co-operation and co-ordination of all forces throughout our entire organization toward achieving the desired results—

THE AMERICAN WRITING PAPER COMPANY DURING 1918 WILL BE IN A BETTER POSITION TO ANTICIPATE YOUR NEEDS AND MEET YOUR DESIRES IN ALL THINGS—IN MERCHANDISE, IN DELIVERIES, AND IN PERSONAL ATTENTION—THAN EVER BEFORE.

Therefore, on the platform of honest values and efficient service to all, this Company solicits, and feels that it has a right to expect the proper share of your 1918 business.

Keep in touch with us.

AMERICAN WRITING PAPER COMPANY

MANUFACTURERS OF "EAGLE A" TRADE-MARK WATER-MARKED PAPERS

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H. WATERBURY an
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“Waterbury Free Filter Felts” for Cylinder
 and are SOFT, SMOOTH, STRONG,

Waterbury Seamless Wet and Press
 and ARE MADE IN ANY WIDTH

NOTE—Waterbury Free Filter Felts are so
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 Paper Makers Supe

Manufac

1869



1918

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facture

“Free-Filter-Felts”

ARE

Paper Quickly and to Filter Water Freely at High Speed

Top and Bottom Felts “DO NOT PICK”

FREE FELTS for SPEED and FINISH

Felts Filter Freely and KEEP SOFT

and UP TO 78 FEET IN LENGTH

treated in the process of manufacture as to all felts is decidedly necessary in press felts.

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TOILET PAPERS
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GRAND LAKE BAGS**
THE SYNONYM FOR QUALITY



Satisfaction



Service



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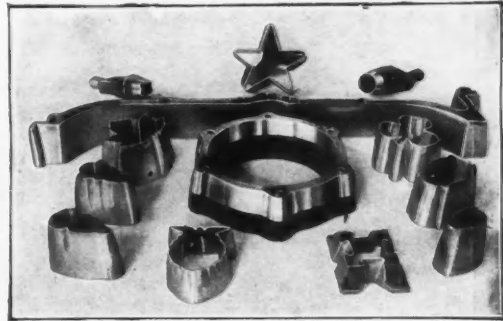
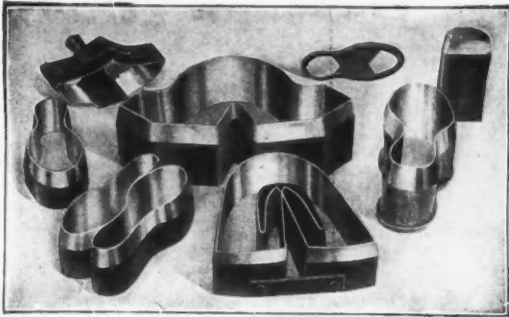
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Chicago Office

Woolworth Building
Conway Building

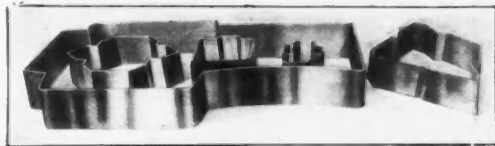


CUTTING DIES

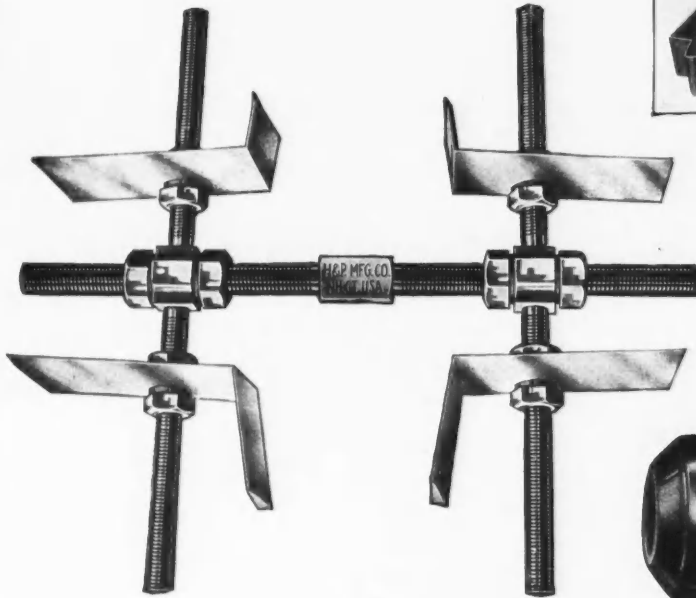
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All Work Warranted to Give Satisfaction.



We use the best of iron and steel stock, and manufacture strictly first-class dies.



We shall be pleased to furnish prices for any style of dies on receipt of paper patterns. Please state whether they are to be used under a machine or with a mallet.

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Manufacturers of

WOOD PULP BOARDS JUTE AND COMBINATION BOARD

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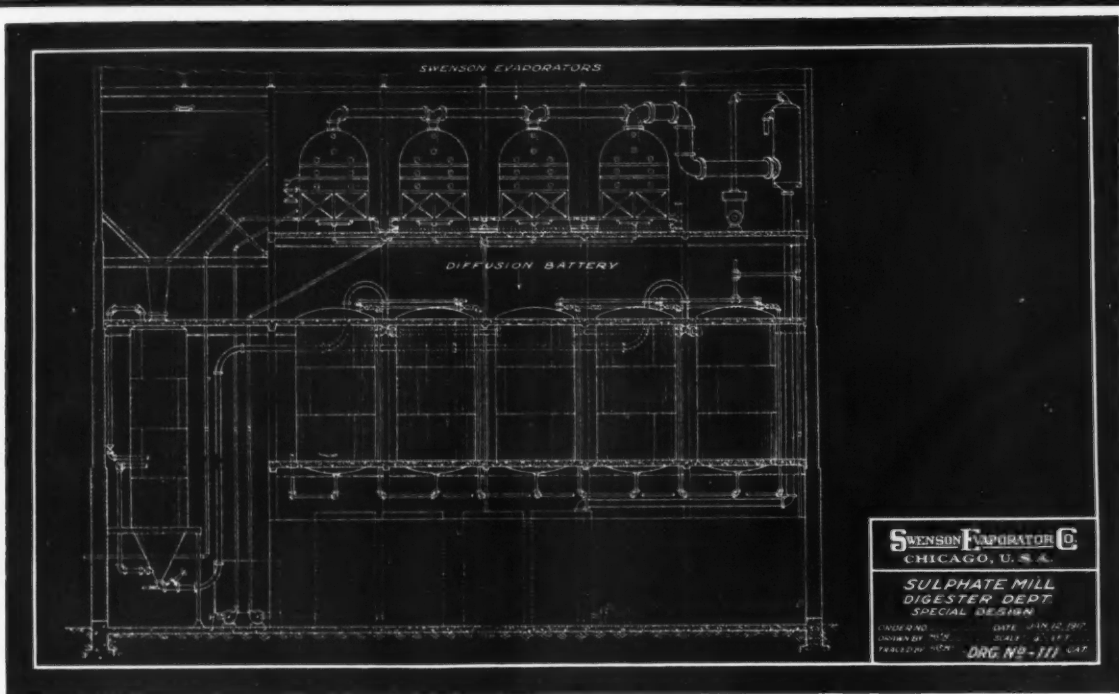
Pasted Boards—Oak Grain and Marble
Grained Jute Board

OUR HAMPTON DIVISION

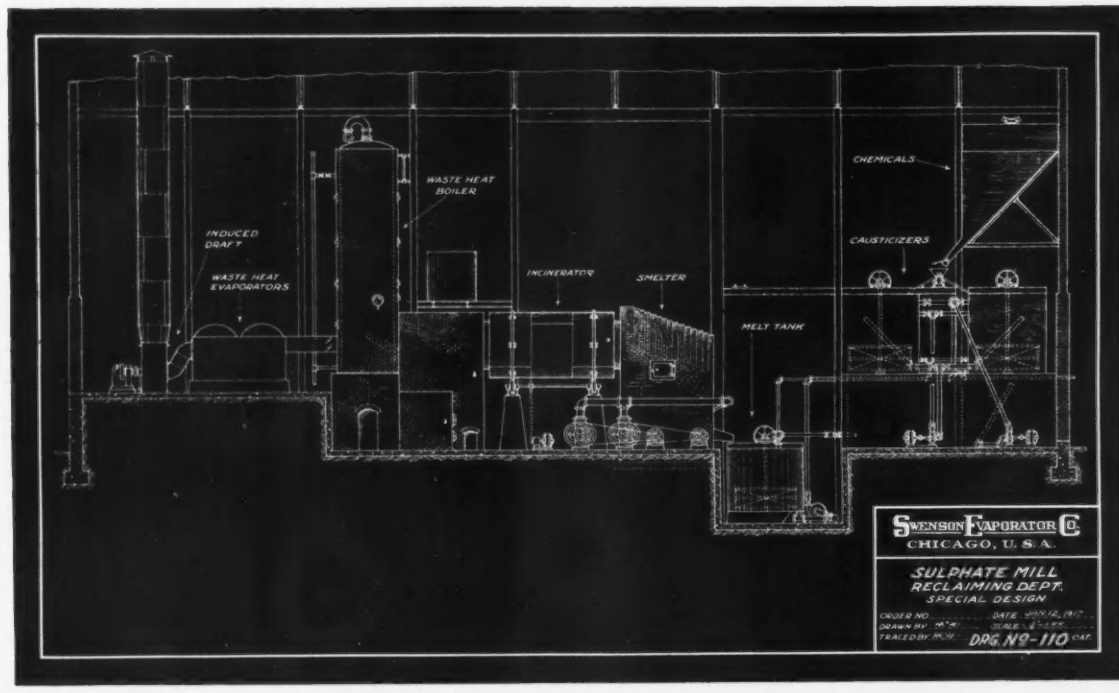
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Black and Colored Specialties, Index, Light and
Medium Weight Cardboards

Our Service and Quality Product Should Interest You



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Increase the Strength of Your
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By Using

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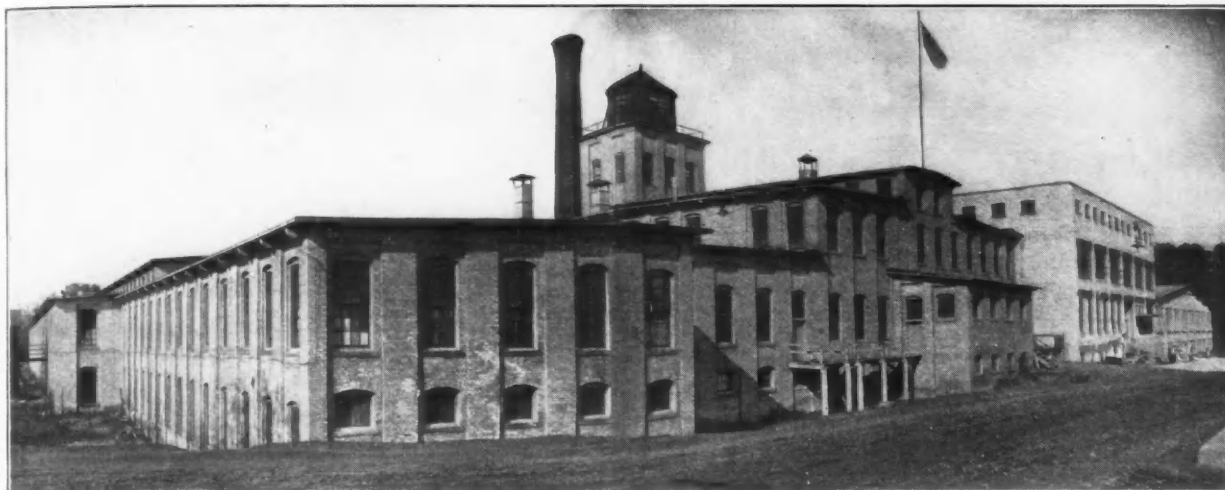
VEGETABLE CASEIN

For Paper Coating, Etc.

Manufactured by

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WATERVLIEP PAPER CO. MAKES EXTENSIVE IMPROVEMENT

The Watervliet Paper Company, of Watervliet, Mich., has just completed one of the most satisfactory years in its history, the year being a most successful one both because of a fine bulk of business and because of expansions which have made this plant one of the finest to be found anywhere in the United States. The past twelve months have been under the guiding hands of W. M. Loveland, who took the reins about a year ago. No mill in the entire Kalamazoo valley has shown greater progress, due principally to Mr. Loveland's sound business judgment and far-reaching program.

Company Buys \$100,000 Liberty Bonds

While the war to an extent halted improvements, \$100,000 intended for the use of adding another paper machine and for installation of a 2,000-horsepower turbine engine have been put into the hands of Uncle Sam via the Liberty Bond route. The Watervliet Paper Company was thus placed in the fore of all Michigan companies in the purchase of these bonds.

"We bought these bonds primarily," said Mr. Loveland, "because our country is at war. In the first place, we could hardly expand to the extent planned at this time, and, secondly, Uncle Sam needs every available dollar to press the war for democracy. Liberty bonds are readily convertible into cash, and, when the time arrives that we are ready to carry out our plans we can sell the bonds and go ahead with the expansion."

No village in Michigan has shown greater patriotism than this little paper-making center, which has been spurred on by the Watervliet company. Besides buying a large block of bonds, Watervliet has "done its bit" toward the numberless other war funds to which the people of the nation have been called upon to give. Then, too, the all important element—men for service—has not been forgotten, and from this little hamlet have gone forth a large number of soldiers, sailors and marines to do battle with the Hun.

Spends \$150,000 on Improvements

Prior to the United States' declaration of war on Germany the Watervliet campaign of expansion resulted in \$150,000 being expended in improvements, both physical and mechanical. Daily capacity has been increased more than 35 per cent.

A stock house, four stories high and 100 by 100 feet in dimensions, has been erected. The plans were drawn by Architect R. A. Le Roy, and provided for a strictly fireproof, reinforced concrete building. The first floor is being used for an office and stockroom, the second for sorting, while the two upper floors are

being used for stock. Through the building a railroad siding has been run which provides for unloading from either side of the cars. A hydraulic elevator has been installed, capacity five to ten tons, while the sash is of heavy steel and the roof fire and moisture proof. M. W. Stock & Sons, St. Joseph, built the addition.

Installation of New Machinery

Installation of new machinery and driving of new wells during the past twelve months represents an outlay of around \$90,000. Four 1,500-pound E. D. Jones beaters and three 2,500-pound Jones washers have been placed in the beater room. It is possible to set the rolls at any pressure needed, the engines being equipped with hydraulic lifts on the rolls.

New Engine Room

A new engine room has been erected, one of the finest in Southern Michigan. This is 45 by 100 feet in dimensions and fully 40 feet in the clear. The paper machine is operated by a 125-horsepower turbine engine. The paper machine drives are equipped with Falk reduction gears, replacing the old system of belts. This is said to be the only one in the United States so driven.

With a combined capacity of 3,000,000 gallons of the purest water, nine artesian wells, each six inches in diameter, have been sunk. A 2,000,000-gallon Manistee pump, driven by a 50-horsepower motor, handles this improvement.

The Cutler-Hammer Company, Milwaukee, built the calendar electric drives in the mill. They are operated with push-button control, with magnetic clutches. Two 54-inch Waldron coaters, one flat bed and one cylinder type, give this department eight coaters in all. Throughout the mill the interior has been painted battleship gray and white.

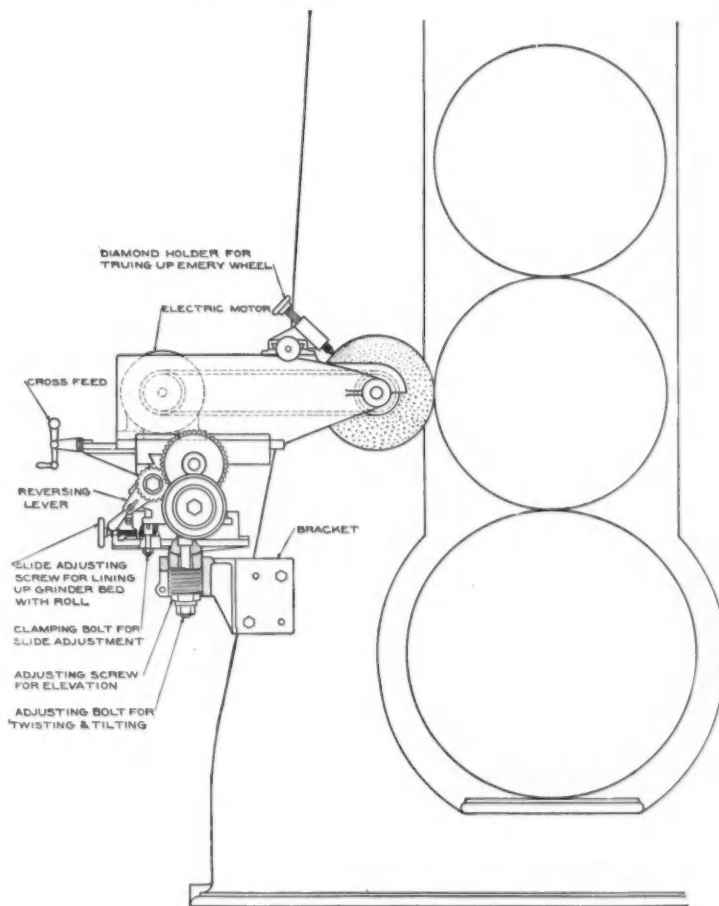
Other Improvements

A two-story blacksmith shop and machine shop has been added, 35 by 80 feet, containing a fireproof oil house. The lower floor is being used for pipe-fitting and blacksmithing, while a machine house is housed on the second.

In the steam plant there are now four Cox-Fulton stokers, and when the time comes that the company decides to install another paper machine, Mr. Loveland announces that two boilers will be added to the equipment of the boiler house.

All in all there have been few hitches in the 1917 drive for greater efficiency. What the present year will bring is a problem that the war will have to answer, but with an early peace, officials of the Watervliet Paper Company propose still further expansions, and Liberty Bonds will play a part in turning the trick.

Patented Portable Adjustable Calender Roll Grinder



Write for

U & Z GRINDER BLUEPRINTS

B. S. ROY & SON CO.

Worcester, Mass.

ESTABLISHED 1868

CONVENTIONS OF MANUFACTURERS

Forty-first Annual Meeting of the American Paper and Pulp Association is Greatest in Organization's History

G. W. Sisson, of the Racquett River Paper Company, Is Elected President of the Association and L. M. Alexander Is Chosen Vice-President—Unusually Interesting Programs Are Carried Out by All the Divisions—Retiring President A. B. Daniels Is Given a Vote of Appreciation—Services of the Secretary, Who Is Re-elected, Are Also Appreciated.

The annual convention banquet of the American Paper & Pulp Association was an unusual success. This, too, in spite of the unusual conditions facing manufacturers today. The meetings were all that could be desired both from the social and the educational sides.

Meetings Reflect War Atmosphere

The various meetings largely reflected the war atmosphere which injected into the situations many knotty problems that manufacturers have had to solve. Besides the report of President A. B. Daniels and that of Secretary-Treasurer A. D. Naylor, five in-



G. W. SISSON, JR., PRESIDENT.

teresting addresses were given. Of course, the topic uppermost in the minds of all who attended the convention was the relation that the war would bear to business. To attempt to place facts before the manufacturers who were vitally interested in this question was the aim of the association. The first address, therefore, was highly in line with this idea. It was, "American Business and the War." The speaker was John H. Fahey, honorary vice-president of the Chamber of Commerce, United States of America. He outlined his opinion as to what the course of American adjustment to war conditions would be. The picture he painted was not one of demoralization, but one rather of co-operation—co-operation between the government and industry to the supreme end that the war be carried to a successful conclusion—a conclusion that would mean sacrifice for all. Mr. Fahey's address was warmly applauded by all.

Immediately following Mr. Fahey came L. A. Osborne, vice-president of the Westinghouse Electric & Manufacturing Company. He spoke on the "National Industrial Conference Board and Its Work." He explained the object of the board and the way in which the board worked to attain its object.

Deputy Governor R. H. Treman, of the Federal Reserve Bank, spoke on "Trade Acceptances." He advocated the further use of trade acceptances as a means of extending and stabilizing credit and declared trade acceptances marked an epoch in the credit development of banking and finance. His topic, while not immediately related was along the line that the American Paper & Pulp Association had been following when it recently organized its cost accounting section.

Safety Movement in Paper Industry

Perhaps the paper industry is in the van of the other industries of the country when it comes to the question of safeguarding the lives and welfare of the employees of the various paper mills throughout the country. Therefore, it was with great and sustained interest that the manufacturers listened to David Van Schaack, president of the National Safety Council when he delivered his talk on "The Safety Movement in the Paper & Pulp Industry." His talk was really a brief review of the work accomplished in the safety movement during the time the idea has taken hold of the paper manufacturers of the country.

Work of the Cost Section

S. S. Rogers completed the program with an address on the "Work of the Cost Section." The association during last spring formed a cost section which was organized separately with its own body of officers.

The speakers were followed by the reports of the committee on resolutions and of the nominating committee.

The New Officers

The officers for the coming year as selected by the nominating committee and approved by the association, were as follows:

The New Officers

The officers for the coming year of the American Paper & Pulp Association are as follows:

President, George W. Sisson, Jr., Racquette River Paper Company, Potsdam, N. Y.

Western Vice-President, L. M. Alexander, Nekoosa-Edwards Paper Company, Port Edwards, Wis.

Eastern Vice-President, F. L. Stevens, Stevens & Thompson Paper Company, North Hoosick, N. Y.

Secretary and Treasurer, A. D. Naylor.

Western Eastern Paper Makers Chemical Co.

Main Office, Easton, Pa.

Foreign Office, St. Austell, England

Easton, Pa. Holyoke, Mass. Kalámazoo, Mich. Watertown, N. Y.



Manufacturing Chemists Miners and Importers



Rosin Size Satin White English Clay

Domestic Clay Vegetable Tallow

Oil Soap Felt Soap Antifroth Oil

OUR MOTTO:

Service

Quality

Price

PRESIDENT DANIELS' ADDRESS

We are come together this year in convention, under most unusual circumstances, such as the experience of no man records. A great precedent was properly and justly set aside when our Congress decided, as expressing the righteous will of our nation, that we should enter the war in Europe. As a result, many minor precedents have changed so that individual experience in these matters has been diminished to small value.

Need for Co-operation

Under circumstances, therefore, such as these, I personally, as a manufacturer, have never felt more the imperative necessity of meeting, counseling and co-operating with other manufacturers. Just as war has a great unifying effect in the nation, so it must necessarily have in an industry. At a time like this, independent action, either nationally or industrially, is inadvisable. We gladly accept these more intimate industrial relations, as the sunshine behind the shadow of war, because by our forced unity of action a higher and nobler spirit is developed, not only for our own interests, but for the service of our nation.

It is only reasonable to expect that under the circumstances of war, some people are at times influenced by unreliable facts to act rashly. Others, in a spirit of patriotic enthusiasm, want to do much which may be inadvisable. There are many suggestions and difficulties to encounter. Therefore, I feel that the best and only way for us to govern our actions, and to overcome our difficulties and be of the best service to our nation, is to take counsel with one another, in order that we may not only protect our own interests, which are secondary, but that we may do our full part towards helping win the war.

Work of the Association

The work of the American Paper and Pulp Association in the last year is covered, in so far as possible, in the secretary's report, but even that report cannot contain some of our more important activities, as such are of a nature which cannot very well be stated in a report. I refer to questions which arise for consideration, consuming much time and attention, and concerning which in the end it has been inadvisable to act. These cannot be included in any report other than to state they were considered, which unfortunately does not, to the average man, appeal as matters definitely accomplished. There have been many matters of this nature which we have had to consider this past year, because there were no criterions, and we had to take time and energy to investigate, and in the end we found many were not to the interest of the industry or of the country. I know that with these many propositions, which to some members at the time seemed most vital to the paper and pulp interests, we may have appeared a little inactive, but we were not, because we were proceeding with caution and were considering all angles so as not to make any false step. In such matters we obtained all possible information and advice, and are pleased to state that the result of our decision in every case has in the end proven far more advantageous to our interests than had we rushed into some of these propositions and had to experience the difficulty and dissatisfying task of untangling ourselves. This past year it has been more necessary to apply brakes than to make steam.

Caution Advisable

I would venture respectfully this insistent suggestion to those who are now about to take up the direction of the affairs of this association, that they use extreme caution, even if it is not possible to have the publicity and brilliancy which appeal to some as indicative of the activities of an association, rather than the quieter and more lasting appreciation of the manufacturers for keeping them out of trouble. Rumors, suggestions, impulses, are many today. We all are more or less on our nerves, which is only natural under the strain of war. Therefore, we must be careful,

for I feel that more mistakes are now apt to be made by commission than omission. We all want to feel free to go to this association with all of our perplexities and our suggestions as regards questions affecting the industry, and this association must, at all times, give full and careful consideration to such, but must not be influenced by every small wind of rumor, suggestion or impulse which blows. It must act carefully and wisely, and, where necessary, with force and promptness, being in so far as possible a leavening influence for all that is ultimately best for the paper and pulp interests.

Growing Importance of the Association

May I ask you the question as to just where we, as an industry, would have been and what we would have done in the past two or three years if we had not had the American Paper and Pulp Association? I know that some of you think that your own divisions are of more importance to you, and that is only natural, because they deal with matters more closely connected with your particular branch of the industry, but you must remember that there are big national questions, affecting all of us alike, which no division can or wants to handle individually, and which naturally and necessarily must be handled by the full weight of one large representative association. And it is the only way, in fact, which any industry especially in war times, can best be of assistance to the Government, because by concentrating our energies through such an association as this, we can render our best and greatest service.

In the coming year, especially for the duration of the war, I think that this association will have more than served its purpose if it informs, protects and represents the paper and pulp industry in these national questions. We must also keep the paper and pulp industrial balance just the same as the Government should keep the industrial balance for the nation. We can serve the nation best in this way, because it will mean that all mills will be kept running, in so far as possible, and upon a sound financial basis, so as to support the Government in taxes and in direct service. We have already given, as you see by our service flag, 3,618 men, and I think, so far, we have as patriotic Americans accepted our difficulties, which have been many, in an uncomplaining spirit. I feel that this is the best and only spirit in which to work. War conditions naturally make for difficulties which we must accept as our share of the burden.

A Point to Be Heeded

There is one phase of the present industrial situation which not only applies to some of the mills in the association, but to other lines of industry in this country, which should have your consideration. England and France have appreciated this danger and have adequate commissions for dealing with it. I refer in particular to the possibility, and indeed the probability, unless something is done, of the upsetting of our economic and industrial balance. I refer to the tendency of creating essential and non-essential industries, which may become necessary under war conditions, but which should only be done with a proper adjustment and provision for the non-essential industries. Unless this is done, at the conclusion of the war we shall find certain lines of industries in this country overfed, whereas other lines will have been impoverished to a point of ruin. It is an exceedingly difficult task to maintain this balance, and yet in our earnest desire to do everything possible to win this war, we must not lose sight of the fact that when the war is over we shall still have to do business in this country, and we do not want to be confronted by a business depression and upheaval, owing to the balance of economic trade distribution having been made unreasonably disproportionate.

Government Interference

Of course it is necessary that Government departments should oversee industrial developments and activities in this country, and where necessary investigate them, yet I feel that the Government

Rising From the Model Mill



“The Only Economy We Need is of the Products of Nature, chiefly perishables”

When you follow clear through to bed-rock facts, it becomes evident that any other sort of economy will mean defeat and poverty.

In the minds of a great many people, PAPER—all kinds of paper—has become mainly “something to save.” It is branded as a necessary evil, the use of which we should stint and thereby show our patriotism.

What rot! While paper is being skimped and stinted PRODUCTS OF NATURE are perishing. Use more paper. Use paper to save. In practically every walk of life and on every day in the year, the more liberal and judicious use of paper is saving FOOD, STEEL, VALUABLE LABOR, TIME and GOOD COIN OF THE NATION!

Save WITH paper.

This slogan started several months ago—rising from the Model Mill above illustrated. Regarding this mill “Derb” writes—and he meant it—and it is true—

“Honestly, I don’t believe there is a mill a building or a mill standing or a mill in operation on the face of this earth that can or will compare with this mill—”

It was designed and constructed to turn out an ABSOLUTELY PURE AND SPOTLESS paper. It is the cleanest paper mill in the world.

“Papers that save” issue from this mill. Different weights of KALAMAZOO VEGETABLE PARCHMENT PAPER and waxed papers for various purposes.

Write for samples. Ask us to put you on the “Prattler” list.

Kalamazoo Vegetable Parchment Company
KALAMAZOO MICHIGAN

can best turn its attention to greater questions, such as this, than by taking up its time and the time of business men with economic experiments. The business men of this country at the present time are having enough trouble without having any political bodies of the Government, in order to justify their own existence, stir up matters of little or no consequence. The patriotism of the American business man should be too pure and unquestionable to think that at a time like this he would in general, with others, take advantage of any present situations; and, therefore, I think that it is wise for the Government departments to watch out for the future industrial interests of this country, rather than, as in some instances, play the part of truant officers.

How the Government Has Been Helped

So far as the American Paper and Pulp Association is concerned, we have assisted the Government through its various departments in many ways, we are pleased to say, and in all regards have our relations been most pleasant. Never before, however, has the Government acknowledged the necessity of and made use of trade associations as they have under the present conditions. The convincing realization of the desirability of industrial unity has had to be recognized, and I predict that from now on manufacturers will not only want to belong to these trade associations, but as a matter of selfish interest, so to speak, will have to belong, because they can best be recognized by the Government through a trade association. I shall not endeavor here to enumerate the many requests which we have had from the Government for specific and immediate information as regards the industry, but in every one of these cases we have been able to furnish this information immediately, much to the surprise and greatly to the satisfaction of Government departments.

Not Awake to the Situation

As regards business in general, while I do not want to appear as an alarmist, yet I feel that there are altogether too many men in this country who are not fully awake to the situation as it really is. Some accept the plea to American industries to help win the war as patriotic sentiment, but of no vital consequence. I may frankly state that the better informed I become about present conditions the more concerned am I. Our recent senatorial investigations have shown an attempt of departmental heads to gloss over the situation, but there is nothing to be gained by fooling ourselves. Far be it from us to suggest even a word of criticism of the earnest work of the men in Washington, but at the same time there is no need of our putting our heads in the sand. To say that we must not let the truth be known because of its effect in Germany is a joke. With their spy system they doubtless know more about our American industrial situation than we do ourselves. And so I plead with you, as an integral part of American business, to keep wide awake and not try to make your minds more easy by belittling the real task at hand. We want no half-way measures, and we must be whole-heartedly for everything which contributes to win the war. We American business men have our serious, if prosaic, part to perform, as well as our sons in France, and as we expect them to do their full part, so we must do ours. Our activities will contribute just as much as theirs to our victory. And when the final day of reckoning of this war is at hand, may it for us be one of success, and may that success not be less through the American business men having been weighed in the Allied balance and found wanting.

The Spirit of Service and Sacrifice

One of the most inspiring results of our entrance into the war has been the awakening in this country among many of the spirit of service and sacrifice. If we had not gone into the war, gentlemen, I for one feel that it would have been a great calamity for our nation, as we were fast growing falsely prosperous through the hardships and sufferings of others who were fighting our cause. We had long since developed in this country a sense of

selfishness and greed, but now that we are at war, the nobler sentiments of the nation have and must come forth and selfish interests have been annihilated.

When I think of men of the paper and pulp industry all over the United States leaving their offices and their homes, and going either into the service of the army and navy or into the Government departments, with little or no recompense other than the personal satisfaction of helping our nation, it makes me feel proud to be an American, and it makes me feel glad to be a part of the paper and pulp industry, which in many instances is doing all that it can towards meeting this great obligation.

Never has there been a greater opportunity for patriotism than today.

Should Safeguard Business

As I stated previously, the Government should safeguard the business interests of this country, especially for the period after the war, with the same spirit that its citizens are standing behind the Government in prosecuting the war; but in this regard I do not wish to be misunderstood as suggesting that old state of mind of so many citizens that the Government owed them something and that their obligations to the Government were comparatively little. By this awakening of the American business man to national service, I think that we all must be made to realize that, first—we owe our Government our all, and that, second—our Government owes us protection in return. And so may I repeat that to me this vision of patriotism and service which the war has awakened this; nobler aspect of men toward their Government; this purging of our business lives, and this great spirit and desire for co-operation between men in the industrial world and the recognition of such by the Government are among the greatest rewards of this awful sacrifice known as war.

Never before had the nation, individually or industrially, arisen to such heights as at the conclusion of the Civil War. A great tide of all that was best in business and private life swept over the nation during that war and men forgot their petty jealousies and desires, and opened their hearts to service and sacrifice, one for the other and for the nation, but regrettably, all too soon, that sparkling, refreshing tide which filled every crack and crevice of our national life began to recede, leaving behind it rank pools of suspicion, sink holes of greed, and undesirable business practices.

Therefore, gentlemen of the American Paper and Pulp Association, as we have arisen and as we have seen the new light, let us so keep it shining after the war, as now, that to our own credit and to that of the nation, we may reap the great benefits of the present awful conflict in the permanent manifestations of the better and nobler motives, which should ever actuate and permeate every activity of our industrial and national life.

SECRETARY'S REPORT

The executive council and executive committee have held three meetings during the past year.

The membership of the association at the present time is 319 companies.

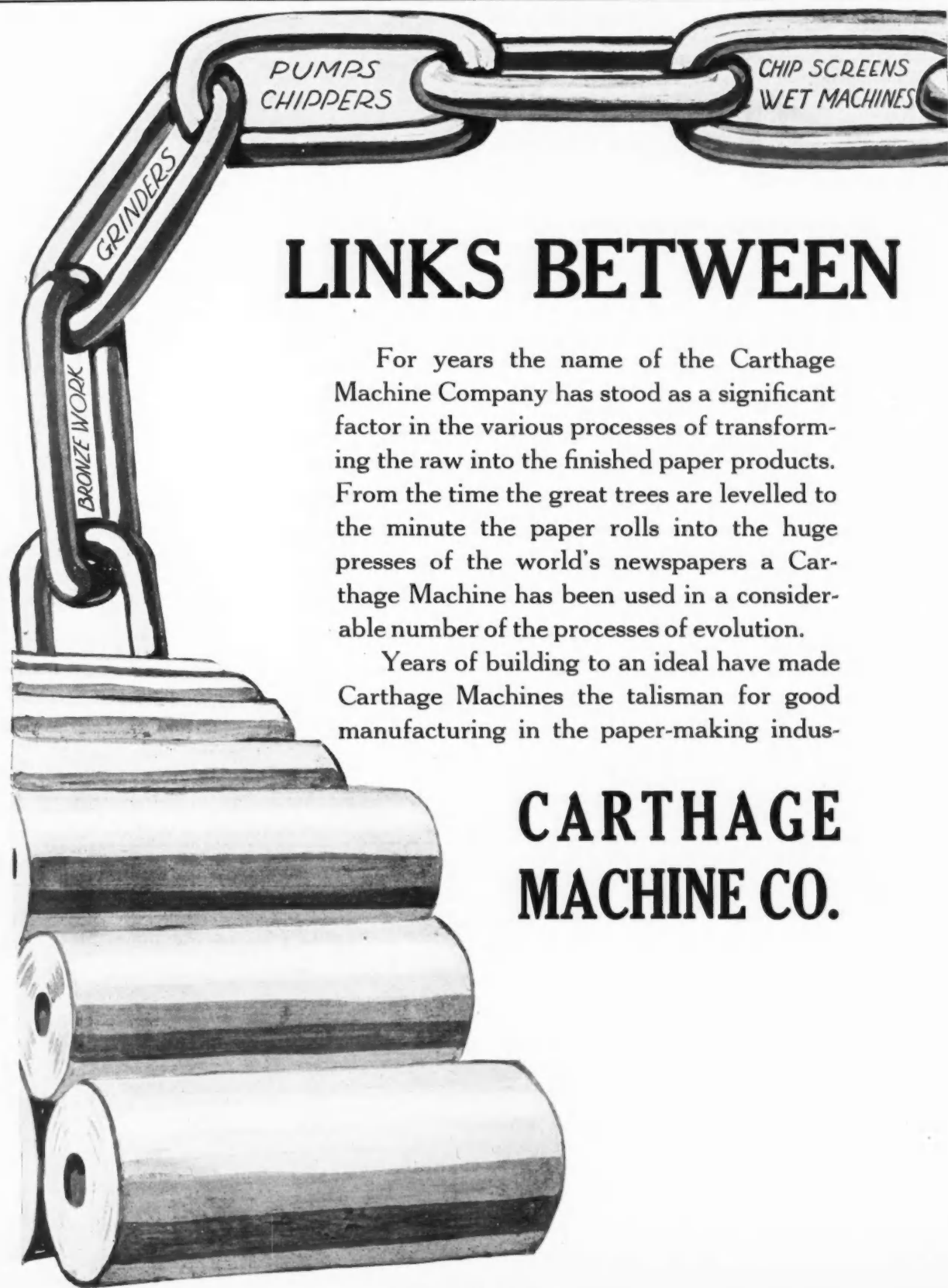
The financial affairs of the association are in excellent condition. There are no unpaid bills or outstanding financial obligation. All dues and assessments for the fiscal year have been paid.

Service

Statistics covering the entire paper and pulp industry are compiled by the association and are kept on file in full detail for the benefit of the members.

Charts covering the various branches of the industry are kept on file for the benefit of members.

The association records monthly information regarding the imports and exports of paper and pulp.



LINKS BETWEEN

For years the name of the Carthage Machine Company has stood as a significant factor in the various processes of transforming the raw into the finished paper products. From the time the great trees are levelled to the minute the paper rolls into the huge presses of the world's newspapers a Carthage Machine has been used in a considerable number of the processes of evolution.

Years of building to an ideal have made Carthage Machines the talisman for good manufacturing in the paper-making indus-

CARTHAGE MACHINE CO.



FOREST and PAPER

try. Increased quality of product and economy of output are the strongest features of CARTHAGE fame—and a brief analysis of the salient features of CARTHAGE superiority over all others as shown by our catalog will quickly convince you that it would be much to your advantage to harness CARTHAGE efficiency to your plant.

Write us today for our comprehensive bulletin and list of Carthage Machine users, which will be ready soon.

**CARTHAGE,
NEW YORK**

HENRY ATTERBURY, President

JOHN A. HOWARD, Vice-Pres. and Treas.

H. E. ATTERBURY, Secretary

ATTERBURY BROS., Inc.

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52 Avenue Jean-Jaures

BUENOS AIRES

2976 Calle 15 de Noviembre

RAGS CASEINE
WOOD PULP

American Bleached Sulphite

of Highest Quality

Bulletins

The association issues a bulletin each week.

These bulletins are carefully prepared and contain information with regard to the work of the association, the general business conditions, the pulp situation, information regarding the war situation at Washington, import information, and matters of general interest to the members.

Circulars

During the past year the association has issued 1,392 circulars and reports, of which 161 were issued for the general association and 1,231 for the various divisions and affiliated associations.

Information Bureau

The association maintains an information bureau of general facts about the entire paper and pulp industry.

The secretary has received during the past year from members and others 834 requests for various information on general subjects of the paper and pulp industry, which requests have been given careful attention and answered.

Labor Bureau

The association maintains a labor bureau. During the past year the association has received 71 applications for positions and has furnished 39 manufacturers with lists of available men.

Import and Export Information

The association furnished to members the following reports regarding imports and exports:

Weekly table showing the imports of pulp and paper making materials at the five Atlantic ports.

Monthly comparative statement of the imports of print paper.

Monthly comparative statement of the imports of wrapping paper.

Monthly comparative statement of the imports of pulp.

Annual comparative statement of imports of wrapping paper for the last six months, 1914 to 1916, inclusive.

Annual comparative statement of the imports of print paper for the years 1910 to 1916, inclusive.

Annual comparative statement of the imports of pulp for the years 1910 to 1916, inclusive.

Monthly reports of exports of paper and pulp by countries of destination.

The association has also furnished various statements of the imports and exports of paper and pulp to members upon special request.

Through the efforts of the association the bureau of foreign and domestic commerce has been prevailed upon to change several of the classifications of paper and pulp in their monthly import and export reports, so as to show the various classes of paper and pulp more in detail.

Export Trade

The association has been working with the bureau of foreign and domestic commerce, Washington, D. C., in the matter of the development of export trade, particularly with South American countries.

At the request of this association the Department of Commerce appointed a representative to visit the South American countries for the purpose of investigating the paper conditions.

This representative has now returned to the United States and his reports covering the conditions in the various South American countries will shortly be issued, and members will be advised so that in case they desire copies of each publication they can be secured.

This representative also secured samples of paper from the various South American countries and, as soon as assorted, will be kept on file in the association rooms.

Export Conference

An export conference under the auspices of the American Paper

and Pulp Association was held at Springfield, Mass., on June 25, 1917, in connection with the industrial exposition and export conference of the Eastern States Agricultural and Industrial Exposition.

The following speakers addressed the meeting:

James Logan, "South America."

D. F. McIntosh, "How to Export Paper."

H. C. Lewis, "What of the Paper Export After the War?"

Hon. C. F. Moore, "The Purpose of the Webb Bill."

A large number of paper and pulp manufacturers attended the meeting.

Cost Accounting

The association has been giving careful attention to the question of cost accounting in paper and pulp mills and, through the efforts of its cost committee, has developed a great interest in proper methods of cost accounting among the various mills.

Cost Bureau

A permanent cost bureau has been established with B. A. Franklin as chairman.

This bureau has rendered valuable assistance to the various branches of the industry in establishing suitable cost systems.

Cost Section

The cost committee of the Association, after careful consideration, decided that the best way to develop the cost work in the industry was to form a cost section, and hold several cost conventions each year, thus permitting the cost men in the mills to meet for general discussion.

The first convention was held in New York City on November 15, 1917, and a large number of mills were represented. A permanent cost section of the American Paper and Pulp Association was formed, the following officers being elected:

B. A. Franklin, president; S. S. Rogers, vice-president; A. D. Naylor, secretary. Executive committee: B. A. Franklin, S. S. Rogers, Grant Fairbanks, F. L. Willis, Roger D. Smith.

Several cost conventions will be held during the next year and most satisfactory results are anticipated.

Government Requests

Since this country entered the war the association has received 56 requests from the various departments of the Federal Government requesting assistance and information.

All of these requests have been given prompt attention.

War Service Departments

The secretary of the association has kept in close personal touch with the Council of National Defense and the other war service departments of the United States Government at Washington, making frequent calls upon them both voluntarily and by request, and has endeavored to see that the interests of the paper and pulp industry were fully protected and has offered the services of the war service committee of the association to the various departments.

A list of the members of the war service committee is on file with each department of the Government at Washington, and notice has been given that the committee stands ready to act immediately upon call.

The secretary of the association has been in Washington 25 days in all since the declaration of war in the interests of the paper and pulp industry.

It is impossible to go into detail as to the work of the association in connection with the war service departments and the situation in Washington, but members may feel assured that their interests are being closely watched.

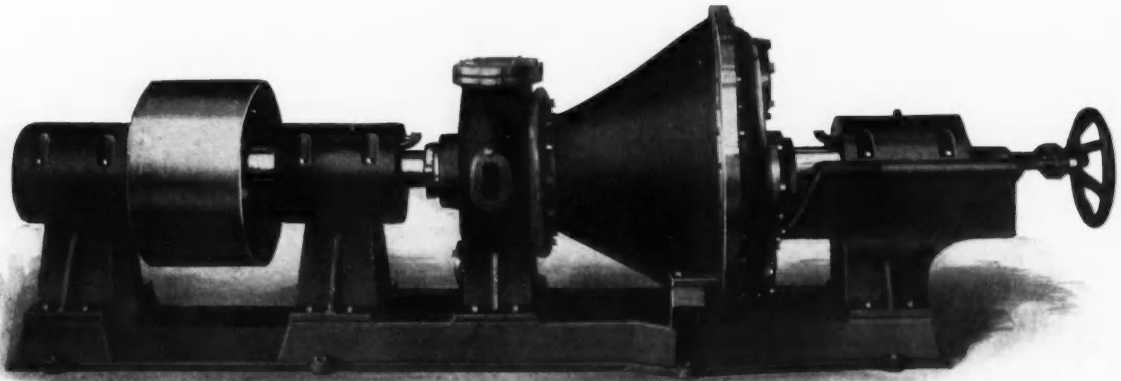
The association has endeavored to keep the members fully advised by circulars as to the situation.

Save Power, Save on First Cost, Save Floor Space

BY USING

CLAFLIN

Continuous Beaters



Three Claflin Continuous Beaters will handle as much stock as any six Tub Beaters and will cost one-third less. Further, they will occupy one-fourth the floor space.

For an Increased Production—Greater Economy
A Finer—More Uniform Pulp

The Claflin Continuous Beater will more than satisfy you. We have many customers, who prefer our Continuous Beaters to Jordan engines, because the fillings never break or tear out, and they obtain a better product than from a Jordan.

If you manufacture Kraft paper, and are having trouble with tub-beaters, Jordans and other refining engines, write us for special information on Kraft stock.

The Claflin Engineering Co.
LANCASTER, OHIO

The Canadian Fairbanks-Morse Co.—Agents for The Dominion of Canada

Council of National Defense

At the request of the Council of National Defense and the Department of Commerce, this association appointed a War service committee, to work with the various departments of the Government and council in matters pertaining to the war.

The personnel of the committee is:

A. B. Daniels, chairman; Allison Dodd, W. J. Eisner, A. W. Esleeck, W. A. Forman, R. B. Harbison, F. S. Harrison, Phillips Kimball, C. W. Lyman, M. E. Marcuse, G. F. Merriam, F. L. Moore, L. E. Nash, A. D. Naylor, J. C. Schmidt, D. A. Smith, F. L. Stevens, B. A. Van Winkle.

Classification of Industries

During the past year a great many reports have been circulated regarding the possible classification of industries by the Council of National Defense into essential and non-essential groups.

The secretary of the association has followed the situation carefully, conferring frequently with the director of the Council of National Defense and the representatives of other war service departments in order that the interests of the paper and pulp industry would be protected in the event of such classification being made.

Board of Economy

The secretary called upon A. W. Shaw, chairman of the board of economy of the Council of National Defense with regard to the reported action of that department in the matter of economies considered possible in the paper industry.

The chairman agreed to take no action in these matters without first conferring with the officers of this association.

Bureau of Investigation and Research

The association has furnished the chief of the bureau of investigation and research of the Council of National Defense with information requested as to exports and imports and other facts regarding the paper and pulp industry.

Food Administration

The secretary has held four conferences with representatives of the Food Administration with regard to the conservation of foodstuffs and the uses of different grades of paper in connection therewith.

At the request of the secretary of the Department of Commerce and the United States Food Administrator, the association assisted in giving the conservation of food full publicity, sending to members suggestions from these Departments as to the means of accomplishing the results desired.

Fuel Administration

The association has kept in touch with the situation as to the shortage of coal and the action contemplated by the Fuel Administration as reported at various times.

On account of the seriousness of the situation and the desire expressed by the Fuel Administrator that industry offer suggestions for relieving the existing conditions the council of the association at a meeting in New York City on January 16, adopted the following resolution:

WHEREAS, A condition exists upon the railroads of the United States, which jeopardizes the welfare of our country and if not immediately relieved will have a serious bearing upon the nation's effectiveness in winning the war, and

WHEREAS, Great exigencies require drastic, effective and immediate remedies,

RESOLVED, That an industrial moratorium of at least two weeks should be declared and that during such moratorium all and every industrial plant in the country of whatever nature be absolutely prohibited from manufacturing and from delivering freight to any railroad, and further be it

RESOLVED, That no inadequate palliative measures, such as

the curtailing of production one day a week will effect any immediate relief.

RESOLVED, That the executive council of the American Paper and Pulp Association is in full sympathy with such effective remedy as above suggested if applied to all the industries of the country without discrimination.

RESOLVED, That a copy of the above resolution be forwarded to the President of the United States, the Director-General of Railroads, and the Fuel Administrator at Washington, D. C.

War Trade Board

The secretary of the association by request conferred with the representatives of the War Trade Board and furnished information desired regarding imports and exports of paper and pulp.

Federal Trade Commission

The association was represented at the hearings of the Federal Trade Commission on questions of interest to the paper and pulp industry.

Tariff Commission

The association was represented at the hearings of the United States Tariff Commission held in New York City on November 5 and 8, to consider suggested changes in the Customs Administrative Laws.

Department of Commerce

The secretary of the association has kept in close touch with the Department of Commerce, and has succeeded in securing various changes and decisions of benefit to the paper and pulp industry.

Government Supplies

The association received a request from the officer in charge of the medical supply depot, United States Army, for assistance in securing paper supplies for the medical department of the army.

A complete list of the supplies necessary was secured and sent to manufacturers making the grades. The department later advised that their requirement had been supplied and expressed appreciation of our efforts.

The association arranged with the bureau of supplies and accounts, Navy Department, to receive copies of the requests for supplies sent out by the department.

In each case where paper supplies were required notice was sent to the manufacturers in the branch of the industry manufacturing same.

Conservation of Paper

During the past year considerable publicity has been given to the question of the conservation of paper. The secretary of the association has kept close watch of the situation and has endeavored whenever such efforts were made to offset same.

Webb-Pomerene Bill

The Webb-Pomerene bill, known as Senate Bill No. 634, introduced by Senator Webb, which permits co-operation among manufacturers in the United States for the development of foreign trade, has been under consideration by Congress during the past year.

The association has urged the various senators and representatives to pass this bill in order to permit of the development of our foreign trade.

The bill passed the House on June 13, 1917, and the Senate on December 12, 1917, and will probably be finally enacted into law during the present session of Congress.

The association also sent a circular to all members regarding the bill for their individual action.

Senate Joint Resolution No. 101

Senate Joint Resolution No. 101 was introduced in the United States Senate by Senator Smith of Arizona on October 5, 1917. This resolution authorized and empowered the Federal Trade

FLOWER CITY TISSUE MILLS COMPANY

ROCHESTER, NEW YORK

Rochester Mill

B. R. & P. RY. SIDING

One Harper Fourdrinier
Tissue Machine, trimming
74 inches.

Ontario Grass Bleached
Silver Tissue.

Ontario White Tissue.

Special White Tissue.

Special White Tissue.

F. C. Manila Tissue.

Also specialties
in weight from 24 x 36
10 lbs., 480 to 24 x 36 20
lbs. 480, rolls or sheets.

Scottsville Monroe County Mill

PENNA. R. R. SIDING

One Two-Mould Downing-
town Cylinder Machine,
trimming 81 inches.

Hardware wrappings.

Tag Board 07 to 015 point.

Folder Stock.

This Mill started about Jan.
1st, 1918 and entire line we
plan to manufacture, is not
complete as yet.

Weights we can manufacture
range from 24 x 36 75 lbs. to
24 x 36 200 lbs. 480.
or from 007 to 015 point.

Address all Communications to the Rochester Office

Commission to supervise, control and regulate the production and distribution of print paper and mechanical and chemical pulp in the United States.

This resolution, in amended form, which authorized the President when necessary to direct the Federal Trade Commission to supervise, control and regulate the production and distribution of print paper and mechanical and chemical pulp and their products in the United States, was called before the Senate by Senator Smith on January 8, 1918.

The association has kept in close touch with this bill and upon the same being brought up for discussion on January 8, immediately telegraphed paper and pulp manufacturers in all the paper and pulp making States in the United States, suggesting that they file vigorous protests with their United States senators against the passage of the bill. The bill was voted on January 15, and was defeated.

War Revenue Bill

During the consideration of the War Revenue bill by Congress the association closely followed the various features of the bill and took necessary action in connection therewith.

The association also kept the members informed regarding the various features of this bill, sending them explanatory circulars and publications treating with the different provisions of same.

Revenue Bill H. R. 20573

In connection with Revenue Bill H. R. 20573, the association wired the various United States senators protesting against the excess profits tax as follows:

"We wish to protest against the adoption by Congress of the excess profits tax provided by House Bill No. 20573, as being discriminatory and unjust and urge a more equitable basis of taxation."

(Signed) A. B. DANIELS, *President*,
American Paper and Pulp Association.

The association also approved the resolution adopted at the annual meeting of the Chamber of Commerce, U. S. A., held in Washington, February 1 and 2, 1917, protesting against the passage of this measure.

War Revenue Bill H. R. 4280

In connection with the War Revenue Bill H. R. 4280, the association sent the following protest to the committee on finance of the Senate of the United States:

"The American Paper and Pulp Association, the national organization of the paper and pulp industry in the United States, desires to call your attention to the petition submitted to your honorable committee by the National Industrial Conference Board, respecting War Revenue Bill H. R. 4280.

"We respectfully urge:

"1. The elimination of the so-called 'Jones Amendment,' beginning with line 24, page 107, to line 17, page 109, of H. R. 4280, as reported by your honorable committee to the Senate under date of July 3, 1917.

"2. The modification of the pre-war standard proposed as the basis of ascertaining war excess profits in the manner set forth in the petition of the National Industrial Conference Board."

The attention of the members was also called to these features of the bill with the request that they write the finance committee of the United States Senate expressing their views on the questions.

H. R. Bill 3673

In connection with H. R. Bill 3673, and the amendment proposed by Senator Hardwick to permit bankers to charge collection on checks, the association wired the various United States senators and representatives, protesting against the passage of this bill.

New York Senate Bill No. 69

The association called the attention of the New York State

manufacturers to Senate Bill No. 69, regarding compulsory health insurance, and F. L. Moore vice-president, made the necessary protest upon behalf of the paper and pulp manufacturers in the State.

Child Labor Act

The Federal child labor act was passed by Congress, September 1, 1916, and became effective September 1, 1917.

As this law affected every mill in any State and territory of the United States and the District of Columbia and manufacturers generally were not familiar with it or the exact provisions, a copy of the act was sent to every member of the association with suggestions as to the full application of same.

British Embargo on Exportation of Sizing Stock

The association requested the Department of State at Washington to use its efforts to have the British Government raise its embargo preventing the exportation to this country of hide cuttings and other sizing stock.

The State Department instructed the American Ambassador at London to support the application of our British correspondents for permission to export these goods.

Shortage of Clay

At the request of some of our members, the association requested the Department of State at Washington to use its efforts to have the British Government continue operation of the clay industries in that country. The State Department made necessary representations to the British Government.

Traffic

While the association does not maintain a traffic department and cannot, on account of the nature of its organization, handle traffic matters, it has, through its secretary, endeavored to keep in touch with all rate matters of interest, so as to keep members fully informed.

The secretary of the association has attended various traffic meetings during the past year and has rendered every assistance possible in connection with the work. The secretary was present at Washington on April 26, at a meeting of paper traffic managers at which time the question of the proposed general increase in freight rates was considered.

The secretary, as a member of the committee, appointed by the gummed paper manufacturers, appeared before the official classification committee and protested against the proposed change in the classification of gummed tape, resulting in the proposed change being postponed indefinitely.

The secretary of the association has answered a great many inquiries from members regarding traffic matters.

Freight Congestion

At the request of the Secretary of Commerce and the Railroad War Board, the association forwarded frequently to members suggestions as to promptly loading and unloading of cars in order to relieve the freight congestion.

National Industrial Conference Board

The association is a member of the National Industrial Conference Board. A. B. Daniels and C. A. Crocker were appointed by the executive council to represent the association on the board.

The National Industrial Conference Board is composed of 17 leading associations of manufacturers, and also a number of industrial concerns, several of them being members of this organization. The purpose of the board is to secure close co-operation and joint action in all national matters of interest to the manufacturing industries.

The board has held eleven meetings during the past fiscal year, which were attended by either Mr. Daniels or Mr. Crocker, or both.

The secretary represented the association at an important conference at Washington between the National Industrial Conference

Bardeen Paper Co.
OTSEGO, MICHIGAN

Manufacturers of

Printing

Papers

of Merit

Coated and Uncoated Book and Label
Opaque Catalog, French Folio,
Mimeograph

Pasted and Coated Blanks
Post Card and Translucent
Offset Blanks Offset Bristol

Board and the Council of National Defense, when the board presented a plan to prevent interruption, by labor disputes, of production essential to war.

The secretary, during the past year attended two meetings of the secretaries of the member associations of the board in connection with important work that was being considered.

Chamber of Commerce of the United States of America

The association maintains a membership in the Chamber of Commerce of the United States of America, Washington, D. C., and through its special committee works with the chamber in all matters of national importance.

Referenda

The association, through its special committee, has voted on the following referenda of the Chamber of Commerce of the United States of America:

No. 19—Report of railroad committee on the prevention of strikes and lockouts.

No. 20—Financing the war.

No. 21—Railroad regulation.

War Convention

At the war convention, held under the auspices of the Chamber of Commerce of the United States of America at Atlantic City, September 17 to 21, inclusive, 1917, the association was represented by the following special committee:

B. A. Franklin, chairman; F. S. Harrison, H. W. Stokes, A. D. Naylor.

Matters of importance in connection with the conduct of the war were considered at this convention.

War Service Conference

A war service conference, under the auspices of the Chamber of Commerce of the United States of America was held at Washington, D. C., on December 12, 1917.

A representative from each industrial war service committee was invited to be present at this conference, the purpose being to discuss ways and means of assisting the Government in the conduct of the war.

The secretary of the association attended this meeting.

Publicity

Through the efforts of the association and the Chamber of Commerce, United States of America, arrangements were made with the Council of National Defense for a single definite policy among the various war service departments with respect to statements given to the public.

Vocational Schools

The association has kept in touch with the various vocational schools with a view of securing employment for students in paper and pulp mills.

National Safety Council

The association is a member of the National Safety Council and has assisted the officers of the paper and pulp sections in the development of the work and increasing the membership of the section. At the present time the membership of the section numbers 164 companies.

The association was represented and assisted with the meeting of the paper and pulp section, held in connection with the National Safety Council in New York City on September 12, 13 and 14, 1917.

Technical Association

The association was represented at the meetings of the Technical Association, held at Neenah, Wis., May 24 and 25, and at Holyoke, Mass., September 27 and 28, 1917.

The American Paper and Pulp Association works in close harmony with the Technical Association, and endeavors to assist in every way possible in the development of the work of this important branch.

National Fire Protection Association

The association is a member of the National Fire Protection Association, and assists in bringing their suggestions for fire protection before the manufacturers in the paper and pulp industry.

New Associations

During the past year the Gummed Paper Manufacturers Association has affiliated with the American Paper and Pulp Association.

Babson Statistical Organization

The association subscribes for the service of the Babson Statistical organization. Under the arrangement made, members of the association who subscribe for this service receive a discount of 25 per cent from the regular rates. This created a saving during the past year for subscribing members of \$1,037.25.

Proudfoot's Commercial Agency

The association maintains a membership with Proudfoot's Commercial Agency. During the past year, 33 reports have been received through this source for inquiring members.

Library

A library is maintained in the association rooms in which are filed all publications of interest to the paper and pulp manufacturers.

During the past year, 196 publications have been added to the library.

Periodicals

The association subscribes for 29 magazines and periodicals for the benefit of the various secretaries and members.

Meetings in Association Rooms

During the past year 59 meetings have been held in the rooms of the general association in New York City.

Calls by Secretary

The secretary of the association has made 72 calls upon members during the past year.

Calls on Secretary

During the past year 304 members have called at the association rooms.

Meetings Attended by Secretary

The secretary of the association during the past year has attended 76 meetings on matters of interest to the paper and pulp industry.

Some of the Important Circulars Sent Members

Pamphlet issued by the National Industrial Conference Board, "Petition to the Senate of the United States respecting War Revenue Bill H. R. 4280."

Pamphlet giving a synopsis of the war tax law and the text of same.

Summary of report on "Workmen's Compensation Acts in the United States. The Legal Phase."

Copy of the petition prepared by the National Industrial Conference Board to the finance committee of the Senate of the United States respecting War Revenue Bill H. R. 4280.

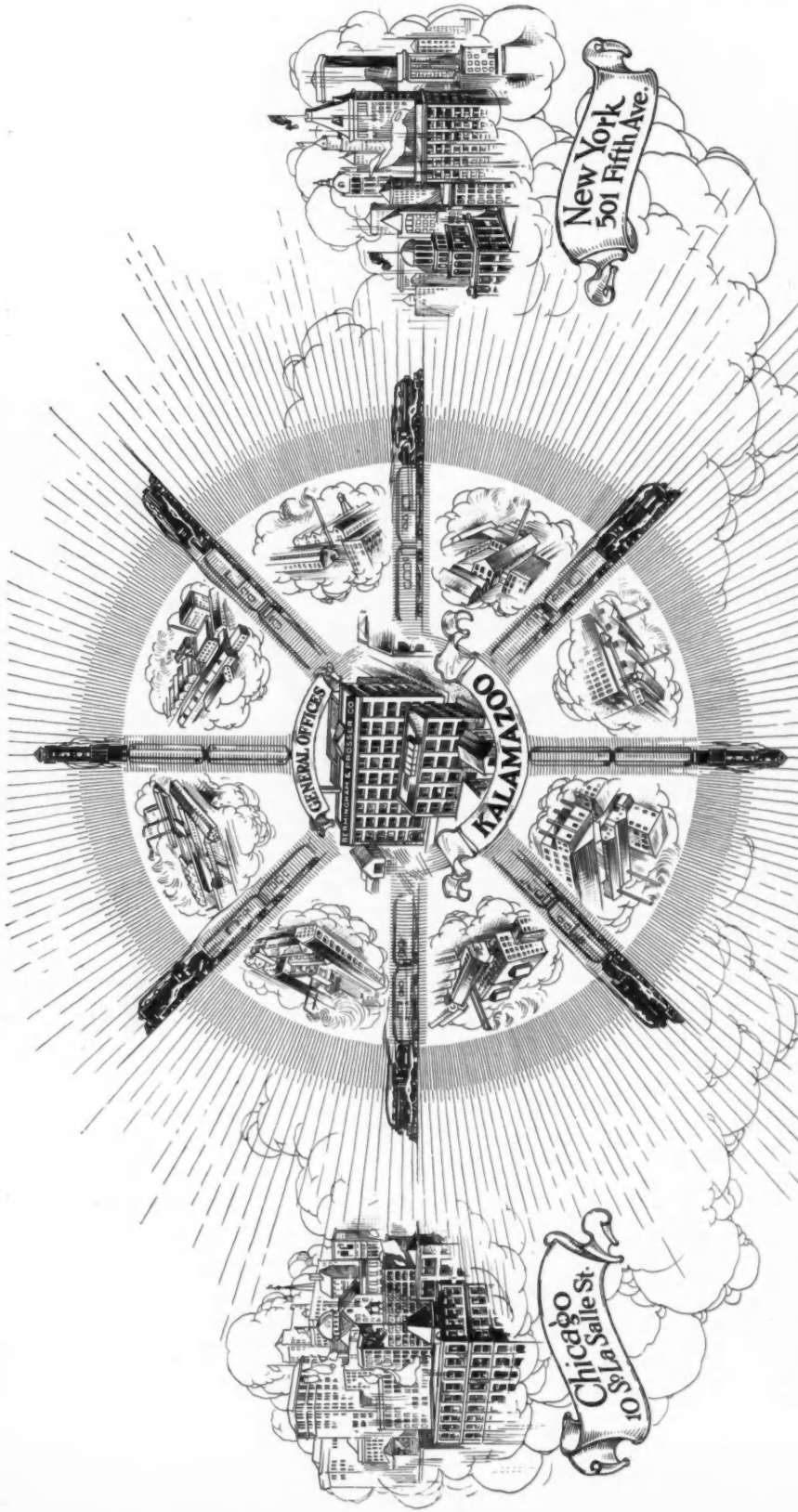
Pamphlet issued by The National Founders Association, entitled, "Closed Shop Unionism."

Pamphlet on "Wartime Industrial Problems in Great Britain." Report issued by the Chamber of Commerce, United States of America, on "War Pay Rolls."

Pamphlet describing the purposes and scope of the work of the National Industrial Conference Board.

Copy of the "Federal Child Labor Act," with rules and regulations for the enforcement of same.

Report of the National Industrial Conference Board regarding the conference between manufacturers and the special commission from the British Ministry of Munitions, headed by Sir Stevenson Kent.



We are located in the heart of the greatest paper-making center in the world and are ready at all times to render service such as can be had only through an organization located as we are.

Birmingham and Prosser Co.

Paper Manufacturers

KALAMAZOO, MICHIGAN

10 So. La Salle St.
CHICAGO

501 Fifth Avenue
NEW YORK

Report of the committee of the Technical Association on "Paper Testing."

Sent to all members as issued, circulars from the Railroad War Board, giving the situation on the railroads as to car shortages, etc., with their suggestions as to loading and unloading of cars to insure more prompt movement.

Analysis of British war time reports on hours of work as related to output and fatigue.

Sent to members weekly circulars issued by the Chamber of Commerce on conservation in the use of coal.

Report of the Chamber of Commerce on war convention, held at Atlantic City, September 18-21, 1917.

Report on war service conference, held at Washington, D. C., December 12, 1917.

Report of cost convention, held in New York City, November 15, 1917.

Circular issued by the Department of Labor on mobilization of workers.

Circular giving information regarding the Webb bill on combinations for export with the status of same in Congress.

Report of the Technical Association on "Determining the Strength of Pulp."

Circular regarding the reported classification of industries by the Government into essential and non-essential groups.

Sent to members at the request of the Treasury Department, circulars urging full co-operation in connection with the two Liberty Loan campaigns.

Sent to members at the request of the Treasury Department, circular urging manufacturers to assist in the sale of War Savings Stamps.

Copy of statement of the National Industrial Conference Board respecting national labor situation and recommendations of means for preventing interruption by labor disputes of necessary war production, made by invitation to the Council of National Defense.

Condensed account of the proceedings of the annual convention of the American Federation of Labor at its annual convention held at Buffalo, N. Y., November 12-24, 1917, as covering matters of special interest to manufacturers.

Circular to members regarding Senate Joint Resolution Number 101, the provisions of which empowered the Federal Trade Commission to supervise control and regulate the production and distribution of print paper and mechanical and chemical pulp and their products in the United States.

Circular regarding representation in Washington and the appointment by the association of a war service committee.

Respectfully submitted,

A. D. NAYLOR,
Secretary-Treasurer.

A. B. DANIELS,
President.

RESOLUTIONS

War Resolution

The following resolutions were passed by American Paper and Pulp Association:

WHEREAS, The people of the United States, in defense of the Republic and the principles upon which this nation was founded, are now taking their part in the world war with no lust for power and no thought of financial or territorial gain.

WHEREAS, The issues at stake in this stupendous struggle involve the moral ideals and conceptions of justice and liberty for which our forefathers fought, the protection of the innocent and helpless, the sanctity of womanhood and home, freedom of opportunity for all men and the assurance of the safety of civilization and progress to all nations great and small.

WHEREAS, Speed of production and the mobilization of all our national power are essential to victory and mean the saving of human life, an earlier ending of the designs of autocracy and

militarism and the return to the peoples of the earth of peace and happiness.

BE IT RESOLVED, That undismayed at the prospects of great taxes, the American Paper and Pulp Association without hesitation pledges our Government its full and unqualified support in the prosecution of the war until Prussianism is utterly destroyed.

Co-operation for Export Trade

WHEREAS, Conditions in international trade will be extraordinary after the close of the European war, and

WHEREAS, It has now been definitely established by an investigation and report of the Federal Trade Commission that before the present war American exporters were placed at great disadvantage in foreign markets by reason of the fact that under our laws they could not co-operate in export trade, and

WHEREAS, Individually they met combined competition from manufacturers and exporters of other nations, and

WHEREAS, A bill giving express permission to Americans to co-operate for export trade on condition that such permission shall not affect restraints now imposed on domestic trade, has passed the House of Representatives and the Senate by an overwhelming majority; now, therefore,

BE IT RESOLVED, That the American Paper & Pulp Association reiterates its earlier expressions concerning the great importance of such legislation to the welfare of American industry and trade.

Military Roads

WHEREAS, It is essential that all the transportation facilities of the nation should be brought to the highest state of efficiency in order that foodstuffs may be moved most economically from the farm to the market, that manufactured products be moved at the lowest cost from the factory to the consumer, and,

WHEREAS, The public highways offer a good, prompt and economical means of supplement transportation by rail and water, therefore, be it

RESOLVED, That the prompt improvement of our public highways is important and should be forwarded in every proper way.

Foreign Exchange

WHEREAS, the foreign trade of the United States for the last fiscal year shows a balance in favor of this country of nearly \$4,000,000,000, and,

WHEREAS, loans to our Allies greatly exceed our "favorable balance of trade," and,

WHEREAS, the continuance of any set of conditions which tend to curtail imports because imports represent the only form of cash payment which our entire foreign trade is yielding, and,

WHEREAS, high foreign exchange premiums penalize imports and tend indirectly to increase the enormous inflationary debit balance which the nation is rolling up against the future in the form of foreign loans, and,

WHEREAS, the advances to our Allies are now proving a boom-crang leading to the depreciation of the American dollar in foreign markets, because of lack of governmental regulation, and,

WHEREAS, All our Allies are now taking every step necessary to protect their own currencies abroad, and

WHEREAS, the American dollar is now at a discount of from 3 to 20 per cent in neutral foreign countries; be it

RESOLVED, That the United States Government, through its proper departments, take whatever action may be necessary to keep at parity the American dollar in every country of the world.

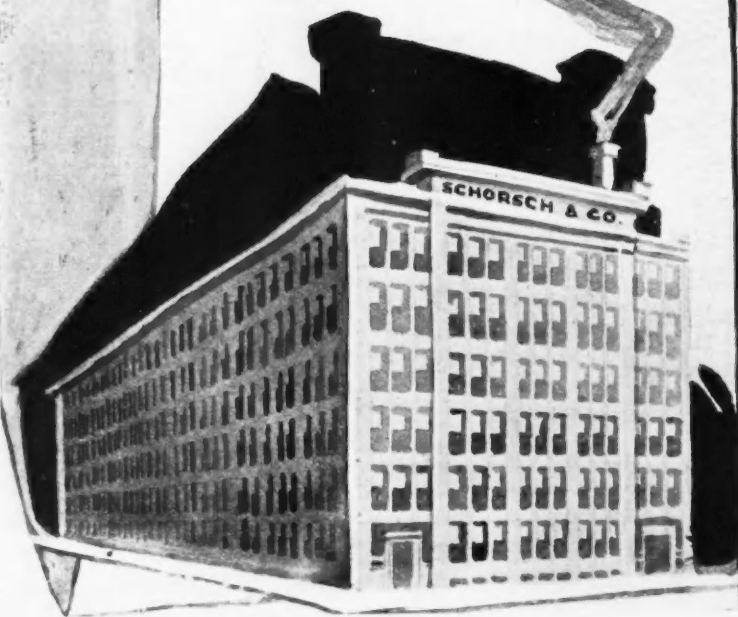
Rehabilitation

WHEREAS, new conditions, due to the war are continually arising both economic and social, and,

WHEREAS, while men, money, munitions and ships are rapidly being called for and are now being prepared, and,

WHEREAS, Congress has now under consideration a plan of

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Quick Opening Bags
Square and Flat Bags
Satchel Bottom Bags
Millinery & Notion Bags
Candy & Glassine Bags
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Specialties

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New York, N.Y.

insurance for the benefit of families for those who may give up their lives for their country, and

WHEREAS, the War Department now plans to instruct in some new vocation those who return to their homes, either crippled or blind, therefore, be it

RESOLVED, That the American Paper and Pulp Association instructs its officers through a proper committee to take up with each association and Chamber of Commerce members of the National Chamber, a plan of employment for such unfortunate heroes in order that this nation may offer a means of support to them, and through a referendum ascertain as near as possible the number for whom places may be secured, and,

WHEREAS, in many states employers liability laws might work a hardship on or present difficulties to employers who might desire to aid in this great work of rehabilitation; therefore, be it

RESOLVED, That this phase of the question be referred to the Legislative Committee of the American Paper and Pulp Association.

Federal Income Tax

WHEREAS, the Federal Income Tax and Excess Profits Taxes will be due and payable on June 15, 1918, and,

WHEREAS, the payment of such a huge sum, estimated to be in excess of \$2,000,000,000 in currency or by bank checks, except where payment is made with United States Treasury Certificates of Indebtedness—within a short period of time would occasion an unprecedented strain on the banks and money markets of the country, and seriously interfere with the next issue of Liberty Loan Bonds, therefore, be it

RESOLVED, That the American Paper and Pulp Association does unanimously recommend that the Federal Income and Excess Profits Tax Law be so amended as to permit the payment of the Income Tax and Excess Profits Tax in quarterly installments, as follows:

The first on March 31st.

The second on June 30th.

The third on September 30th.

The fourth on December 31st.

and, be it further

RESOLVED, That the members of this association be urged to communicate with their Congressman, Senators, bankers and others, to the end that the aforesaid amendment may be affected at an early date.

National Conservation

WHEREAS, the American Paper and Pulp Association is interested in the conservation of our forests and the proper utilization of our waterpowers; therefore, be it

RESOLVED, That we favor a conservation policy adequate for our economic needs supplemented by investigation and educational work on the part of the Federal and State governments in aid and encouragement of a wise and proper utilization of our national resources, and we reaffirm our policy of co-operation for the advancement of these policies and for the proper recognition of public and private rights.

Necrology

BE IT RESOLVED, That this association most deeply deplores the loss which it has sustained through the deaths of

John Boswell.

Hon. Neal Brown.

Zenas Crane.

Henry Gardner Chapin.

Joseph L. Fieweger.

John Gaunt Haviland.

Thomas E. Nash.

H. W. Nehr.

George Henry Parks.

Thomas Pearson.

William S. Rogers.

Iver J. Terp.

James Boyd Potter.

Appreciation of Mr. A. B. Daniels

WHEREAS, Mr. A. B. Daniels, at considerable personal sacrifice, has for the past two years most faithfully discharged the duties of our president, and,

WHEREAS, for such service he has received absolutely no compensation other than the consciousness of serving well his fellow manufacturers, therefore, be it

RESOLVED, That the members of the American Paper and Pulp Association do hereby express to Mr. Daniels their deep appreciation of his generous service, and his unswerving devotion to the interests of the industry.

Appreciation of Mr. A. D. Naylor

WHEREAS, during the unsettled conditions of the past year, Mr. A. D. Naylor as secretary of the American Paper and Pulp Association has so efficiently and faithfully performed his duties and has so carefully watched out for the interests of the association, therefore, be it

RESOLVED, That the members of the American Paper and Pulp Association do hereby express to Mr. Naylor their appreciation of his successful service.

Speakers

WHEREAS, the speakers for this annual meeting and annual banquet of the American Paper and Pulp Association have been so generous and kind as to address us here assembled, therefore, be it

RESOLVED, That the American Paper and Pulp Association in convention assembled, extend to each our hearty thanks and appreciation.

NEWS OF THE TRADE IN WESTERN NEW YORK

This week, probably Thursday, the Falls plant of the International Paper Company at Niagara Falls, N. Y., will be closed down. All the stock on hand will be made into paper by that time, it is said. The work of installing machinery to make ferro-silicon is being rushed. It will probably be two months before the manufacture of the war material will be started. More than 200 men will be thrown out of work this week. Many of the expert paper-makers will be sent to other International plants. About 40 men will be needed to make ferro-silicon.

The Lockport Light, Heat and Power company which shut down because of failure to get power has started up again and the United Paper Board Company is again in operation in Lockport. The power company is furnishing the paper board and other companies with about 80 per cent. of its usual amount of power, the service being reduced by the national power administrator.

Evidence was taken in the United States court in Buffalo last Thursday in the case of the United Paper Board Company of Lockport against the Hydraulic Race Company of Lockport. The Hydraulic company cancelled its contract with the paperboard company early last year. It is said that the Hydraulic company planned to use the ground on which the paper company has a pulp mill for a big new industry. The paperboard company claims the Hydraulic company had no legal right to cancel its power contract. The hearing will be continued at the next term of the United States Court.

ANNUAL REPORT OF INTERNATIONAL EXPECTED

The annual report of the International Paper Company is expected about this time, and, judging from the action of the common stock, which during the past week jumped four points on a turnover of 20,900 shares, it will show the company's financial position to be very favorable.

The "Hamilton" Felt



Durable, uniform and reliable and consequently economical to use.

Pioneer Manufacturers of
American Felts

FOR PAPER MAKERS' USE

SATISFACTION GUARANTEED

A TRIAL IS INVITED

Shuler & Benninghofen

HAMILTON, OHIO,
U. S. A.

Safety Movement in the Paper Industry

National Safety Council Was Brought Into Being by Recognition of the Need of Co-operation in Safety Work—This Manifested Itself in the Formation of the National Safety Council, the Growth of Which in the Past Five Years Has Been Surprising—Results Obtainable from Organized Safety Work—Matter Especially Now of Great Moment to Industry.

Read at the Meeting of American Paper & Pulp Association by David Van Schaak.

The fast increasing opportunities of addressing the representative men of one or another great branch of industry upon the subject of accident prevention are an unmistakable sign of a rapidly growing realization of safety work's importance to industry and its true place in our social scheme.

Remarkable Growth in Five Years

Even more convincing evidence is found in the National Safety Council's growth within five years to a membership of nearly 3,500 industrial concerns, employing about 6,000,000 workmen. I am glad to be able to state that of these 3,500 members 170 or more are paper and pulp manufacturers, representing considerably more than that number of individual mills, and to take this opportunity of expressing the Council's warm appreciation of this already substantial co-operation and its earnest hope for a rapid and extensive increase. There is no field of industrial endeavor, I think, in which co-operation through such a central clearing-house of information and experience as the National Safety Council, can be more productive than in safety work.

It was the need for such co-operation which brought the National Safety Council into existence. Concerns engaged in safety work saw the value of getting together, of having some medium through which they could get the benefit of each other's experience and knowledge, both general and special. So they formed this non-profit making organization, which today reaches well over the country, furnishing a weekly bulletin service, issuing safe practices pamphlets, placing an information bureau at the disposal of its members, holding annual congresses attended by many hundreds of men, promoting the standardization of both safeguarding and educational methods, stimulating its members to form sections like the Paper and Pulp Section for dealing with the problems of particular industries, encouraging safety education in technical colleges and in schools, and doing many other things too numerous to mention. Recently, for instance, it carried on, at the request of the United States Government, a work in the arsenals and navy yards which not only saved the Government many thousands of dollars, but has resulted in the permanent establishment of organized safety work in those plants.

Work of the National Safety Council

That the National Safety Council has done something toward filling the need to which it owes its inception, and that there is something of tangible value to the safety idea, are both evidenced by its infinitesimal lapse ratio as well as by its rapid increase in membership. The keen business men who manage such concerns as the United States Steel Corporation, the International Harvester Company, the New York Central Railroad Company, the Kimberly Clark Company, are not paying out their good money year after year for membership in the Council, or for extensive safety work in their plants, unless they feel that they are getting value received. That they are

benefiting is shown by percentages of accident reduction reaching as high as, for instance, in a plant of your own industry, the Neenah Paper Company, 83 per cent.

I trust you do not take the title given my address as any indication that I appear before you as a self-constituted expert in paper and pulp manufacturing, or even in the safety end of it. If you do, I must enter a prompt disclaimer. Fortunately it is not necessary to be a specialist to set forth the value of accident prevention work to a particular industry or to point out the principles of such work applicable to the industry. We are all apt to think that our own business is so different from others that it is peculiar unto itself and requires special treatment in practically all respects, but this theory does not often stand a test. It is certainly not true of the paper and pulp industry in the matter of accident prevention. You have your own peculiar problems, of course, as all industries have, but the great majority of accidents in your plants are due to causes which are common to all industries.

Causes of Accidents in Paper Mills

A committee of the Paper and Pulp Section of the National Safety Council, made some months ago an analysis of accidents in a number of mills which showed that of the twenty-two principal causes of accidents only seven were peculiar to the industry. A study of accidents in Wisconsin paper mills gave a similar result. These investigations go to prove that accident conditions generally in paper and pulp mills are not unique, that the principles of safety work which are proving successful in other industries are the very ones applicable to your own, and that the results obtainable elsewhere from the application of these principles can be obtained in your own plants.

I would not be understood as belittling the dangers of your specializing machines and operations, your calendars, and other machinery having in-running rolls, your barkers, your winders and reels, your rag and paper cutters. They deserve your most earnest attention, and in a well organized safety campaign they will receive it.

Campaign Must Be Well Organized

A well organized campaign. That is the secret of success in safety work as in any branch of industrial endeavor. The safety activities of a plant must be recognized to be just as much a part of the business as is the turning out of product if genuine results on a business basis are to be obtained. You can no more afford to be slipshod with the one than with the other. Just as you analyze your production problems, so much you diagnose your safety needs. No correct remedy can be applied in the absence of a diagnosis, or in the presence of an incorrect one. To accomplish anything worth while with your accident prevention efforts, you must first make a careful study of working conditions, a painstaking analysis of accidents occurring under them, and a searching inquiry into potential causes of accidents that may not have occurred. Only so will the hazards

Three Requisites for
Up-to-Date Paper Mills

Chilled Roll CALENDERS

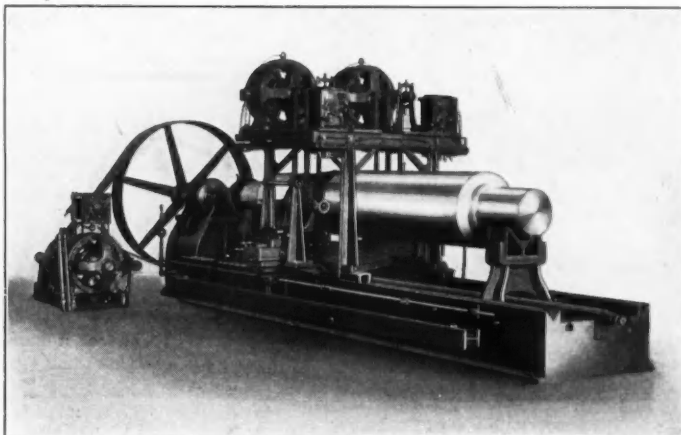
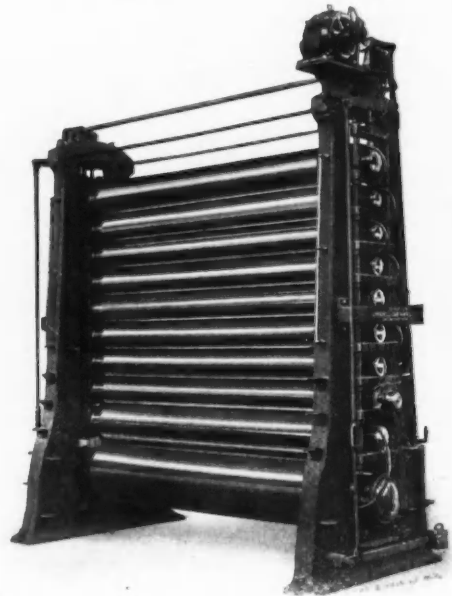
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ELECTRIC MOTOR LIFT

HYDRAULIC LIFT

or RATCHET LIFT

All operated from floor



Roll Grinding Machine

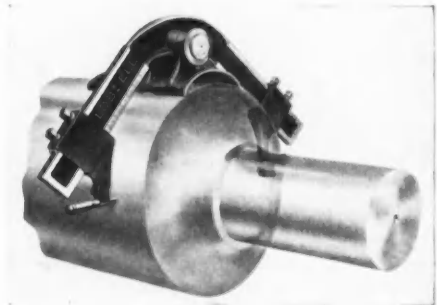
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to which workmen are exposed be truly determined and the correct means of overcoming them be indicated.

Work Is Co-operative

I am not going to run the risk of boring you with a detailed discussion of accident prevention measures, but I do want to urge upon you the salient fact, attested now by a wide and varied experience, that safety work is essentially co-operative that while the initiative lies with the employer and a distinct part of the actual work falls upon him, the full measure of attainment is impossible without the active sympathy and support of the workmen, even to a degree in the employer's own part of the work. You might go to the limit in making every place and machine in your plant as safe as possible, yet you would continue to have many accidents if you did not get the men with you. On the other hand, you could not depend alone upon the men developing habits of caution. In fact, they would be pretty sure not to develop such habits unless you gave them a guarantee of your good faith by spending your money in an earnest effort to safeguard your plant. To sum it up briefly, safety work is divided into two essential elements, safeguarding and education, neither sufficient unto itself even in its own field, but each dependent upon the other for anything like complete fulfillment of its purpose, and both dependent, separately and together, upon that cordial co-operation between employer and employees.

Results Obtainable

Now what are the results obtainable from organized safety work? Why should an employer put time and money into it, make it an essential part of his business? For three good reasons—It is of distinct economic value, it is a patriotic duty, and it is the part of wise foresight.

Without belittling its humanitarian side, the day has gone by when safety work was considered a humanitarian fad; the experience of employers who have undertaken it proves too plainly that it is good business. Gone by, too, is the day when its economic value was measured solely in terms of damages or compensation saved, or lessened insurance cost. Considerable as the direct cost of accidents may be, they are much more expensive to an employer through the lost time of injured men, through interruption of the work of others caused by accidents, through the waste of material and the spoiling of product by new men, through their lessened production, through the time of foremen or others diverted for their training. All such interferences with the ordinary course of a plant's work cause a loss in efficiency which is distinctly measurable in cold dollars and cents. And the overhead expenses are running along just the same, but without the same degree of offset had the accidents not occurred. An employer told me some time ago that within a year there had been 2,100 days of absence on the part of his machine hands, and that each day meant a loss of \$7.50 to the concern, a total of \$15,750.

Safety Work Increases Output

Not only does safety work cut down the loss in efficiency due to accidents, but it tends to increase output. The less time a workman has to devote to avoiding injury, the more he has to give to production. And the spirit of co-operation among workmen developed by organized safety efforts is also plainly reflected in a greater interest in their work.

Every employer knows how costly labor turnover is, how important it is to the general efficiency of his plant to keep his labor force as intact as possible. Especially is this appreciated now, when labor turnover is so phenomenally large. Accident prevention reduces labor turnover, both directly through lessening the number of employees killed and injured and indirectly through promoting better relations between employer and employed.

The thinking employer, who takes carefully into account every single item of cost entering into the turning out of his product and who endeavors in every way to conserve his capital investment, must view with favor anything which tends to stabilize his working force. With the necessary money available, it is possible to build a factory and equip it with machinery in comparatively a few months, but the creation of an efficient working force is often a matter of years. No matter how carefully the original material is selected it has to be re-adjusted, sifted out, replenished, sifted and readjusted again and again, before the desired efficiency is reached. All this takes both time and real money, plenty of it. Once created, an efficient working force is not only a most valuable asset, but it represents a capital investment which is well worth all the protection that can be given it.

Safety Work Especially Important Now

If safety work, in view of its influence on labor turnover, is important at all times, it is especially so now, when the average turnover is so abnormal and when the rush of business activity has caused such competition for labor as has brought into the ranks of labor so many new elements, older men, younger men, and even women.

The conservation of man-power in industry is not merely a matter of selfish concern to industry. Upon it depends in a large part our success in the war which we are waging for our own liberty and the freedom of mankind. Back of every man in the trenches must stand five men in the shop and in the field, and it is the privilege and the duty of industry to keep them there. That we cannot all go to the front does not mean that we cannot take an active part in the war. Whether as individuals or as captains of industry, we are called upon to do our bit. This is a war of peoples as well as armies, and every effort of conservation as well as production must be put forth. We must produce more than ever, and with less men at our disposal, both to win the war and to offset, in the only way possible, the war's tremendous drain upon our national wealth. We must conserve more than ever, so as to meet the better the new problems of the future.

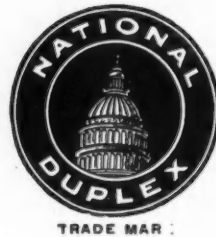
Shortage of Able-Bodied Men

For the first time in the history of the world, the days of reconstruction will suffer a universal shortage of able-bodied men, a fact which will greatly influence the relations of employer and employee, if it does not reverse their relative positions. A new conception of society, too, seems sure to prevail in the years to come.

The tremendous upheaval which the world is now undergoing cannot be restricted in its ultimate effects to readjustments of national boundaries and to racial groupings of peoples, not even to a determination of the question of whether the world shall be safe for democracy, as we have hitherto understood democracy to mean. The whole structure of society is being shaken to its very foundations, and when armed strife ceases and the time for rebuilding comes, the work must proceed in the light of a new understanding of the relations of man to man.

Matter of Great Moment to Industry

This is a matter of the utmost moment to industry. One already evident result of the great war is the general awakening of the worker to a realization of his potentialities as both a social and a political factor. Labor is not only seeking but demanding a notably larger recognition of its part in world life. The tide which at its flood in Russia, and is moving steadily if more slowly, elsewhere, must have its ebb, too, but its irresistible impulse is bound to have due effect generally. Social, as well as political, justice must come to have a wider under-



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“It’s clean to handle”

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MANUFACTURERS OF
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standing and appreciation, if not to take on something of a different meaning.

The employer who has the foresight to engage in genuine safety work will find himself at a great advantage when the time comes to meet these new conditions. He will find—indeed, he has already found—that that co-operation without which the full measure of accident prevention is unattainable, has tended distinctly to a better relationship between his employees and himself. An executive of a large paper manufacturing company recently advised me that in no other way has he been able to become so well acquainted with the men and women in the mills as through serving with them on safety committees where all meet on the same basis and have a common ground of interest for their deliberations and actions.

There is nothing which brings men to a clearer understanding of each other in all ways than for them to meet face to face and work shoulder to shoulder in one way. Given one common ground of contact, others are bound to follow. Differing viewpoints come to meet with more and more consideration and in time to differ less and less. There develops, slowly perhaps, but surely, an increasing degree of realization of the spirit of true social co-operation, of the principle of the essential brotherhood of man.

The Humanitarian Side

However much we may dwell upon the economic value of accident prevention, we cannot fail, in the last analysis, to be influenced by its humanitarian side. From the moral viewpoint, accident prevention is not an altruistic favor to anyone. To eliminate pain suffered by injured men, and their possible lessened enjoyment of life, to reduce sorrow felt by the people of those killed or badly hurt, to diminish the misery of the world, is simple social justice, is a plain duty which admits of no argument. And to render such social justice, to fulfill this plain duty, cannot fail to give the keenest satisfaction, the deepest pleasure.

FILER FIBRE CO. STARTS SULPHATE PLANT

The Filer Fibre Company was organized in the late fall of 1916 and ground was broken for the construction of its plant in December, 1916. The plant is entirely constructed of steel, brick and concrete and has a capacity of 30 tons every 24 hours. The product is a very high-grade sulphate pulp, and the latest mechanical equipment has been installed. Steam and hydro-electric power is used.



FILER FIBRE CO.'S NEW PLANT.



FRONT VIEW FILER FIBRE CO.

Max Oberdorfer, vice-president and superintendent, is a mechanical and chemical engineer. All the work was done by the company under his supervision. He was formerly for 10 years with the Central Paper Company at Muskegon, Mich.

Within 12 months after ground was broken pulp was being shipped from this mill. The entire construction and plan is so arranged that the capacity could be readily increased. The company now owns and controls sufficient quantity of wood for the capacity of this mill for a number of years. E. G. Filer is president of the company and P. P. Schnerbach, secretary and general manager.

UPWARD PRICE REVISION PREDICTED

The American Writing Paper Company, under date of February 1 sent out the following notice:

"Beginning today, we will acknowledge orders at prices at which papers will be invoiced, reserving the right to decline any orders which we cannot confidently expect to make or ship within a reasonable time. Upward revision in prices will have to follow, but any advances will be made only after careful discrimination and with full appreciation of the fact that your interests and ours are identical.

"We feel grateful to you for the excellent spirit of co-operation manifested during the present period of uncertainty, and it is a pleasure to acknowledge it."

FINANCIAL OPINION ON PAPER SHARES

"Shares of the International Paper Company and the American Writing Paper Company," said the financial editor of the *Sun* on Sunday last, "were in good inquiry yesterday at advancing quotations. Buying was said to be for the account of insiders, particularly in the latter. Several wealthy persons are understood to have large amounts of American Writing Paper shares, which were purchased at much higher prices, and these persons are said to be in perfect accord with the present movement in the shares."

BOARD DIVISION

The Board Division held its meeting on Tuesday at 10 a. m. The meeting was well attended. No changes were made in the personnel of the officers.

F. G. MARQUARDT,
President

HUGO THUM,
Vice-President

CHAS. E. RAND,
Secretary

C. L. CLARK,
Treasurer

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GRADING

Will Certainly Please You

MEETING OF TECHNICAL ASSOCIATION

Numerous Interesting and Helpful Sessions
Extending from Tuesday to Thursday Are Held

Set Program Includes Symposia on Acid Making and on Engine Sizing—Reports of Standing Committees Indicate That Increasing Interest Is Being Taken in the Organization—Henry P. Carruth, President of the Association, Is Elected to Succeed Himself—Mr. Carruth Delivers an Inspiring Opening Address—Other Features of the Convention.

The meetings of the Technical Association of the Pulp & Paper Industry proved some of the most interesting of the various sessions of the convention.

The meetings extended from Tuesday to Thursday, with the banquet on Wednesday night at the Hotel Astor. On Tuesday the meeting of the executive committee was held, with President Henry P. Carruth, presiding. Later in the same day there was a conference of the chairmen of the standing committees, under the auspices of the executive committee.

Report of Standing Committees

There was a general session on Wednesday morning in the Myrtle Room of the Waldorf. The report of the executive committee was given by Henry F. Obermanns, and Secretary Keenan also delivered his report. The following standing committees reported:

Committee on Abstracts of Literature, Vasco E. Nunez, chairman. Bibliography Committee, Henry E. Surface, chairman. Bibliographic Standards: Recommended for the Technical Association of the Pulp and Paper Industry, by Henry E. Surface, chairman of Committee on Bibliography. Committee on Dyestuffs, Evar Refsaas, chairman. Groundwood Committee, George C. McNaughton, chairman. Committee on Heat, Light and Power, John H. Thickens, chairman. Paper Testing Committee, Fred C. Clark, chairman. Committee on Publication and Program, Thomas J. Keenan, chairman. Committee on Standard Methods of Testing Materials Used in the Manufacture of Paper, Raymond S. Hatch, chairman. Process Reports in the Soda Mill: Report of Soda Pulp Committee, Martin L. Griffin, chairman; W. H. Howell and George K. Spence, associates. Committee on Standard Specifications for Purchase of Wood, Carlile P. Winslow, chairman. Sulphate Pulp Committee, Otto Kress, chairman. Sulphite Pulp Committee, Robert B. Wolf, chairman. Committee on Vocational Education, Ernst Mahler, chairman.

On Wednesday afternoon there were two symposia: one on Acid Making, which was held in the State Apartment, and the other on Engine Sizing, held in Room 106.

Symposium on Acid Making

At the symposium on Acid Making the following were read: "Burner Gas Cooling: Some Problems of General Interest in the Manufacture of Acid Sulphite Solutions," Arthur S. Cosler, of the Fraser Companies, Ltd., Edmundston, N. B., Canada.

"Theory and Practice of Acid Making: Absorption Phenomena as Applied to Methods of Making and Reclaiming Bisulphite Solutions," E. R. Barker, Boston, Mass.

"The Thermo-chemistry of Acid Making," Clinton K. Textor, Nekoosa, Edwards Paper Company, Port Edwards, Wis.

The following special subjects were discussed in the symposium:

"The Tower and Tank Systems for Making Acid for Sulphite Pulp," Martin L. Griffin, Oxford Paper Company, Rumford, Me.

"Superheated Steam in Cooking Sulphite," D. C. Andrews, Northwest Paper Company, Cloquet, Minn.

"Acid Plant and Tower System," C. B. Thorne, Riordon Pulp & Paper Company, Hawkesbury, Ont.

"Modifications in Apparatus," P. A. Paulson, Kimberly-Clark Company, Neenah, Wis.

"Analysis of Burner Gases," F. M. Williams, Watertown, N. Y.

"Limestone Towers," G. D. Jessen, G. D. Jessen Company, New York.

"Milk of Lime System," C. C. Heritage, Schoelkopf Aniline and Chemical Company, Buffalo, N. Y.

"Comparison of Apparatus," H. R. Heuer, Wheat Paper Company, Petoskey, Mich.

"Phases of Manufacture," J. B. Wilt, Parsons Pulp & Lumber Company, Parsons, W. Va.

"Concrete Towers for Acid Making," John W. Van Alstyne, Rhinelander Paper Company, Rhinelander, Wis.

Symposium on Engine Sizing

The Symposium on Engine Sizing brought forth the following papers:

"Efficiency Rosin Sizing: Its Determination and a Few Factors Influencing it," Paul De C. Bray, Research Laboratory, Eastern Manufacturing Company, Bangor, Me.

"The Chemistry of Rosin Size Boiling," J. A. De Cew, Process Engineers, Montreal, Canada.

"Various Considerations in Sizing, as Time, Concentration, Temperature, Influence of Casein, etc.," Alfred B. Hitchins, Anso Company, Binghamton, N. Y.

"Alum and Free and Combined Rosin," Fred C. Clark and A. G. Durgin, Paper Laboratory, Bureau of Standards, Washington, D. C.

"Effect of Calcium Salts in the Beater," E. Sutermeister, S. D. Warren & Co., Cumberland Mills, Me.

"The Use of Rosin Size," W. J. Lawrence, Western Paper Makers Chemical Company, Kalamazoo, Mich.

"Influence of Starch Products on Colloidal Precipitation of Rosin," John Traquair, Feculose Company of America, Ayer, Mass.

The following officers of the Technical Association were elected for the ensuing year:

President, H. P. Carruth, American Writing Paper Company.
Vice-President, H. F. Obermanns, Hammermill Paper Company.
Secretary-Treasurer, Thomas J. Keenan.

Raymond S. Hatch was chosen to take Mr. Obermann's place on the executive committee.

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In Bleached, Natural and Colors

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Detroit

Michigan

PRESIDENT CARRUTH'S ADDRESS

President Carruth delivered the following address:

The past year, the third in the existence of our association, has been one of such unprecedented importance to the country that, of necessity, our society was vitally affected. The war has affected us all, and the conditions of our industry are in many ways vitally changed.

Need for Service and Human Sympathy

One of the great lessons which is being brought home to us in these days of stress is the need for service and human sympathy. Many of us had fallen into a more or less selfish frame of mind and were content to proceed upon the path of least resistance, regardless of the effect upon others. This is now largely changed. The constant demands upon both purse and time must be met, and are being met, cheerfully and willingly by all of us.

The many extraordinary calls upon us should not, however, blind us to the important work which lies before our association. We are busy, extraordinarily so, no doubt, but nevertheless we cannot, at this time, afford to allow the work of the last three years to be lost. If we do not progress, we retrograde. Such is the law. I mention this because the past few months have brought a number of instances where men who have been giving of their time and energy to the association have asked to be released, giving the press of conditions as the reason. While appreciating these conditions, I have felt obliged to ask these gentlemen to keep up their efforts, except for those actively engaged in the service of our country.

Steady, Healthy Growth

The steady, healthy growth of our association is most satisfactory. New members have been admitted with every week of the year, and the quality of the applicants is exceptionally fine.

One of the most satisfactory of the year's developments has been the increasing respect and regard accorded our association by the owners and managers of the mills. A few years ago, this condition would have been considered impossible; today it is inevitable. Slowly, but with increasing momentum, the pulp and paper industry is forging ahead into the ranks of scientifically operated and controlled industries. The old cry of "It can't be done" gives way to the new "It must be done," and inertia, ultra conservatism, and "rule of thumb" are gradually being replaced by more exact knowledge and methods. Best of all, these changes are securing the support of the "old timers," the men who have been practicing the art for years and who are now coming to appreciate the value of science; realizing that the science underlies the art and that both are necessary for the development of the industry. This change is, to me, particularly gratifying as indicating even greater opportunities for mutual service in the future and with co-operation, accelerated growth and prosperity.

It seems to me that the time has come when we may more boldly step forward into the place which is ours in this industry so vital to all of us. For this reason I ask your consideration of a few of the activities which might be construed as particularly within the proper scope of our organization.

Standardization

From the beginning we have considered standardization as a vital function of our association and have contributed without doubt to the development of proper standards. This field is peculiarly our own, and we must cultivate it by the most intensive methods. I sometimes feel that we have not gone ahead quite as far or as fast as we might have done. This must not be the case in the future.

The question of local branches or sections of the association is one which bids fair to become of considerable interest and importance during the coming year. The pioneers in this activity were our members in the Miami Valley, led by F. A. Curtis, now

serving his country as an officer in the army. Recently a section has been formed in the Connecticut Valley, with headquarters in Holyoke; more are sure to follow when the advantages to be gained are understood. It would be well for us to consider what shall be the relation of our parent group to these healthy off-spring.

Neighborly Relations

The relations between our organization and that of our neighbors across the line to the north, a line now less visible than ever since we have become their brothers in arms, is more cordial. We have been made welcome to their gatherings, both officially and unofficially, just as we have made them welcome to ours. These feelings of fellowship and a common purpose should bring us ever closer.

Abuses

There is one matter connected with our activities less pleasant in retrospect and which holds real danger for the future. It behooves us to thresh out this matter and settle it once for all. I refer to the question of the abuse of our organization as an advertising medium. It is true, fortunately, that this abuse is not widespread, and I hope not really intentional upon the part of the few members who have appeared to trespass in this respect, but we must take the necessary precautions to entirely suppress all activities of this sort, or the whole future is imperiled.

I ask your indulgence while I dwell on one other point which causes uneasiness and apprehension to your officers. During the year we have been singularly fortunate in the matter of opportunities granted for visiting the plants located in the vicinities where our Spring and Fall meetings have been held; mills have been opened to us without reserve. I regret to say that there have been a few, a very few, instances where these privileges have been abused by members or guests. I think we should take some formal action disapproving of such abuses and that our executive committee should have authority to drop from our membership any one proved guilty of such dishonorable conduct.

Two Very Successful Meetings

The year was noteworthy for the success of the two meetings held since we last gathered in this city.

The Spring meeting held at Neenah, Wis., and the nearby paper centers of Menasha and Appleton was not only a delightful outing, but decidedly worth while for the knowledge gained by those attending. The hospitality of the local mills and their personnel can never be surpassed, and we all must join in expressing our earnest appreciation of their successful efforts in our behalf.

The Fall meeting in Holyoke, Massachusetts, was also most successful, a particularly agreeable feature being the participation of the Technical Section of the Canadian Pulp & Paper Association. All seemed to be agreed as to the pleasure and value of the three days spent there. The attendance was exceptionally large and representative of the whole of this country and Canada. The entertainment furnished by the local manufacturers was generous and whole-hearted.

I wish to take this opportunity of expressing the appreciation of the association to our hosts of both meetings.

The loyal support of all officials and committees has been a source of pleasure and inspiration, and to them my thanks are due and are gratefully acknowledged also to the members as a whole who have without exception been helpful and useful. In closing, I wish to express particularly my appreciation of the loyal and efficient service given continuously and without stint by our secretary-treasurer, Thomas J. Keenan.

I hope that you will all return home from this meeting with a belief in the value and necessity of the work which we are doing, and will be ready to make the necessary sacrifice of time to assist whenever possible.

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Manufacturers of

Super Calendered and Machine Finish

Book and Lithographic Papers

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Bleached Spruce Sulphite

CAPACITY OF MILL:

250 Tons of Paper Per Day Sulphite, 110 Tons Soda, 135 Tons

MILLS: RUMFORD, MAINE, U. S. A.

REPORT OF SODA PULP COMMITTEE

The following report was submitted by the Committee on Soda Pulp, consisting of Martin L. Griffin, W. H. Powell and George K. Spence:

The demand on the manufacturer of soda fiber for an increased output with a steadily increasing cost of raw material and labor, compels the executive in charge of the soda mill to keep constantly in touch with all operations, and to do this, requires a system of reports that covers all details. It is our purpose to bring up for discussion these reports in a general way, and show not only their value to the mill management, but also the psychological value, in some instances, on the mill operators. The item of time is one of the most important we have to consider, and by watching for lost time in different departments, and eliminating causes for it, we are able to increase efficiency in each department, and make the whole operation of the soda mill more profitable. This paper will cover the principle and origin of mill records, details of which will naturally vary to suit local conditions.

I—Wood

There is no item which gives the management of a soda mill more concern than the accurate measurement of wood. Wood constitutes the most expensive item of cost in this process, and many varying conditions affect the unit, the cord of 128 cubic feet, which is considered standard throughout the trade. Wood may in time become so expensive that each stick will be measured, and the solid volume comprise the unit of measurement. In spite of many discussions on this subject, and theories advanced, the cord is still the standard and we have to get along with it the best we can.

It requires a man of good judgment to measure wood. In fact, it is almost entirely a question of judgment. The ranks are seldom true and even. Some contractors have a way of selling air space for wood, and the whole operation of measurement must be done in detail, and every reason affecting the measurement should be shown. Each rank in a car should be measured separately, and a notation made of any deduction when it is found a rank of wood is not filled.

The completed report should show each rank in the car, any deduction, and the reason for deduction. The cubic capacity of the car, and the scaler's measurement can be checked by comparing them, making a reasonable allowance for unfilled space in the car, impossible to utilize. The check not only insures the mill the amount of wood paid for, but also the seller a fair measurement, and if there is any discrepancy, by comparison with car capacity, a reason placed on the report must cover this discrepancy.

DATE REC'D.....Jan. 3-18.....No. 7002
 CAR No.....P. M. 51896.....
 SHIPPERS NAME
 SHIPPING POINT
 KIND OF WOOD.....Poplar.....
 DATE MEASUREDJan. 3-18.....
 MEASUREMENTS

Doorway	6 ft. 4 in. × 7 ft. 8 in. × 4 ft.	194
	6 ft. 4 in. × 7 ft. 8 in. × 4 ft.	194
North End	8 ft. 4 in. × 7 ft. 9 in. × 4 ft.	258
	8 ft. 4 in. × 7 ft. 8 in. × 4 ft.	256
	8 ft. 4 in. × 7 ft. 9 in. × 4 ft.	258
	8 ft. 4 in. × 7 ft. 10 in. × 4 ft.	261
South End	8 ft. 4 in. × 7 ft. 8 in. × 4 ft.	256
	8 ft. 4 in. × 7 ft. 9 in. × 4 ft.	258
	8 ft. 4 in. × 7 ft. 10 in. × 4 ft.	261

No. OF CORDS.....17-20.....2,196
 REMARKS:....Dimensions of Car 36 ft. × 8 ft. 6 in. × 8 ft. 6 in.
 All ranks well filled.

EXTENSIONS O. K.Wood very dirty.....
 ENTERED
 THE HANDLING OF THE WOOD AFTER IT IS MEASURED AND ENTERS THE STOCK BOOK IS SIMPLY A MATTER OF BOOKKEEPING.

II—Boiler Room

It hardly seems necessary to deal at length with this item, modern boiler room practice being so thoroughly covered by current engineering magazines.

In the soda mill, a daily record should cover the number of pounds of coal used each twenty-four hours, and the evaporation figures should be compared with standard results. For large mills CO₂ records, and bonus for firemen, on CO₂ basis has always proved a paying proposition. Small mills would find it to their advantage to check the CO₂ gases occasionally, ascertain the losses and remedy them. It is wonderful what can be done with a boiler plant by following its results with daily reports and curves.

Illustrations—CO₂ chart for month, Venturi meter chart and rough method of ascertaining the B.t.u.'s in coal; finally, in daily and monthly reports, the consumption of coal per 100 pound of product is a necessary figure to have. The boiler room should be treated as a separate department, its production of steam per pound of coal being considered the basis for the department. The amount of coal used per 100 lb. of product will vary. A boiler room may be working economically, but the steam wasted in other departments of the mill.

III—Digesters

There are many different methods used in keeping digester records. A method that has proved very satisfactory is to use a card giving the yearly number, showing the time the digester is put on, when it reaches pressure, the time of each relief and when it is emptied. It is also well to check these figures with recording gauges. This digester card should also have entered on it the strength and volume of the liquor. From these reports a monthly record can be made, showing the number of hours of lost time. A satisfactory method of checking the amount of stock turned out by the digesters is to measure the stock after it is in the wash pans, giving the contents of each pan. This is a rough check which will show quickly when the product of the digesters varies, and you can in this way quickly ascertain the cause, and not have to wait until the yield per digester shows a noticeable change on daily or monthly reports. It also has its effect on the digester man. The time consumed in putting on a digester, in cooking and blowing it, should be considered as a cycle, and a perfect score figured, compared with the actual time consumed. The reasons for any lost time should be ascertained and difficulties overcome. Records can be kept of perfect scores, actual number of digesters turned each day or month, amount of time lost, number of coarse or shivey cooks for each digester, the reason, and the number of inches of stock turned out by each digester. It is a very easy matter to lose a great deal of time in handling digesters. If ten minutes were lost on each, and you are turning twenty, three hours and twenty minutes would be lost, which cuts a twenty-four hour day to twenty-one hours and forty minutes. This is far from profitable.

DIGESTER CARD.

	9-29-17
Third Tour	Monthly 4532
Put Steam on No. 4.....	4:40
Reached 100 lb. Pressure.....	6:40
Pressure Tested 6-7-8.....	
	9-10.....
Shut Off Steam.....	10:30
Discharged.....	10:40
Hours of Pressure 350	
Strength of Liquor 8	Temperature 154
Remarks:	
Name of Digesterman	

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SULPHITE AND GROUND
WOOD PULP

SHAWANO

WISCONSIN

MONTHLY RECAPITULATION OF DIGESTERS.

Mo.	Per- fect	Actual Digesters	Time Lost Hrs.	Lost Mins.	Course	Cooks
Jan.	474	407	67	459	20	1 2 0 0 3
Feb.	455	410	45	333	55	1 0 0 0 0
Mar.	474	414	60	414	25	1 0 0 0 4

IV—Washing Stock

A record of the time when each digester is dumped from the blow pit, the time consumed in washing the stock in the pan, its quality, and the time taken to empty should be recorded. If this department is properly balanced, time is principal item we have to consider. If the mill is of ample capacity in all departments, there should be no liquor drained from the pans to waste. There is, of course, some loss of soda due to washing, but in good practice, 96 per cent of it will leave the pans and enter the evaporators. Any variation from standard operations that show losses in handling this department should be looked into.

PAN CARD.

No.		Pan.	Digester.	Pit Opened.	No. of Inches.	Clean.	Started.	Finished.	Quality of Stock.
1		..	..	..	16	7:15	7:15	8:15	O. K.
2		..	..	..	14	8:40	8:40	9:45	O. K.
3		3	2	7:15	15	10:00	10:00	11:00	O. K.
4		1	1	8:35	17	11:10	11:10	12:45	O. K.
5		2	5	9:55	12	12:45	12:45	2:00	O. K.
6		3	4	11:30	17	2:25	2:25	3:35	O. K.
7		1	3	1:10	17	3:55	3:55	5:10	O. K.
8		3	1	2:45	16	5:10	5:10	6:05	O. K.
9		3	1	3:45	18	7:05	7:05	8:15	O. K.
10		1	5	6:25	12	8:20	8:20	9:50	O. K.
11		2	4	7:40	15	9:50	9:50	10:50	O. K.
12		3	3	8:35	17	11:15	11:15	12:15	O. K.
13		1	2	10:05	16	12:15	12:15	1:30	O. K.
14		1	2	10:05	16	12:15	12:15	1:30	O. K.
15		3	5	1:00	7	3:00	3:00	4:05	O. K.
16		1	4	2:00	15	4:05	4:05	5:15	O. K.
17		2	3	3:00	15	5:15	5:15	6:40	O. K.
18		3	2	4:20	..	..	..	..	..
19		1	1	5:40	..	..	..	..	..
20		..	..	..	..	..	..	..	..

V—Evaporation

The reports in this department should show the strength of the liquor delivered by the pans, the density and temperature of the liquor evaporated hourly, and should not vary more than half a degree. Any variation in the liquor supplied to the evaporators should be looked into carefully.

The steam pressure and gauge readings should be recorded each hour, and these records carefully examined to ascertain whether or not the evaporators are working right. Frequent washing of these machines is necessary if results are to be uniform without waste of steam.

VI—Rotary Burners

The rotaries are in operation continuously. Their output, of course, will vary. The only way to check this work is to have a gauge on the supply furnishing liquor and have this recorded at fixed periods during the day.

The quantity of black ash produced and put into the leachers also checks the operation of the rotaries.

It is very satisfactory to handle the rotary and leaching departments as a single unit, and the records covering these departments made on one report. The 100 per cent. boil, or the leaching for a given number of hours, that requires no fresh soda, when shown on the rotary operator's report, encourages him to do good work.

Each tour making its reports should give number of inches in the supply tank, amount of soda used in each boil, the time boiling is started and finished. If it is a full 100 per cent., a special mark denoting which tour the credit belongs to, adds just the proper amount of rivalry.

Date.	Started.	Liquor Storage Tank, Inches.	Soda, Bags	Remarks.
January 1	7 A. M.	16	3	..
	11 A. M.	18	4	..
	3 P. M.	14	..	..
	7 P. M.	14	2	..
	11 P. M.	14	3	..
January 2	3 A. M.	20	6	..
	7 A. M.	22	7	..
	11 A. M.	22	3	..

VII—Alkali Room

The report of the alkali room should show when the hatch is started, the time it is finished, and the number of pounds of lime used in each. The liquor should be brought up to a standard hydrometer test, and enough fresh soda used to make a tank of a certain strength, to be drawn off with weak liquor to give digester liquor of a definite strength, keeping the batches and digester liquor absolutely uniform. It is surprising how accurately this can be done by ordinary operators, provided the system is carefully worked out for them. It is a great deal safer to handle this department on fixed strength, working to the strength, using lime by weight, soda by the bag, measuring liquor by the inch, than to use chemical tests, as the operators understand these methods better than even the simplest chemical test. It is necessary, of course, to have this work checked in the laboratory. The output of the alkali room in liquor should be recorded, and reports must cover this, giving proper time for each operation. The washes in the alkali room should be standard, and handled on time. The capacity of the piping lines, etc., should be ample so there will be no delays.

To figure recovery of soda conveniently, the number of pounds of soda contained in each digester of liquor delivered by the alkali room can be computed, which gives the total soda used. The number of pounds of fresh soda used during the twenty-four hours, deducted from total soda and the per cent. of recovery is ascertained in this way.

PROCESS REPORT OF CHEMICALS. LIQUIDS TO DIGESTERS.

Inches.		Started.	Finished.	Strength.	Heat.	Inches.		Started.	Finished.	Strength.	Heat.
1	72	8:00	8:15	8 1/4	145	10	72	8:45	9:00	8 1/4	150
2	72	8:50	9:50	8 1/4	145	11	72	10:15	10:30	8 1/4	145
3	72	12:10	12:25	8 1/4	145	12	72	11:50	12:05	8 1/4	145
4	72	1:30	1:45	8 1/4	145	13	72	1:15	1:30	8 1/4	145
5	72	2:30	2:45	9	140	14	72	2:25	2:40	8 1/4	145
6	72	3:40	3:55	8 1/4	145	15	72	3:25	3:40	8 1/4	145
7	72	5:40	5:55	8 1/4	145	16	72	4:45	5:00	8 1/4	145
8	72	6:55	7:10	8 1/4	145	17	72	5:50	6:10	8 1/4	145
9	72	7:50	8:05	8 1/4	145	18	..	..	..	..	..

Lime		SODA.		SODA.		SODA.		SODA.	
Car No.	Started.	Finished.	Soda.	First Strength.	Heat.	Second Strength.	Heat.	Caus- tivity.	
1	8:00	8:00	3	12	160	4	160	90.0	
2	10:00	12:00	3	12	165	4	150	..	
3	3:00	4:40	3	12	160	4	150	89.8	
4	7:30	9:15	..	12	160	4	150	90.5	
5	12:00	2:00	7	12	165	4	150	89.6	
6	4:00	6:00	3	12	165	4	155	90.5	

VIII—Bleach

When commercial bleach is used, each carload of bleach should be tested for available chlorine.

Record showing the number of pounds of bleaching powder used to make up each tank, strength of bleach liquor, strength of washes and time of each mix and wash should be given. It is well to show the loss of bleach thrown out in sludges.

BLEACH.

Casks.	Time	First Strength.	Second Strength.	Casks.	Time	First Strength.	Second Strength.
1	3	10:00	6 1/2	1	3	1:30	6 1/2
2	3	4:30	6 1/2	1	3	6:00	6 1/2
3	3	8:50	6 1/2	1	..	..	..

No.	Inches.	No.	Inches.	No.	Inches.	Weight.	Tare.	Weight.	Tare.	Weight.	Tare.
1	20	6	20	12	20	722	43	732	43	724	43
2	20	7	20	13	20	754	43	752	43	802	43
3	20	8	20	14	20	760	43	756	43	720	43
4	20	9	20	15	20	2,236	..	790	43	754	43
5	20	10	24	16	20	11,260	..	730	43	746	43
		11	22	17	20	645	..	732	43	786	43
						10,615		4,492		4,532	

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IX--Brown Stock Screening

A report should cover the time consumed in screening each pan, condition of stock and a reason for delays.

SCREEN CARD.

Date, January 1, 1918.						
No.	Started.	Finished.	Quality.	Strength.	Open.	Amount of Bleach.
1	7:15	8:15	Clean	"	3½	20
2	8:40	9:40	"	4-80	3½	20
3	9:55	11:00	"	4-80	3½	20
4	11:10	12:45	"	4-80	3½	20 Wheel Down

.....Day ManNight Man

X--Bleaching

This report should give the quantity of bleach used in each batch, and time consumed in bleaching. With uniform stock and uniform bleach and operation, little variation will be met with in this department. Such conditions are, however, ideal and cannot be depended upon. When the continuous plan is used it is well to arrange the report in two parts. The first part dealing with the conditions surrounding the stock as it enters the system, including cleanliness of washing, the rate of flowage and temperature, as well as the test and temperature of the bleaching liquor. The second part should form a record of the bleaching operation and include a record of the flowage rate of stock and bleach liquor, the temperature at regular intervals and such tests as are found necessary to bring the pulp to whiteness at the end of the system without excessive bleach.

When the hatching system is used the records of the process will be much simplified and the results under better control.

XI--Finished Product

It is very satisfactory to keep an hourly record of production, and a record of every minute lost by the machine producing the finished product.

A machine tender should know what he is producing each hour. A little rivalry between machine tenders, and an ambition to get the largest run ever over the machine has a tendency to ever increase its capacity. Just this spirit and a careful examination of the causes for delays and their elimination, have increased the capacity of some machines 100 per cent. A record that is kept constantly before the machine tender pays dividends.

It hardly seems necessary to go into the question of moisture tests on pulp, as this question has been brought up before the association previously. A method that proves satisfactory to both manufacturers and customers over a period of a number of years is as follows:

Every fifth roll of pulp sampled for moisture by the disk method, cutting disks about 4 inches in diameter. The first roll sample is taken from the deckle edge, the fifth-roll sample from the center of the roll and the tenth-roll sample from the cutter edge, and so on throughout the carload. The samples are immediately put in an air-tight container, and when the car is finished these samples are carried to the laboratory, weighed and the net weight of the samples ascertained. The samples are then put in a drying oven, the temperature of which is kept at 212 degrees continuously, and allowed to remain for twenty-four hours. The samples are then removed, the dry weight ascertained and moisture figured. The average moisture for the previous month can be used as a fixed figure for making deduction or addition to production sheet, and at the end of the month correction can be made to actual moisture, and actual production figures ascertained in this way.

PULP TEST.

Car Number 51896 P. M.	Date, January 6, 1918.
Filed to .....	.....
No. of Rolls, 350	Scale Weight, 51,405
Stone Dry Percentage, 80.24	Air Dry Percentage, 89.16
Number of Rolls Sampled, 70	
WET.	
Gross 6- 3-51.....	9951
Tare 3-10-01.....	5801
Net	4150
DRY.	
Gross 5-5-70.....	8570
3-4-40.....	5140
Net	3330

4.50 | 33300 [80.24
33200

10000
8300

17000
16600

BACK OF MOISTURE SHEET.

9 | 8024 [8916

72

82

81

14

9

50

51405

8916

308430

51405

462645

411240

458326980

REPAIRS

Much time is lost by neglecting repairs. When this matter is left to a repair foreman alone, the management is apt to have trouble. As a rule, the operators in any department are anxious to have their department run smoothly, and if blanks are put in each department of the mill to be used by operators who know of repairs necessary to equipment in their department, or, these blanks can be filled out by the operating foreman, turned in to the office, a record made of the repair job, card issued to repair foreman, this work can be followed up closely.

FOREMAN'S CARD.

Department Machine	12-26-1914.
Job Put on Dryer Box, North Side of Drive Pinion.	No. 730
Work assigned to F. MARSHALL	
V. FULLER	
Time started: 10 Hour 30 Minute	
Material used rehabbited 2 boxes	
.....	
Work completed: 2 Hour 30 Minute	
Date 12-26	
N. BENEDICT,	
Foreman.	
THIS CARD MUST BE RETURNED TO OFFICE.	

Reports

The reports should be taken in by operators and a good method is to have them deposited in a letter box placed in the same room as the time clock. All reports should be clear to operators, and the manager should take time to talk over results with the operators and keep them interested in good results. With all reports there is some delay. They do not reach the mill manager until some hours after the operation, but they are as good as history, and help him plan for future contingencies. There is no reason why the operations of a soda pulp mill should not be well handled by a despatching system, the central station in the mill office, and each department connected by telephone. Reports on each operation could be turned into the dispatcher immediately, and trouble reported promptly to the foreman in charge. This system would keep the mill manager accurately informed up to the minute, and prevent the large amount of time that is consumed in getting information to the manager and the manager assigning the work to the proper man.

Time lost is one of the most vital losses. If through delays, the production is low, raw materials will remain in storage which should have been converted into the finished product, but time that is lost, is lost forever, therefore, the time element should always be vital factor in all reports.

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REPORT OF SULPHITE COMMITTEE

The report was submitted by the Sulphite Committee comprising Robert B. Wolf, chairman, P. A. Paulson and H. G. Spear:

Your committee has no particular phase of manufacturing to present for your consideration at this meeting. It wishes to urge upon the members of the Association, however, the necessity for new developments in the manufacture of sulphite pulp and the need of concentration upon the problems brought about by the changing conditions in the industry.

A more systematic effort to record operations in our plants is required in order that we may obtain a knowledge of the basic principles involved in our operations. It is only in this way that we can organize the facts of the Sulphite Pulp Industry into a Science, which can be studied by those who wish to successfully apply the art of pulpmaking.

We are too prone to be content with operating our plants in the same old way year after year and simply renew wornout machinery. I believe the main reason for this is that our technically trained men, whose chief function should be to observe the operation of nature's laws in the process, do not keep sufficient records of the entire operations to enable the organization to create conscientiously, and as a whole, new conditions tending towards improvement in quality, quantity and conduct.

The plant, in other words, should be one vast laboratory for doing qualitative and quantitative work and because it is always conscious of its progress is bound to understand what it must do to get results under all operating conditions.

It is conceivable that we may be called upon to furnish a grade of bleached sulphite which can be used in the manufacture of explosives and as comparatively little is known by the industry about this subject your committee has asked W. E. B. Baker, of the York Haven Paper Company, to present a paper on the subject at this meeting. We hope that what he has to say will stimulate an interest in this very important matter so that if the time comes when the government needs our help we will be in a position to render real service.

A symposium on acid making methods is to be conducted in connection with the annual meeting and your committee hopes that the discussion will be freely carried on by all of the members of the Association. The exchange of ideas, without reservation, can do no harm and will gradually show the fallacy of secrecy in matters that concern the welfare of the trade. It is beginning to be recognized by the most progressive manufacturers that the secret of their success depends upon the efficiency of their organization and not upon any artificial barriers that are erected to prevent others from finding out what is being done. The latter is an unnatural process and contrary to the law that if we are to grow we must give as well as receive. An organization that is thinking only of its own welfare and is selfishly withholding information which will benefit the trade as a whole is bound to gradually deteriorate. This is only another way of expressing the fact that an individual, whether a man, a business, an organization, or a nation, forms a part of society and must, therefore, contribute to the welfare of society. Your committee would like to urge upon the trade the need for sending its men to the Technical Association meetings with the idea of giving the trade as a whole the benefit of their experiences and to encourage free discussion of all manufacturing problems at these meetings.

THE SUPER-DREADNOUGHT "NEW YORK"

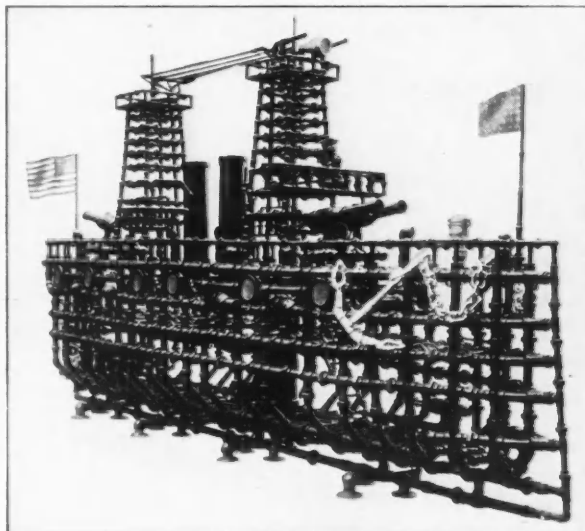
The accompanying photographs give two views of a model of the super-dreadnought *New York*, made completely of Crane Company products—fittings, valves, specialties, etc.

The model was designed and its construction supervised by an employee of the Crane Company in the works of the company's Bridgeport division. It was transported from Bridgeport to New

York on a large motor-truck, and now is on exhibition in the Crane exhibit rooms, 23 West Forty-fourth street, New York.

The over-all dimensions of the model are: Length, 186 inches; breadth, 34 inches; model depth, 42 inches; total height from keel to top-mast, 102 inches. Its net weight is 3,308 pounds.

Six thousand six hundred and sixty-nine separate pieces enter into the construction of this model. It is complete to the smallest detail, and the ordinary working parts of a battleship are movable. A small electric motor gives action to the propeller. The ship is electrically wired throughout, the wire running in conduit, and by the pressing of a button action may be seen everywhere—the propeller turns, the commander salutes, lights flash, guns roar, the wireless crackles, the searchlight throws a searching beam.



A BATTLESHIP MADE OF VALVES, FITTINGS, ETC.

The entire action is automatic and may be repeated indefinitely or until the pressing of another button stops it.

A row of colored electric lights runs from bow to stern over the mast tops, and when in action the model makes a truly wonderful and interesting exhibition.

It is scarcely necessary to point out to practical men the vast amount of patience and labor that were taken in putting this model together or the quality of skill shown in the design. These things make an instant appeal.

KALAMAZOO MILLS GET AWARDS

Kalamazoo paper concerns fared pretty well when the Public Printer made his awards for contracts for the ensuing year. Four companies secured contracts aggregating \$512,755 in value, the total poundage being 3,700,000.

The Hawthorne Paper Company ran off with the bulk of the business, being awarded twelve lots for a total of 2,740,000 pounds at a contract price of \$427,500. The Bryant Paper Company was low bidder on two lots awarded at a price of \$55,800. The weight was 620,000 pounds. This concern was also low bidder on over 10,000,000 pounds of machine finished print paper, but all those bids were thrown out and the paper will be purchased in the open market.

Two other Kalamazoo mills securing government business were the King Paper Company and the Riverview Coated Paper Company. The former was to make 110,000 pounds of coated paper, at a price of \$11,595, while the Riverview is to turn out 230,000 pounds for \$17,860.

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SAVERY

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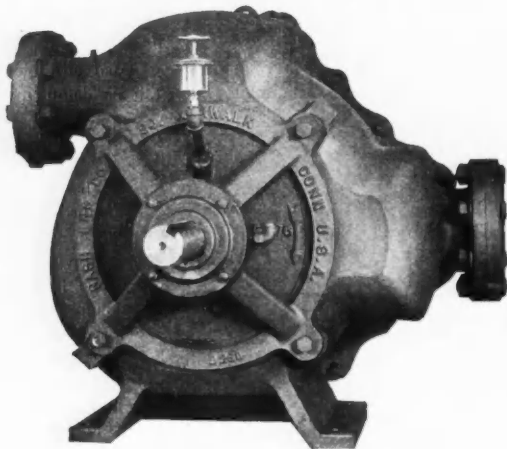
PULP and



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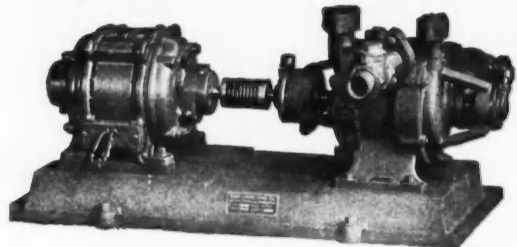
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Efficient Rosin Sizing

Its Determination and a Few Factors Influencing It—Free and Combined Rosin; Alum and Water—Comparison of the Cost of Size—Amount of Rosin and Alum Against Ink Resistance Plotted for Determination of the Maximum Point of Ink Resistance, Other Conditions Being Equal—Experiments to Find Amount of Rosin Furnished Desired for a Certain Grade of Paper.

Read Before the Meeting of the Technical Association by Paul DeC. Bray.

It is not the aim of this paper to produce a complete discourse of the subject at hand, either from a practical or theoretical standpoint, but rather to state a few ideas as they have presented themselves to the writer, with especial reference to some practical facts, and it is hoped in that way to start a general discussion among the members present, which is as the writer understands the object of this meeting.

If one consults the German article of Rosin Sizing, by Emil Heuser, given before the Society of Cellulose and Paper Chemists, held in Berlin in 1912, one will find a rather complete and conflicting discourse of the various opinions of the Chemistry of Rosin Sizing as put forth by such authorities as Illig, Naugebauer, Wurster, Hoffman, Klemn, Schwalbe and others. Opinion varies as to that chemical compound or compounds on which the sizing of paper depends. This is to be expected when chemical reactions are brought about under conditions which are so variable as those of rosin sizing in ordinary paper will practice. Some say it is the resinic acid formed by the addition of alum to the solution of sodium resinic acid; others that it is the free rosin whether it be dissolved, colloidal or suspended, or a basic aluminum resinic acid, etc. It is possibly a combination of one or more of these products, but probably due mostly to the free rosin present in the sheet. Several of the investigators agree that by an excess of alum, even though aluminum resinic acid is formed first, much free rosin results, depending on the amount of sulphate of alumina used, basic aluminum sulphate being formed at the same time.

In the presence of cellulose fibres (and these must be included in the discussion) we know that about two-thirds more alum is required to precipitate the size than without them. This is due to an affinity of cellulose fibres for alum solutions; again to satisfy this desire, which varies more or less with pulps of different sources and even from the same source, we must add alum in a slight excess anyway. This excess is also necessary to set or mordant the added dyestuffs, usually, and so if we accept the ideas of the older investigators we have conditions right for the formation of free rosin by the excess alum from the combined rosin in the original size solution, together with the free rosin present as such in the original size. Therefore, it is reasonable to suppose that the sizing of paper pulp is mainly dependent on the free rosin. The original rosin as used by paper makers has a distinct color, and since most of the writing papers manufactured as a whole are "Whites," it follows that to get the most brilliant white we should add as little rosin (and other chemicals) to the beater as possible for the sizing effect desired. Dissolved organic matter present in the water, if present, is flocculated and deposited on the fibre. This also hurts color. We have also been able to show by hand sheets with and without rosin, with the same amount of alum used, that the strength of the sheet was lowered by the presence of rosin by about 5 per cent. A possible explanation of this may be that free rosin being an acid may unite chemically

somewhat with cellulose decreasing its strength. It has been the writer's experience that by starting with a high free rosin soap (40 per cent. free or more dry basis) and giving this the proper dilution by the right emulsification apparatus, one can get good sizing qualities in the finished sheet of paper by furnishing approximately half the amount of rosin (pound for pound) as when using a prepared rosin soap of much lower free rosin content and not as efficiently emulsified, thus saving greatly in the sizing cost. The following figures definitely show results obtained in the mill with which the writer is associated. The making of one's own size is also a saving. This fact is brought out also in the following figures:

Comparison of Cost of Size

Prepared rosin size of 26 per cent. free rosin content v. s. mill made size of 40 per cent. free rosin content.

Our cost of the prepared size for 1915 was based on actual cost of the size, plus labor and overhead expense. For 1916 we used the very same cost per cwt. for size as in 1915, although the system for making our own size had been installed and we were making our own size from "F" rosin and soda ash.

Essentially the same grades and amounts of paper were made in both cases.

The actual net savings were as follows:

Cost of installation.....	\$15,009
Cost of rosin, soda, ash and exp.....	24,743
Total cost.....	\$39,752
Equivalent cost of prepared size.....	42,565

Thus, even including the total cost of installation, together with the rosin, soda ash and all expenses pertaining to making size, we still showed a gain over using prepared rosin of lower free rosin content of \$2,813. The results as shown above appear on our mill ledger.

The same labor is required for either process and the overhead expense a small increase on the mill making system, but the principal saving comes in the actual quantity of rosin used. Our unit of size solution is the "Dip." In the prepared size, we used the equivalent of 5 pounds of rosin per dip, while with the mill-made size used the equivalent of 2 pounds of rosin per dip to get the same result. A saving in quantity of material of 160 per cent., and at the same time improving the quality of the color of our white papers. If the high free rosin soap is properly diluted no rosin spots will result in the finished sheet of paper. This actual mill experience would seem to indicate that sizing depend on free rosin provided it was added to the pulp in proper colloidal or soluble form. Again, after the alum affinity of the pulp is satisfied and an excess of alum above that required to precipitate the size and set the color (the retention of alum stops at this point) is probably a loss, we see that a saving of alum is effected by using a high free rosin size as alum probably only acts as an electrolyte in depositing this

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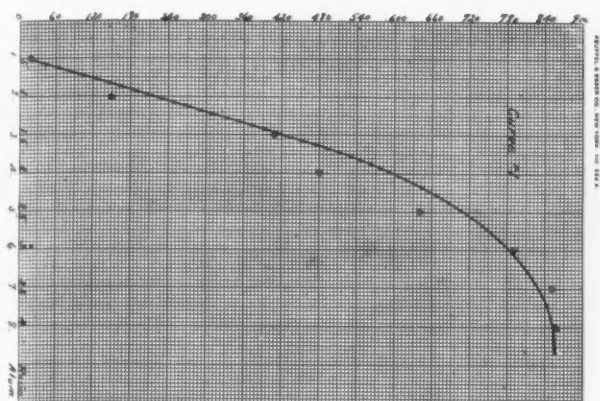
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free rosin on the fibres from its colloidal solution, while with the combined rosin double decomposition results and alum is lost, and we see that this is directly proportional to the amount of combined rosin present in the size as sodium resinate.

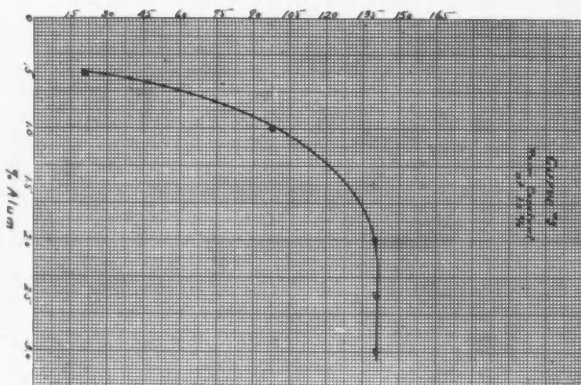
From the retention point of view rosin is a good proposition, but as shown above it hurts color in the finished sheet, whites especially, and only two or three more per cent. could be added than necessary for proper sizing results anyway for various

requiring a larger consumption. If a mill has a very hard water supply, chemical softening should be practiced, but if a mill has a naturally soft water as its supply, which is more often the case, much care should be exercised as to the filler employed. Various calcium sulphate fillers are often used, and in a soft water calcium sulphate is soluble to the extent of about 2 pounds in 1,000 pounds of water, or 40 pounds in the average beater of 20,000 pounds of water or more, and thus with amount available for double decomposition with the combined rosin

Ink Penetrations in Seconds



Ink Penetrations in Seconds



reasons, i. e., machine wire troubles, and also the finished sheet of paper would be harsh and would have poor folding properties, etc. So the conclusions are: use a high free rosin size, properly emulsified or dissolved, and furnish as little as possible to get proper results (and much less is required than when using a rosin size of higher combined rosin), as rosin hurts the color of white papers.

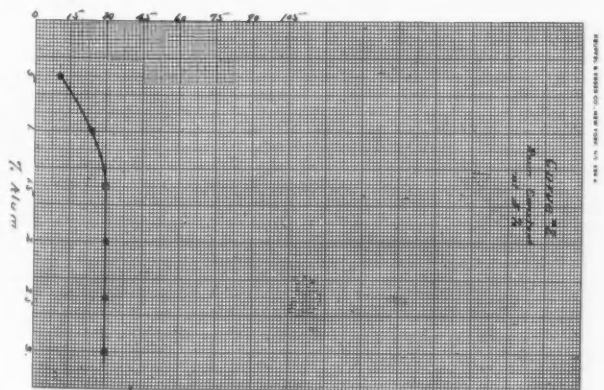
In considering these points of free and combined rosin and alum required in presence of cellulose fibres, we should not forget other chemicals that may be present to necessitate the use of more size and alum with no better sizing results. These are

present in the size one can see the trouble and expense that might result.

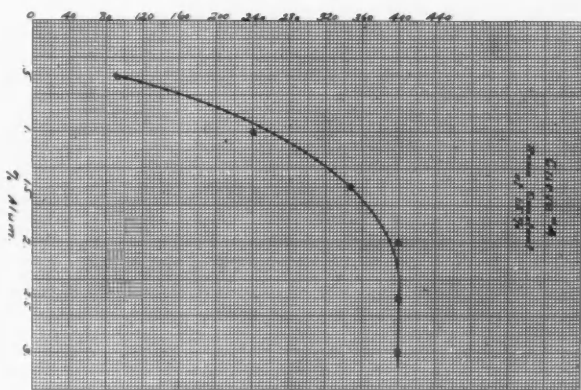
Again many silicate fillers on the market carry calcium carbonate as an impurity, and mills should watch out for this, roughly anything over 4 or 5 per cent. will noticeably affect efficient sizing using the customary furnish.

Most mills have several size and alum furnishes, depending on the grade and quality of paper that they desire to make. The rosin furnished can be ascertained by mill practice, but the proper corresponding alum furnished cannot be fixed within a limit of four or five pounds usually, so the following labora-

Ink Penetrations in Seconds



Ink Penetrations in Seconds



mostly the salts of calcium or magnesium carbonates or sulphates, present either in the raw water supplied to the beaters or added to the beaters as a filler or a by-product in the filler. In either case calcium (or magnesium) resinate results in direct proportion to the amount of these sulphates or carbonates dissolved, and these resinates have no sizing value at all, but uses up size. Double decomposition may also result with the alum

tory procedure was worked out by the writer to arrive at the proper alum furnishes with varying rosin furnishes, and then the results were proven in the mill. The line of procedure will fit and determine any local conditions.

As a matter of interest also a curve on the amount of rosin and alum against ink resistance was plotted for determination of the maximum point of ink resistance, other conditions being

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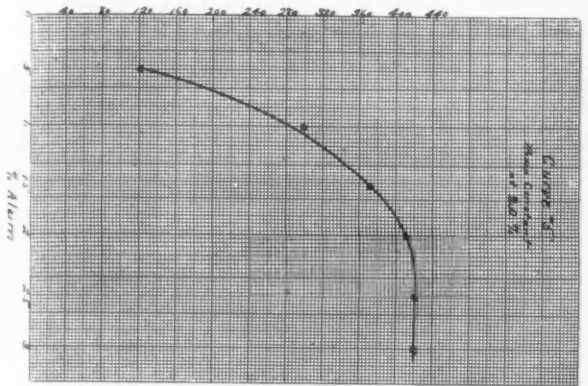
MANILA AND HEMP ROPES, PAPER STOCK

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equal. Hand-made sheets were made (of as near the same thickness as possible) by always having same amount of stock present in a definite volume of water when each hand sheet is dipped out, using in each case double amounts of alum and using the following per cents. of rosin (using a size emulsion of 40 per cent. free rosin on dry basis) on the weight of air dry stock: 0.5, 1.5, 2.0, 2.5, 3.0. Cure was plotted between per cent. size and the time in seconds before ink penetration resulted. (See Curve No. 1.) The curve was almost a straight line to 4 per cent. rosin, then it straightened out. For getting ink resistance the ordinary flotation method was employed

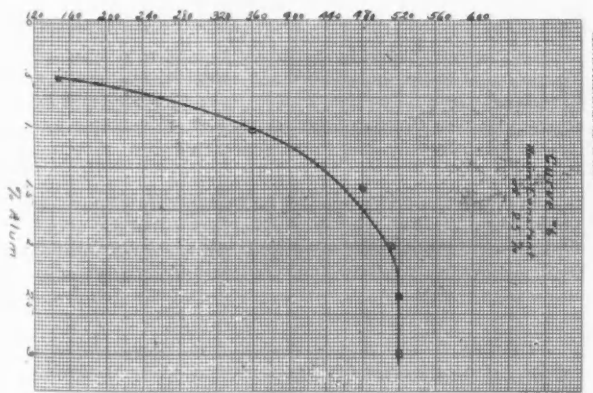
Ink Penetrations in Seconds.



using Stephen's English ink at 90 degrees F. This gave no trouble in getting a fair end point after a little practice. The curve tends to show this: each point means an average of at least ten readings.

To find the corresponding amounts of alum required to each rosin furnish desired for a certain grade of paper the following experiments were performed and results plotted: Using all possible rosin furnishes and holding same constant, varying the alum furnish to the limit of 3 per cent (that being the maximum of rosin required for mill results desired) by 1/2 per cent.

Ink Penetrations in Seconds.



steps. The bend in the curve showing the proper amount of alum to use for the particular rosin furnish in question (see Curves Nos. 2, 3, 4, 5, 6 and 7).

It has been the aim of this paper to present a few ideas for discussion and bring up a few points that it is hoped may be of value to others in arriving at the best furnishes of rosin and alum to meet the particular local conditions in question.

PATENTS PAPER WAISTCOAT

A waistcoat of paper is the invention of Byron B. Taggart, president of the Taggart Brothers Company, of Watertown, N. Y., manufacturer of manila hemp paper bags. The invention bids fair to be of great importance under these war time economic conditions.

For the last six months Mr. Taggart has been working upon this invention and only two months ago he had it perfected and ready for manufacture. Patents were applied for Mr. Taggart said that he has arranged for the manufacture of the waistcoat in New York. The garment is of a special fabric made from manila hemp which is treated by a special process invented by Mr. Taggart. It is of a light green color and when ready for wearing is fitted with three tapes which tie in front to serve the place of buttons. The edges are also bound with tape.

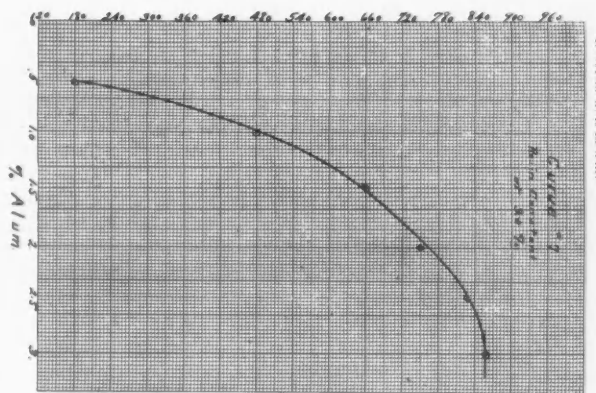
The garment is very durable and is practically weather proof in that no cold can penetrate through it. The paper waistcoat idea is not a new one, many different kinds having been made in the past, but they always had the fault of cracking wherever a wrinkle formed. The process used by Mr. Taggart overcomes this objection. It can be wrinkled and rubbed without any damage being done.

The material is very light but has been put to several tests with results exceeding all expectations. It is suitable for all out door wear, and is an ideal garment for this climate. It is expected that in the very near future the new invention will be ready for the market.

The Taggart Brothers Company is manufacturing the waistcoat in a New York factory which employs about one hundred hands. The name and location of this factory was not given out by Mr. Taggart. Additional machinery and material has been ordered and plans are being made for the manufacture of the article on a large scale.

Large numbers of this garment are being shipped to training camps throughout the country to be worn by the government soldiers now in training. It is warmer than wool and is expected to conserve the wool supply of the country with a tendency to lower the cost of woolen goods. The cloth is being made here in the local mill but garment workers can be obtained to better

Ink Penetration in Seconds.



advantage in New York. It is possible that plans may be changed later.

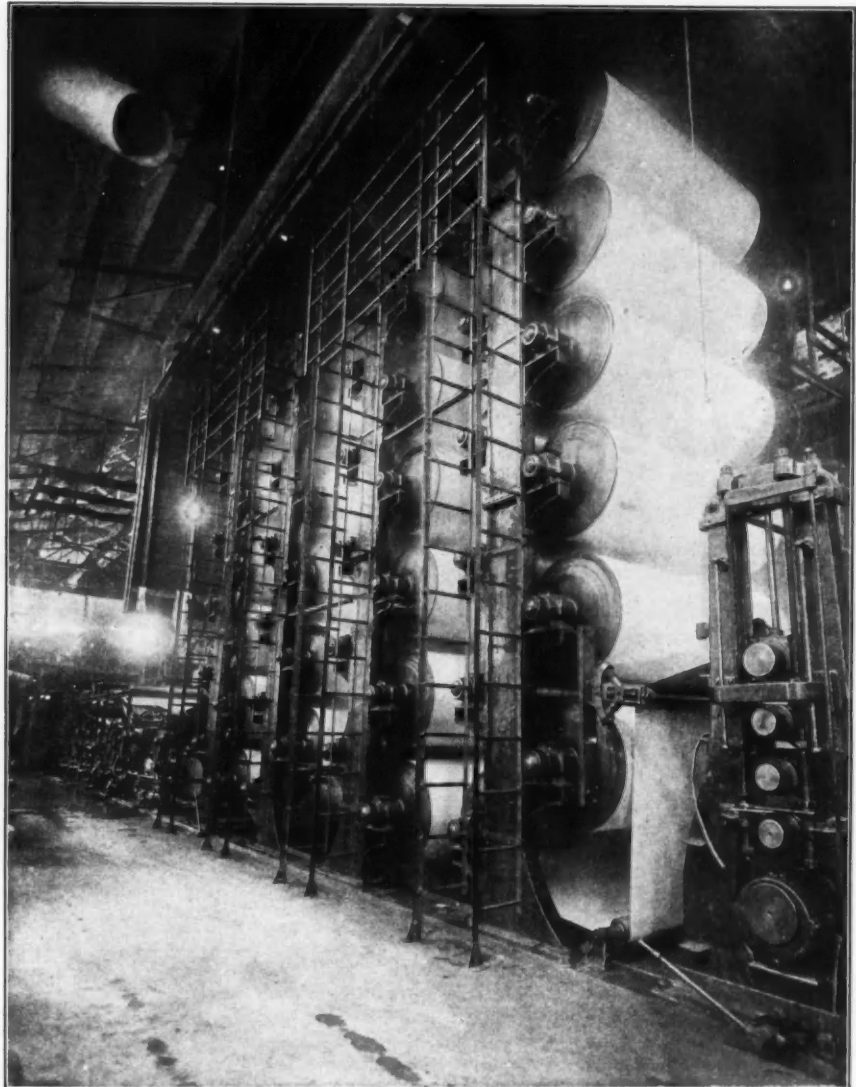
The General Waste Paper Company, Seattle, Wash., has been incorporated by Paul C. Harper, Worrall Wilson and Wendall P. Sprague. The capital stock is \$2,500.

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Phases of Manufacture of Bisulphite Liquor

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Read at the Meeting of the Technical Association by J. B. Wilt, of the Parsons Pulp and Lumber Co.

In this day of efficiency when we are all trying to do the most with the least waste of material, time, and energy, it becomes necessary that each one concerned go as far as possible toward getting at the seat of all the underlying principles governing this most important factor in the sulphite manufacture.

I believe it is pretty firmly established that mill operators are anxious to learn everything possible in order to run their plants in a scientific manner; they read everything on the subject that is available, still it is more than evident that they are not entirely satisfied with results obtained.

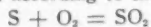
In order to discuss the "Phase of Manufacture," a general review of the subject is necessary. The varying aspect or processes may be summed up as follows:

1. Oxidizing sulphur into sulphur dioxide.
2. Temperature control.
3. Cooling the SO₂ gases.
4. Absorbing and combining the gases with CaO or limestone to form the bisulphite acid.
5. Cooking conditions.
6. Reclaiming or the recovery of SO₂ from the digesters.
7. Equipment.

Oxidizing Sulphur into Sulphur Dioxide

Sulphur dioxide, or burner gas, must be considered as a most important factor having to do with the manufacture of bisulphite acid. Therefore, it is necessary to observe just to what extent we should go in order to produce a uniform gas. The method of firing sulphur by hand allows an inrush of cold air, which cools the furnace, dilutes the gas, and causes the production of sulphur trioxide. Consequently, it is not only advisable but very essential for the proper control of the gases to melt the sulphur before it goes to the burner. Sulphur melts at 114.5°C. to a limpid liquid, which is at a proper density to be easily controlled. In consequence of this, the use of steam for this purpose is to be recommended, because, if the application of heat is continued, the liquid becomes thicker until at a temperature of between 200° and at 250° the mass becomes so viscid that it flows with difficulty. This condition frequently occurs when a self-contained melting pot is used in connection with the burner.

Sulphur will support its own combustion, and just enough air should be admitted to burn the sulphur to sulphur dioxide properly. SO₂ gas is formed according to the equation:



which requires 53.81 cubic feet per pound of sulphur.

As stated in the foregoing, too much air should not be admitted into the burner as this has a tendency to form sulphur trioxide and also to overheat and, consequently, to cause the sublimation of sulphur.

The gases and vapor should be passed into an auxiliary chamber, where they are brought into contact with the fire brick baffles, which soon become incandescent, and here the sulphur vapor is

entirely consumed, the supply of air for this purpose being admitted through slots or dampers.

Temperature Control

Temperature control is contingent upon two conditions:

- (a) The feeding of the sulphur to the burner continuously.
- (b) The drafting arrangements.

Proper control over the temperature may be secured only when the sulphur is fed continuously to the burner and a constant vacuum maintained. Therefore, a harmonious condition of these factors will result in the production of a uniform gas. In attempting to regulate the temperatures of the burner gases, the average operator does so principally by guesswork. In order to illustrate this fact graphically I wish to call your attention to three charts which are fair representations of a six months' run. These are continuous records of temperatures that were carried in the sulphur burner. They are for periods of 24 hours and were made by the Hoskins Recording Pyrometer. These temperatures were taken ten feet from the burner after admitting a sufficient amount of air to oxidize the sulphur.

Number one shows the temperature variations when the pyrometer was first installed.

Numbers two and three, made some time later, prove the fact that a uniform temperature is possible.

Gas tests corresponding to temperatures were as follows:

- 16.6 per cent SO₂ at 540 degrees centigrade
- 17.4 per cent SO₂ at 550 degrees centigrade
- 18.0 per cent SO₂ at 560 degrees centigrade

Of course, the test does not vary directly in the same ratio as the temperatures, but sufficient data were obtained to demonstrate that a uniform temperature is a pre-requisite in the manufacture of bisulphite acid.

Cooling the SO₂ Gases

Cooling by the combined spray and submerged method is to be recommended. The heat is absorbed and carried rapidly away by the water flowing down the pipes. The submerged portion affords protection in the event that the water is shut off.

Absorbing and Combining the Gases with Calcium Oxide or Limestone to Form SO₂ Acid

The limestone tower system is considered by many to be the best means for this purpose for the following reasons:

- (a) A more uniform acid may be produced with less combined.
- (b) Limestone is less expensive. Limestone with a high percentage of magnesium is in many respects preferred for use in the towers, as but little trouble is experienced with the relief lines and blow pits liming up; also, a somewhat softer fibre is produced than that produced from a high calcium limestone.
- (c) It affords better means for reclaiming weak acid from the digesters.

Cooking Conditions

Cooking conditions, such as size and type of digesters—methods

of cooking pressure and dryness of the steam, condition of the wood—all are factors deserving careful study. With the small digester a better circulation is obtained than with the larger type. The flat dome is also conducive to better results because it affords a larger surface through which the gas is liberated; consequently, gas is blowing for a longer period with less gas retained than with the large digester having a sharp cone.

The method of cooking is an element which deserves consideration because a smaller quantity of gas will be recovered if the cooking is carried on slowly with a low temperature and the gas to a very large extent will be held in solution. If, on the other hand, the cooking is accelerated, more gas will be given up, which fortifies the system acid to a higher percentage of free SO₂.

The condition of the wood is one of the most important factors in the process of acid manufacture. Dry wood requires less acid, having comparatively no moisture or water to dilute the acid—consequently, less weak acid is blown back and less gas is retained in the waste liquor when the digester is discharged. Therefore, more sulphur is recovered, which is very essential in producing a strong cooking acid. A good cooking acid should test not less than 5.50 total, 4.50 free, and 1.00 per cent combined.

Pressure and Dryness of the Steam

The same reasons previously advanced for dry and green wood are applicable to steam as well as to moisture and dryness. A high pressure, although somewhat severe on the fibre, is a very essential adjunct in cooking wet or green wood.

Reclaiming or the Recovery of SO₂ from the Digesters

After the acid is relieved from the digester it passes through a separator in which the gas is separated from the spent liquor. The old method is to blow the gas into the storage by means of perforated pipes encircling the bottom or through a perforated floor, but this is not a satisfactory means of absorbing the gas as it agitates the acid, causing it to foam and is again liberated to a

cause of the many points of action or contact furnished by the acid being broken up into small particles. It then passes into the storage tank remaining undisturbed, consequently, retaining a very much higher per cent of free SO₂ than is possible with the old

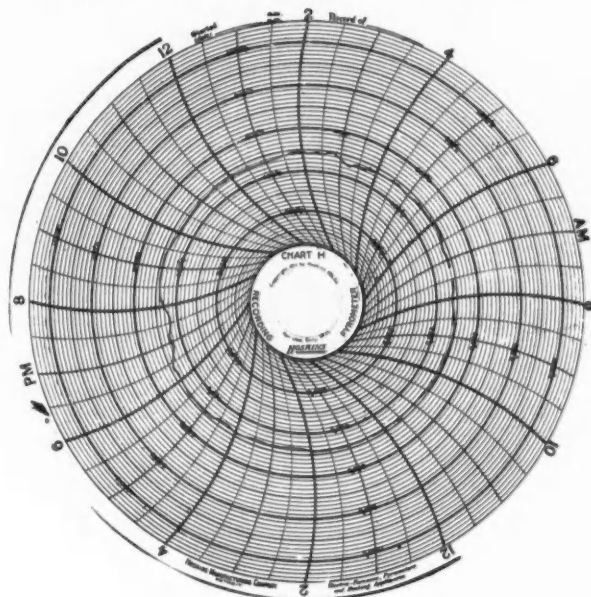


CHART No. 2.

method of reclaiming by means of blowing into the storage tank.

The spent liquor from the separator may be reclaimed without serious difficulty if the limestone system is made use of and the acid from the digester is separated from the gas. It may be mixed

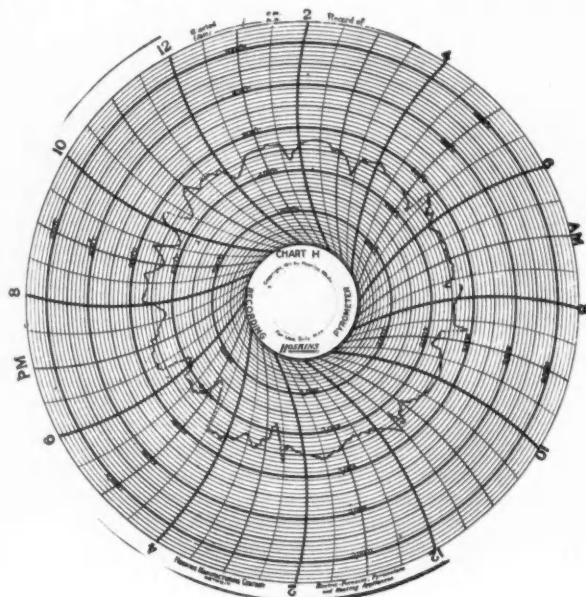


CHART No. 1.

very large extent. This must be met by a larger absorption apparatus in the acid plant. This method, however, is being superseded, and rightly so, by a reclaiming tower filled with blocks in which the liquor from the acid plant is pumped to the top and is broken up in its passage down where it comes in contact with the strong gas from the digester which is rapidly absorbed, be-

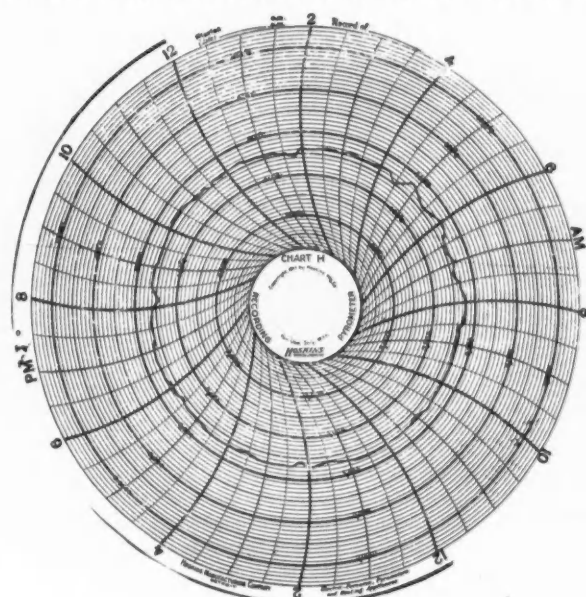


CHART No. 3.

with the weak acid and pumped to the top of the strong towers, where it meets the burner gases and is thereby fortified and built up again. However, provision should be made whereby the spruce turpentine may be separated, as this has a tendency to form an oily coating on the limestone and prevents free action of the acid thereon.

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Equipment

In order to attain the highest degree of efficiency in a plant today, new forces, new inventions and improved methods of manufacture must be taken into account by every progressive business man. The location and suitability of the buildings and machinery should be carefully planned before building or installing and then only the most efficient machine that is capable of giving continuous service should be selected.

Therefore, it appears to me that this is a time when the various mills throughout the country should get together and provide a common fund with which to carry on research work. Why not test out every new invention that is worthy of consideration at the expense of all the mills that will be benefited by its use? On this plan no two would be experimenting with the same thing at an enormous expense until it was standardized.

The Human Equation

In conclusion, let us briefly consider the human equation. It is certainly important to know the machines in the mill, and only when the machines are well cared for and well adjusted to their purpose can the manufacturer hope that his industrial output will

satisfy his customers. But, is the mind of the workman not equal, or rather of higher importance, in the work of the factory? How can we expect the best output if we are interested only in the purely technical side of the process and ignore the great and significant fact that a man with memory and attention stands behind the machine and has to serve and master it? If his attention flags, if his mental fatigue interferes with his best work, if his interests carry him away, if he has not the right mental power to discriminate what he ought to discriminate, must not the work suffer more than by an out-of-date machine?

The mills may be installed with splendid equipment, the best machines manufactured; yet, success and failure must depend upon the achievements of those tending the machines, and the achievements depend ultimately upon the mental powers of the employer and the employee. Therefore, the educational work should be encouraged, records and charts should be constantly before the workmen, home environment should be studied, domestic science should be taught in the homes, thrift and resourcefulness should be encouraged among the wives of the employees—this is just as essential and as much the employer's business as the training of his workmen.

FRASER COMPANIES' SULPHITE MILL ALMOST FINISHED

The 100-ton, all-bleached spruce sulphite mill of the Fraser Companies at Edmunston, N. B., Canada, is expected to be in operation early in the summer.

Edmunston is a town of 3,000 people. It has an excellent supply of city water, electric lights, and it is putting in a thoroughly adequate sanitary sewerage system. It has good freight connections in all directions, being a divisional point on the Canadian Government Railways, the terminus of the Canadian Pacific, and on the Temiscouata. It is located on the St. John River at the junction of the Madawaska River, and on this latter stream the company's power is being developed.

A Thoroughly Modern Plant

The mill at Edmunston is a thoroughly modern plant, of the ground-floor type. The engineering is being done by Hardy S. Ferguson. The construction is generally brick and reinforced concrete, with some mill and some steel construction in the various buildings.

The wood room is a separate building of brick; general equipment consists of two American barking drums, two disc barkers for emergency use, three slab chippers, one round wood chipper, two flat oscillating screens, and two rechippers.

The acid plant has a fireproof burner and sulphur storage room. The burner equipment consists of two 4 x 12-foot rotary burners, with separate combustion chambers. The gas cooler is of the combined submerged and spray type, and the acid system is a two-tower Jensen type system.

The Digester House

The digester house contains four digesters 17 x 56 feet, arranged so as to blow straight into the pits. The relief coolers are built in on the various floors of the digester building, and the blow pits are built of concrete and directly adjoin the digester house. The blow pits are lined with long-leaf pine, and are provided with perforated plank bottom of the same wood. They are provided with overhead white water and hot-water tanks for flushing during washing.

The screen room is approximately 200 x 226 feet, and contains the brown stock tank, brown stock thickeners, riffler, brown stock flat screens, brown stock washers and screening reducing system. On the bleach side it contains eight Belmar bleachers of five tons capacity each, with stock chests of concrete below the bleachers, bleach pulp washers and thickeners, and bleach pulp flat screens.

The machine room contains two 128-inch Rice, Barton & Fales drying machines, driven by individual engines belted to the line shaft. Hydraulic presses are provided for baling the pulp, and a spacious storehouse and ample sheds provide for handling the

product to advantage.

Modern Bleach Mixing Plant

The bleach mixing plant is of modern design; all tanks are of concrete, and pumping and settling systems provided for most economical operation.

The repair shops constitute a separate group of buildings comprising store house, carpenter and pattern shop, machine and sheet metal shop, blacksmith shop and bronze foundry, and switch engine shed.

The boiler plant of brick, concrete and steel contains six 500-horsepower Geary water tube boilers, with space provided for two more. Overhead coal bunkers, chain grate stokers and superheaters provide for economical operation at all loads. The boiler house power is designed of such capacity as to provide steam for all power when necessary, as well as high pressure steam for the digester house, and low pressure steam for heating and drying apparatus. The steam electric generating plant is equipped with two 1,000 K. V. A. General Electric turbines of the Bleeder type, from which the low pressure steam is taken.

In addition to the steam plant there is a hydraulic development plant, consisting of reinforced concrete dam, brick and concrete power house, which is provided with two 1,000 K. V. A. umbrella type generators, generating 3 phase, 60 cycle current at 6,600 volts. The power developments are thus so met that it is expected the mechanical power can be furnished either from the steam plant entirely or from the hydraulic plant entirely, or, as will normally be the case, from the two in conjunction. Within the mill proper the power is motor-driven, the group system being followed.

The above equipment gives assurance of continuous operation, and this, in conjunction with the favorable freight situation and adequate wood supply, assures a very desirable freedom from any of the causes that are responsible for so many mills losing production and making irregular shipments during certain seasons.

Mill to Be Operated by A. Cosler

The mill will be operated by Arthur S. Cosler, who has been for 12 years in the paper and pulp industry as chemist, engineer and superintendent, and who came to this position from the superintendency of the sulphite mill of the Marathon Paper Mills Company of Rothschild, Wis., where they manufactured all grades of sulphite fibre.

The officers of this concern are: Archibald Fraser, of Fredericton, N. B., president; Donald Fraser, Plaster Rock, N. B., vice-president; William Matheson, Andover, N. B., secretary and treasurer. The company is incorporated for \$10,000,000, and has been for many years leading lumber operators in the Maritime provinces.

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Absorption in Reclaiming Bisulphite

Throughout the History of the Sulphite Industry Men Having Anything to Do with Any Type of Acid Making or Reclaiming Equipment Have Been Confronted with the Underlying Principle of Absorption—This Has Resulted in a Great Many Ways of Making and Reclaiming Bisulphite Solutions—All Methods Illustrate Different Ways of Doing the Same Thing.

Read at the Meeting of the Technical Association by E. R. Barker, Boston

During all the periods of development of the sulphite industry, men originating, developing or working with any type of acid making or reclaiming equipment have been confronted with the underlying principles of absorption; and their interpretation of the best ways to apply nature's laws have resulted in a great many varieties of apparatus for making and reclaiming bisulphite solutions.

In making bisulphite solutions from limestone we note a great diversity of design illustrated by the high single vertical Mitscherlich towers, the three-tower system, the seven-tower system, the two-tower system of Jensen and the horizontal towers or chambers of Hanson. All of the types mentioned illustrate different ideas of doing the same thing and all at present in successful operation in various plants.

In making bisulphite solutions from burnt lime we have the three-tank continuous system of Partington, the four-tank Partington system, the two-tank intermittent system of Stebbins, the two-tank intermittent system of Francke, and the various types of systems designed by Barker, all making acid successfully and all designed according to the inventors' interpretation of the best conditions of absorption.

The early investigators confined their work to apparatus for making the "raw" bisulphite solutions, giving little attention to methods or equipment for reclaiming the excess of acid put into the digesters: thus all the cooking was done with "raw" acid and reclaiming was unknown. The great losses of sulphur and lime under these early conditions furnished the incentive for the development of our reclaiming systems. In recent years rapid improvements in methods of reclaiming have been made so we now consider reclaiming to be as important as acid making.

In both acid making and reclaiming we must consider the principles controlling the absorption of gas in liquids; for our gas is sulphur dioxide of varying strengths and our liquids are bisulphite solutions of varying strengths and conditions of purity.

The first law of nature to consider in absorbing gas in liquids is the law of impenetrability of matter, which briefly stated is that you cannot have two things in the same place at the same time. Thus it is impossible to have a body of gas (for example a bubble) filled with water, acid or any other liquid. The surface of the bubble or body of gas will come in contact with the liquid but the liquid and gas cannot occupy the same space at the same time. Therefore surface contact is of vital importance in designing the best type of equipment for absorption.

In the limestone systems contact is obtained by having the gas pass slowly through towers containing stone which must be thoroughly wetted with water or bisulphite solution to obtain the best results. The sulphur dioxide gas dissolves in the water, forming dilute sulphurous acid which attacks the stone, forming at first monosulphite of lime, then bisulphite of lime which is soluble and dissolves in the dilute sulphurous acid. The rate of flow of gas in the towers is slow; the liquid is in small volume and must be well distributed to insure liquid at all points to absorb the sulphur dioxide.

In the milk-of-lime systems conditions are quite reverse. We

have large volumes of liquid and smaller volumes of gas. The gas is either drawn through the absorption apparatus by vacuum or forced through by pressure. In either case the flow of gas through the various bodies of liquid is so rapid that means must be devised to increase the surface contact as much as possible.

To illustrate the conditions of surface contact and their relations to volumes let us consider two types of equipment.

(1) An apparatus designed with 4 in. gas pipes leading direct into each body of liquid without any baffles or other means to prevent the gas from rising through the liquid in spheres or bubbles 4 in. in diameter.

Surface of bubble 4 in. in diameter = 50.265 sq. in.

Volume of bubble 4 in. in diameter = 33.510 cu. in.

Volume

———— = .667

Surface

(2) An apparatus having the area of gas pipes equal to the area of a 4 in. pipe, but having $\frac{1}{4}$ in. diameter holes, so all gas bubbles or spheres will be $\frac{1}{4}$ in. in diameter.

Surface of bubble $\frac{1}{4}$ in. in diameter = .19635 sq. in.

Volume of bubble $\frac{1}{4}$ in. in diameter = .00818 cu. in.

Volume

———— = .04166

Surface

Assuming equal volumes of gas—

One 4 in. diameter bubble = 4096 $\frac{1}{4}$ in. diameter bubbles.

Comparison of surfaces.

One 4 in. diameter bubble = 50.265 sq. in. surface.

4096 $\frac{1}{4}$ in. diameter bubble = 804.250 sq. in. surface.

Therefore the surface of an equal volume of gas in $\frac{1}{4}$ in. diameter bubbles is 16 times that of a 4 in. diameter bubble. It is therefore evident that the smaller the bubbles, the smaller the volume: surface and the greater the surface for equal volumes.

From a practical standpoint this means that the smaller the bubbles, the greater the surface contact and the more favorable the conditions for perfect absorption.

The same conclusion regarding the size of bubbles is arrived at from an entirely different angle, namely from the laws controlling the diffusion of gases.

As explained above the gas dissolves first in the water then reacts on the limestone or lime. At the point of contact of gas with liquid, the sulphur dioxide leaves the bubble and enters the liquid thus passing from a gaseous state to a liquid solution. All the gas bubbles are diluted with air (principally nitrogen) in our absorption apparatus. At the surface of each bubble there is less sulphur dioxide than at the center, due to absorption in the liquid. In the gas bubbles there is very rapid diffusion, tending to make all parts of the bubble of uniform composition, so there must be very rapid diffusion from the center outward in each bubble. As small bubbles have very much less volume in proportion to their surfaces than large bubbles, their composition must be more uniform. The sulphur dioxide has a shorter path to travel to reach the surface of the bubble and the rate of absorption will be proportionately more rapid.

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The solubility of gases in liquids is also affected by temperature, pressure and degree of saturation of the solution.

Nearly all the American milk-of-lime systems are operated under vacuum. In many absorption systems the acid is finished under 3 in. to 5 in. mercury vacuum. The vacuum over the finished acid has been reduced to a maximum or practically to atmosphere pressure in many of the more recent installations of milk-of-lime equipment and great increase in the percentage of free sulphur dioxide has resulted.

Years ago Francke realized the advantages of making acid under pressure and he devised equipment bearing his name for doing so. The acid is finished in this equipment under $4\frac{1}{2}$ to 5 lb. pressure per sq. in. As his equipment was intermittent in operation and consisted of only two absorbing tanks it does not approach in efficiency of absorption or simplicity of operation of later adaptations of the pressure systems as installed at the Burgess Sulphite Fibre Company, mills and at Kymmene Aktiebolag and J. V. Enquist Aktiebolag in Finland.

From the tables of solubilities it can readily be seen that simply changing any of the usual types of milk-of-lime systems from vacuum to pressure should result in an increase of about 30 per cent. in solubility of sulphur dioxide. Practically I have found that with two acid systems of identical design, both using the same limewater, sulphur, etc., with gas of the same temperature, the one operating under pressure produced acid with 15 per cent. greater free than the one operating under vacuum. For example if the vacuum system made acid with 2.00 per cent. free the pressure system made acid with 2.30 per cent. free.

With the limestone tower systems of making acid we find both vacuum and pressure equipment with the tendency strongly in favor of the pressure.

Limestone towers operate at very nearly atmospheric pressure whether the gas is passed through them by vacuum or pressure and there is not the corresponding increase in absorption when changed from one method of operation to the other as in case of the milk-of-lime systems.

The principles of absorption as applied to our reclaiming systems do not materially differ from those outlined above; except in regard to types of equipment used and the percentage of sulphur dioxide in the gas absorbed.

After a digester is filled with chips and bisulphite liquor, the steam is turned on to increase the temperature. The pressure increases as a matter of course, so, regardless of the strength of the bisulphite solution put into the digester, the solubility of the gas greatly increases with the pressure. Thus when we start to relieve the digester we get only a small amount of cold gas (which has not been re-dissolved due to lack of circulation or contact with the liquid in the digester), but we get a large amount of liquid which continues until the temperature of the whole mass in the digester has increased sufficiently to liberate the gas from the solution. As the temperature and as the evolution of gas increases we find that the digester pressure is greater than corresponds to the temperature indicated. This pressure, known as the gas pressure, increases rapidly with the temperature and from this time on in the cooking we recover large amounts of sulphur dioxide gas.

The recovery of the liquid relief is very simple as it only has to be cooled and mixed with "raw" acid from the acid plant; although in some processes of recovery the liquid is used to absorb burner gas. The recovery of the gas from the digesters requires elaborate equipment for cooling (owing to its low specific conductivity) and for reabsorbing into the "raw" acid. The quantity of gas varies greatly at different periods in the cooking and often contains nearly 100 per cent. sulphur dioxide.

It is either absorbed in the "raw" acid in the reclaiming tower or in the reclaiming tanks or a combination of the two.

The principles of absorption in the reclaiming tanks are much the same as in the absorption tanks where the "raw" acid is made.

The liquid is, however, in one deep body, usually at least 10 ft. deep and as the gas rises only once through this depth of liquid it must be broken up into small bubbles if it is to be completely and efficiently absorbed.

Above the body of liquid is always a body of unabsorbed gas which has passed too rapidly through the body of liquid to be completely absorbed. This body of strong gas above the body of the liquid reduces the surface tension on the liquid, thus offsetting the tendency of the sulphur dioxide gas to escape from the liquid. If the liquid is not already saturated with gas a certain amount will be absorbed by surface contact.

The most successful types of reclaiming towers consist of vertical tanks filled either with wood blocks or acid-proof stoneware shapes called chemical rings. The dilute liquid is pumped into the top, is distributed to wet the tower filling and flows by gravity downward over it, meeting the sulphur dioxide gas rising through the tower. The tower filling being covered with a film of liquid exposes a large surface to the gas passing slowly upward, resulting in favorable conditions for absorption.

Much work and investigation has been done on the best design of towers for absorbing gases in liquids for such towers have been used for many years. The size of towers, the rate of flow of gas, the volume of liquid necessary to keep the filling wetted, and the most efficient height to build the towers have all been determined by engineers in the chemical industry and the results of their experiments are given in standard text-books and periodicals.

In the application to the sulphite industry of the principles controlling the absorption of gases in liquids there is a vast field for future effort. Apparatus will be greatly improved, accurate methods of control will be established and the sulphite mill engineer who most thoroughly understands Absorption Phenomena and who can apply his knowledge most successfully in the design of apparatus or to the control of manufacturing conditions will surely establish an enviable record in furthering the development of our industry.

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The many friends of Joe Ryberg will take pleasure in learning that the Watab Pulp & Paper Company has engaged him as superintendent.

Mr. Ryberg is widely known in paper-making circles as one of the most able paper makers in the United States. He has had the very widest experience, both in Germany and Norway, as well as in the United States.

Mr. Ryberg was one of the men who contributed to the success of the Wausau Sulphate Fibre company of Mosinee, having had charge of the paper mill of this concern for several years past.

Besides being an expert on Kraft paper, Mr. Ryberg is recognized as an authority on grease-proof and glassine. He has started three different mills on grease-proof and glassine, in this country. Those of the Diamond State Fibre Company, McDowell Paper Company, and lately that of the Rhinelander Paper Company, and has in every instance obtained the very best results.

Mr. Ryberg's numerous friends will wish him success in his new position, and the Watab Pulp & Paper Company is to be congratulated in availing themselves of his services.

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The L. M. Miller Paper Company has been organized, with L. M. Miller as president and general manager; J. A. Miller, secretary and treasurer, and N. T. Barry as general sales manager in charge of the New York office at 309 Broadway.

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Some Problems of General Interest In the Manufacture of Acid Sulphite Solutions

May Almost Be Said That If the Formation and Cooling Factors Are Properly Taken Care of Other Factors About the Acid Plant, Such as Structural Form of Absorption Apparatus, Chemical Supply and Mechanical Operation, Will Take Care of Themselves—This Does Not Disregard the Fact That Some Systems Take Care of the Sulphate Very Much Better Than Others.

Read at the Meeting of the Technical Association by Arthur S. Cosler, of the Fraser Companies

There are a great many subjects which are usually referred to incidentally in connection with some problem or another that have not been given much consideration in separate research. In such a class come the cooling of the gases and liquids we have to deal with in the manufacture of bisulphite solutions; the subject of sulphate in the "acid," its formation, prevention or elimination, and its effect on the operation of the plant; the subject of the removal of sulphite turpentine or oymene from the liquor, and the probable good to be derived from such removal.

We can almost say that if sulphate formation and cooling are properly taken care of, other factors about the acid plant, such as structural form of absorption apparatus chemical supply and mechanical operation, will take care of themselves. This does not disregard the fact that some forms of acid making systems require much less cooling of the gases and take care of the sulphate very much better than others. A great deal of information exists on these subjects, but it is to a degree fragmentary or unorganized. The importance of considering them independently rather than continuing to refer to them as detached incidents is forcefully brought home by the large number of trouble cases coming up in a sulphite mill that are traceable to one or the other of these causes.

Even with otherwise good apparatus poor cooling may be responsible for poor quality of raw acid, for excessive SO_2 formation, for weak cooking acid, and the consequent low free, or for loss in production.

Excessive amounts of SO_2 are responsible for loss of time in cleaning acid systems and lines, digester steam fittings and relief lines, and for much of the depreciation in them. It causes imperfect impregnation of chips, especially where chips are poorly prepared and many large ones pass to the chip bin. Clear acid saturated with calcium sulphate can carry approximately 55 lb. of this salt to the digester per ton of chips. Practically all of this is precipitated at cooking temperatures, and could make a perfect impervious coating in the pores at the end of the chips. This lack of impregnation is probably responsible for the high temperature found necessary to finish a cook in some mills, and this in turn results in weak fiber, low yields and poor recovery.

By a great many men excessive sulphate is also held to be responsible for pitch in pulp; their theory is that suspended particles of calcium sulphate act as centres around which pitch globules collect. This might explain the formation of pitch globules that make small pitch spots on the forming wires of all machines, but perhaps some other factor is responsible for excessive amounts of pitch being present in a free state in the cooking mass.

Poor gas recovery might result from the fact that with sulphate present in excessive amounts, the man in charge cannot risk blowing off the gas to finish up until the cook is much farther along than would be the case in ordinary practice. Holding the digester for this reason until he does feel it is safe to blow off all the gas, results in carrying the cook down so far that he must blow the digester before he gets full recovery in order to save the pulp.

Much remains to be done in establishing the truth in these various premises. There is no place where the work of arranging the details for the methods of attack can be so well done as in this organization.

The general subject of sulphates has interested me for several years. In 1910 the question of the point of origin of SO_2 in a plant became important. All the information I could get verbally, or from current literature, laid the blame for SO_2 formation more upon the influence of excess air in the gas on the absorption end, than to conditions on the hot end. Gas analyses were made when made at all, by means of a Reich apparatus or Orsat, using water for aspirating medium. Gas analyses were accepted as satisfactory where the total absorption approximated $17\frac{1}{2}$ to $18\frac{1}{2}$ per cent., and the apparent loss of oxygen from the gas mixture (in the neighborhood of 10 to 12 per cent. of the total O) was laid to the formation of mysterious polysulphides, and not much consideration was given to the possibility that most of the sulphate was formed at this point.

The idea that the SO_2 was almost wholly formed at the absorption end did not appeal to me, but to prove where it was formed required a method of determining the SO_2 in burner gases, which did not then exist. The method suggested, which involved absorption of the gases in caustic solutions and afterwards the determining of the SO_2 and SO_3 separately, still left in doubt the question as to how much SO_2 was formed by wet oxidation in the experimental apparatus. This method also left in doubt another point, namely, whether all the SO_2 existing in the hot gas was caught in the experimental apparatus.

Two opinions regarding the state of aggregation of this SO_2 in gas seemed generally prevalent. One was that it existed as a gas. The other was that it existed as fine solid particles of SO_2 in suspension. If it existed as a gas there would have been no doubt but that it would be absorbed in a caustic solution. If it existed as a solid, the problem was not one of absorption where the law of independent expansions of gases in a mixture operated, but of actually bringing all the particles of SO_2 into contact with the caustic liquor.

My own theory was that the SO_2 formed in the hot gases combined with atmospheric water to form sulphuric acid as

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soon as its temperature was reduced below the dissociation point of sulphuric acid. I had observed a conversion of SO_2 to SO_3 ranging from 2 per cent. to 5 per cent. of the sulphur burned. If we take 5 grains per cubic foot as the probable moisture content of air and assume different gas concentrations from 8 to 18 per cent., the atmospheric moisture is sufficient to combine as sulphuric acid with from 8.5 per cent. to 17.5 per cent. of the sulphur burned. This makes the problem one of removing minute globules of sulphuric acid entrained in the gas stream. This was substantiated by many points observed during the operation of acid systems, and the difficulty of removing such acid mist by absorption, so called, was attested by years of trial to remove from waste smelter gases and exhaust gases from chamber sulphuric acid plants.

In 1911 I came across accounts of the application of the Cottrell electrical precipitation process as applied to smelter gases, and in 1912 I saw a demonstration of it applied to ammonium chloride vapors during the International Congress of Applied Chemistry. I rigged up a precipitating vessel, using a static machine as a source of high tension current and ran some experiments removing the acid mist by this precipitation, and absorbing the SO_2 left in the gas by ebullition through caustic liquor. My electrical precipitation apparatus was far from satisfactory, but these results showed that the proportion of SO_2 to SO_3 in hot burner gases was about seven-tenths of the proportion of SO_2 to SO_3 in finished system acid, and I was satisfied a more perfect precipitation would show that practically all of the SO^2 was formed in the hot gases.

On the strength of these experiments I presented the matter of designing a precipitation chamber for removing acid mist from sulphur burner gases to the Research Corporation, but they did not seem inclined to go into the matter at that time. Later, however, they applied the principle in the mills of another company and have now about solved the problem of designing a satisfactory precipitator for this purpose.

As an outgrowth of this work a method of rigging up an Orsat, with mercury as an aspirating fluid, and an independent level indicator, was developed; this enabled one to get an accurate measure of the oxygen lost through the oxidation of SO_2 to SO_3 and thus apply an accurate rapid volumetric test for SO_3 in burner gas. This method was presented to Mr. Wolf of the Burgess Company, who had exhaustive comparisons made with other methods.

The beneficial effects of removing SO_3 from the gases has been proved through the operation of a mechanical gas filtering tank designed by Messrs. Paulson & Gorgren, and the only point yet to determine in overcoming this sulphate trouble in our plants is the relative worth of the mechanical filtration and electrical precipitation. Work of value to the millowners can be done here by co-operation between members in exchanging the data on the operation of these two forms of precipitators as fast as they are collected. There still remains the problem of preventing the formation of the SO_3 and the consequent loss of sulphur it occasions.

The suggested influence of SO_3 on pitch in sulphite has been already mentioned. The influence of cymene in this regard was also mentioned. The opinion expressed so far as to the action of cymene in creating pitch troubles seems to be that cymene in recovered acid causes its dissolved pitch to fall back into the digester, thus increasing the pitch content of the pulp. But this is a closed cycle, and the cymene could carry no more pitch into the fresh chips than it carried away from the last charge of pulp. I want to suggest another probability, which is that the cymene entering the digester with the cooking acid acts as a solvent for the pitch in the fresh chips, thus collecting it into relatively large masses. When the relief starts, the turpentine passes off by steam distillation, leaving the pitch collected in much larger masses than would have been the case

had the acid been relieved of its excess cymene before it was pumped back into a digester. The larger masses of pitch are more readily retained in the pulp than would be the case if the pitch particles were finely divided by the hot acids during cooking in the absence of excessive amounts of cymene. In either case it is possible that a removal of cymene will lessen pitch troubles and an apparatus is in the course of development for removing this sulphite turpentine continuously from the liquor and barreling it for sale as a valuable by-product.

In investigations on the cooling of burner gases, work of value can be done by developing some reliable data and formulas and perhaps by standardizing the meaning of some expressions. An example of what I mean by standardizing is furnished by the expressions "efficient cooler" and "good cooler." These expressions generally mean a cooler that lowers the temperature of the burner gas to very near the temperature of the water entering the cooler, say to within 2° to 5° Cent. of that temperature. No reference is made to the heat extracted per square foot of cooling surface (per degree difference per hour) nor to such a factor as heat carried away per 1,000 gallons of water used.

With co-operation between the efficient men of the Technical Association reliable data could be obtained on such subjects as (1) the effect on the cooling of the speed of gases in the pipes; (2) the effect on cooling of the rapidity of circulation of the cooling water; (3) the relative effectiveness of the different methods of applying the water, whether cross-current or counter-current in spray and submerged coolers; (4) the actual heat conducting power of various thicknesses of chemical and antimonial lead with the films of oxide sulphate and dirt on the gas and water sides as they must exist in actual practice; (5) the heat carried away by any unit volume of water; or, expressed another way, the temperature rise of the cooling water in passing through the cooler.

Suitable methods for investigation or calculating data in these various subjects could be arranged without much trouble so that members who volunteered or consented to perform any part of the work could know their results would be comparable and of immediate value for comparison and tabulation by those who had the work in charge. This work, when completed, would certainly pay for itself a great many times. It would put at our disposal a line of information not now available and help us individually in planning future work.

In a great many instances where existing plants are being improved or enlarged special factors have to be considered. Limited water supply is often an important consideration, as is also cost of installation; and sometimes space available does not fit the form of cooler favored, where, if full data were available on all forms of coolers, a suitable one could be selected that could be installed without extra space being provided. Last but most important it is always desirable to start to provide for a given cooling effect with a minimum of all elements and be sure of results.

There are good coolers in operation today that have been designed by members and serve their purpose admirably. Many of these have been designed by comparison with others and under intelligent consideration this method is good. There are other coolers, however, which have not been copied from good models nor well developed independently. Illustrating this, the writer recently saw a practically new cooler designed by one who was well paid for his services and who should have been competent. It was pronounced a good cooler by the superintendent in charge, and yet it was not cooling particularly well for it had about 1,800 square feet of cooling surface and was cooling for about 45 tons a day. Another cooler was observed that was doing good work according to ordinary standards and was pronounced satisfactory. This cooler had 1,500 square feet on 75 tons production while the warm water ef-

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fluent was only 2 degrees Cent. above the cold water supply, and this was in a mill where the water supply was a serious problem and could not be increased without very extensive alterations. This example illustrates how valuable the information above outlined would be to the mill owners generally.

Providing for cooling of digester relief is not so simple generally as the construction of an efficient cooler for burner gases. In burner-gas cooling one can compare the cooling capacity to the daily pulp production of the mill or better to sulphur burned per day when judging its performance. With relief coolers, however, it has been almost the universal practice to consider all coolers operating in plants of the same daily production as being on the same basis in the matter of heat extraction. Technical men generally considered coolers operating on separated gas and separated liquor as being under different conditions than coolers which receive both gas and liquor together. But the greatest difference in conditions of operation is caused by different sizes of digesters.

All relief coolers probably reduce the temperature of the relief to a low enough point during slow relief periods. It is during the rapid relief periods that the cooler falls down and in plants where large units are turned over rapidly, the maximum load on the cooler can well be double what it is in other plants where a large number of smaller units are being turned rapidly. This element should be considered in the design of any new cooler or cooler enlargement. It seems probable that a relation could be established between the square feet of cooling surface and a figure showing "maximum tons relieving per hour." This figure would comprehend the daily capacity of the plant, the size of units and rapidity of relief and would go far toward clearing up the present confusion as to apparent differences in the operation of different coolers. This in time would result in a lessened number of changes in type of cooler on what is now partial information.

The matter of encouraging the use of copper for relief coolers should be investigated and data collected. Little information can be obtained from heat conductivity tables, for they are generally based on trials when surfaces in contact with gas and water are clean surfaces. This can probably never be the case in sulphite millwork, and the resistance of the surface film of oxide or sulphate or dirt to heat conductivity is probably more important than the heat resistance of the metal itself. Various authors give widely different figures for the relative heat conductivity of different metals. Probably the most reliable authors come near to giving the conductivity of copper as ten times that of lead. Those who have observed both metals in coolers know there is a far greater difference than is obtained in practice. The great strength of copper will enable it to be used in much lighter sizes. If the copper is for instance used 40 per cent. as thick as lead in a pipe of the same size, and we count one square foot of copper equal to only two square feet of lead, the comparative weight of copper and lead for the same cooling effect is 1.77 to 11.07 and copper could be used as cheaply as lead at $6\frac{1}{4}$ times the price of lead.

In all the foregoing the attempt has been to state some views on subjects that need investigation, and in which any results attained will be of immediate value not only to members individually, but to the industry.

NEW HOME OF CARTER PAPER COMPANY

The constantly increasing business of the H. W. Carter Paper Company at Springfield, Mass., one of the largest jobbing houses hereabouts, prompted the officials of this prominent firm early in 1916 to consider plans for a new and more modern building. So it was that in the spring of 1917 a suitable location was chosen and a contract awarded for the construction of a new building, where the company could more successfully and conveniently, and at the same time more economically, take care of its splendid business.

Is Located in Heart of Wholesale District

The location picked is at the corner of Chestnut and Liberty streets, in the heart of the wholesale district, and here was constructed a handsome \$100,000 building. The building is among the finest of its kind, as will be noticed from the picture appearing in connection with this review, and is particularly adapted for handling the Carter Company's expanding business. It is built of reinforced concrete with brick front, and is as near fireproof as it is possible to make it. This imposing structure is five stories high, with basement, the dimensions of the building being $43\frac{1}{2}$ feet by 125 feet, and has a floor space of 29,000 square feet. It is entirely modern and up to date in every sense of the word.

The building was completed in the late fall, and on November 1 the business of the company was transferred here from its former location on Worthington street. The company deals extensively in paper, wrapping papers, bags, twines and the like, the demand for which is steadily growing, not only with this company, but throughout the country.

New Building Affords Many Conveniences

The new building enables the company to do away with the necessity of engaging quarters for storage purposes elsewhere, as was the case for several years past. This entailed a considerable



NEW CARTER PAPER BUILDING.

expense for rental and was found very unsatisfactory, as the places engaged were not always centrally or conveniently located. Now the company has storage room in abundance, and has also beautifully appointed sales and showrooms. In the showrooms all the stock handled by this company is kept on display for the benefit of the trade.

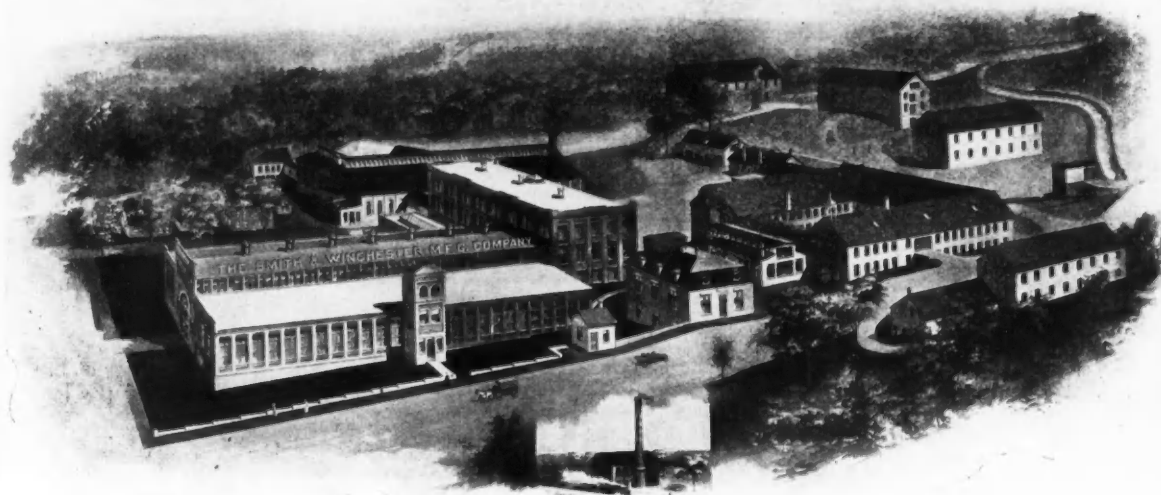
To afford the best of railroad facilities, a spur track was built running from the Boston and Albany railroad lines into its shipping room, which, with the offices and salesrooms, are on the first floor. The spur track gives the company an added advantage of making shipments, and this is especially pleasing to the officials of the company since it allows the firm to receive and ship carload lots. The equipment of the new plant is thoroughly up to date, with an elevator connecting on all floors.

One of the Oldest Local Paper Houses

The H. W. Carter Paper Company is one of the oldest wholesale paper houses in this vicinity, its existence extending over a quarter century. It has a payroll of close to 40 employees and 14 salesmen.

Edward H. Tucker, president of the company, said the other day that his firm has reserved a lot in the rear of its quarters, 80 feet square, which will take care of any further expansion in the future.

The small concrete building shown in the photograph of the new "Carter home" is the garage, which houses the fleet of auto trucks in use every day in the handling of the company's business.



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The Thermochemistry of Acid Making

Question of Temperature in the Preparation of Sulphite Acid Is Always an Important One, and Especially So in the Case of Mills That Take Their Water Supply from Rivers—Difference Between Tower and Milk of Lime Systems Must Be Considered of Prime Importance, and Only This Phase Is Taken Up Here.

Read at the Meeting of the Technical Association by Clinton K. Textor, of the Nekoosa-Edwards Paper Company

The question of temperatures in the preparation of sulphite "acid" is always an important one and especially in mills that take their water supply from rivers. In such cases the water frequently reaches temperatures of 25° or 30° Cent. and even higher during the hot summer months, making the task of keeping up the strength of the acid a serious one.

In a treatment of the problem, the differences between the tower and milk-of-lime systems must be considered of prime importance and in this paper only this phase is taken up. The data of the heats of formation of various compounds which are used in the theoretical consideration of this subject are taken from Richards' *Metallurgical Calculations*, with the exception of those for the bisulphites of calcium and magnesium which were obtained directly from Professor Richards. The values used are shown in Table I.

Table I.

Heats of Formation of Various Compounds.

Compound	Calories
Ca, O	131,500
Mg, O	143,400
Mg, O ₂ , H ₂	217,800
Ca, O ₂ , H ₂	215,600
Mg, C, O ₃	269,900
Ca, C, O ₃	273,850
Mg, H ₂ , S ₂ , O ₆ + aq.	407,400
Ca, H ₂ , S ₂ , O ₆ + aq.	407,600
C, O ₂	97,200
H ₂ , O	69,000
S, O ₂	69,260
H ₂ , S, O ₃ + aq.	146,600

The preparation of the SO₂ gas, whether from sulphur or pyrite, and its subsequent cooling is the same for both tower and milk-of-lime systems and will not be taken up in this discussion. Starting then with the cooled gas and the lime or limestone that enters the system, the fundamental equations of acid making are for the tower system:

	Calories
(1) Ca CO ₃ + 2 SO ₂ + H ₂ O = Ca H ₂ (SO ₃) ₂ aq. + CO ₂	23,430
(2) MgCO ₃ + 2 SO ₂ + H ₂ O = MgH ₂ (SO ₃) ₂ aq. + CO ₂	27,180
(3) SO ₂ + H ₂ O = H ₂ SO ₃	8,340
And for the milk of lime system:	
(4) CaO + H ₂ O = Ca (OH) ₂	15,100
(5) Ca (OH) ₂ + 2 SO ₂ = Ca H ₂ (SO ₃) ₂ aq.	53,480
(6) CaO + 2 SO ₂ + H ₂ O = CaH ₂ (SO ₃) ₂ aq.	68,580
(7) MgO + H ₂ O = Mg (OH) ₂	5,400
(8) Mg (OH) ₂ + 2 SO ₂ = Mg H ₂ (SO ₃) ₂ aq.	51,080
(9) MgO + 2 SO ₂ + H ₂ O = Mg H ₂ (SO ₃) ₂ aq.	56,480
(10) SO ₂ + H ₂ O = H ₂ SO ₃ aq.	8,340

In the case where both milk-of-lime and tower systems are operated with an all calcium lime and limestone, the only difference in the thermochemical features is in the formation of lime from limestone, which requires the addition of heat according to the equation:



On this basis, there would be 45,150 cal. more heat evolved per gram molecule of combined SO₂ in the milk-of-lime system than in the tower system, which is equivalent to 10/64 × 45,150 = 7,054 cal. per 1 percent. combined SO₂ in the liquor. We should expect, therefore, that under similar conditions of operation that the acid produced in a milk-of-lime system to be 7,054° Cent. higher for each 1 percent. combined SO₂ than that produced from limestone.

However, many milk-of-lime systems use a dolomite lime, while a high calcium lime is generally used in towers. Hence, the foregoing calculation will not hold in most cases; and when the actual rise in temperature is desired it is evident that we must go into more detail.

In usual practice the analysis of sulphite acid is reported as per cent. SO₂ combined as CaSO₃ and per cent. free SO₂, that is SO₂ in excess of that combined as CaSO₃. In reality the lime is in combination as CaH₂ (SO₃)₂ and in a thermochemical consideration it is necessary to consider it as such. However, to avoid confusion the terms will not be changed and in the following discussion "combined SO₂" indicates SO₂ combined as CaSO₃, "free SO₂," that in excess of CaSO₃, and "excess SO₂," that in excess of CaH₂ (SO₃)₂. This figure in the usual report of analysis.

Taking up first the tower system, Equation 1 shows an evolution of 23,430 cal., which is equivalent to

$$10/64 \times 23,430 = 3,660 \text{ cal.}$$

or 3.66° Cent. temperature rise for each per cent. combined SO₂ in an acid produced from an all calcium limestone. In the same way Equation 2 shows a rise of 4.247° Cent. when MgCO₃ is used and the average of the two, 3.954° Cent. is rise per 1 per cent. combined, if a pure dolomite (CaCO₃MgCO₃) were used. From Equation 3 we can derive the figure 1.303° Cent. rise per each per cent. "excess SO₂" formed.

The following data of actual operation of a tower were supplied by G. D. Jenssen for a system operating on a high calcium lime and were taken during the cold weather early in January:

	Deg. Cent.
Temperature of water supply	21.5
Temperature of raw acid	25.0
Temperature of difference	3.5
Per Cent.	
Free SO ₂	2.34
Combined SO ₂	1.14
Excess SO ₂	1.20

According to the foregoing theoretical computations, the temperature rise would be:



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	Deg. Cent.
Due to combined SO ₂ (1.14 × 3.660).....	4.2
Due to excess SO ₂ (1.20 × 1.303).....	1.6

Total 5.8

The discrepancy of 2.3° Cent. is due in part to radiation, but for more accurate results the tests would have to be made when the outside temperature is more nearly that of the acid.

That this discrepancy is due to radiation is borne out by another test submitted by Mr. Jansen, taken during warm weather in September with an atmospheric temperature of 35° Cent.

	Deg. Cent.
Temperature of water.....	20.0
Temperature of acid.....	25.0
Analysis of Acid—	Per Cent.
Free SO ₂	2.08
Combined SO ₂	0.67

Excess SO₂..... 1.41

Theoretically the rise in temperature would be:

	Deg. Cent.
Due to combined SO ₂ (0.67 × 3.660).....	2.4
Due to excess SO ₂ (1.41 × 1.303).....	1.8

Total 4.2

In this case the actual is 0.8° Cent. above the theoretical.

The temperature rises corresponding to the several equations for the milk-of-lime system are shown in Table II, the averages of values of two equations represent the similar reaction in which a pure dolomitic product is used. Thus the average of Equations 7 and 4 represent:

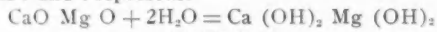


TABLE II.

Equation 4.....	2.359° C. per 1% combined SO ₂	
" 5.....	8.356	"
" 6.....	10.716	"
" 7.....	0.844	"
" 8.....	7.981	"
" 9.....	8.825	"
" 4 and 7 (Av.).....	1.601	"
" 5 and 8 (Av.).....	8.169	"
" 6 and 9 (Av.).....	9.770	"
" 10.....	1.303	" Excess SO ₂

An attempt was made to check up these figures against actual practice in acid plants of the Nekoosa-Edwards Paper Company during the early part of January. However, as the atmospheric temperature during the period of tests was on the average -15° Cent. the radiation losses were doubtless considerable. A typical test which represents twenty-four hours operation yielded the following data:

	Deg. Cent.
Temperature of water.....	0.5
Temperature of milk of lime.....	4.4
Temperature of raw acid.....	18.1
Analysis of raw acid:	Per Cent.
Free SO ₂	2.27
Combined SO ₂	1.80

Excess SO₂..... 0.47

The temperature of the milk-of-lime was taken after it had been properly diluted to yield the desired proportion of combined in the finished acid. As steam was used in slaking, the amount of heat added in this way had to be determined and was found to be 256 cal. per gram of lime, which is equivalent to a temperature rise of 1.92° Cent. per 1 per cent. combined SO₂ in the liquor produced. The lime used contained calcium and

magnesium in very nearly the proportions of a pure dolomite lime.

Considering the operation starting with CaO MgO, from the temperature readings taken, we find that:

	Deg. Cent.
Gross temperature rise (18.1 - 0.5).....	17.6
Rise due to steam in slaking (1.92 × 1.80).....	3.5

Net temperature rise..... 14.1

On theoretical grounds we would expect:

	Deg. Cent.
Rise due to formation combined SO ₂ (1.80 × 9.770)....	17.6
Rise due to formation "Excess" SO ₂ (0.47 × 1.303)....	0.6
Total	18.2

If we consider the operation starting with milk of lime, Ca (OH)₂ Mg (OH)₂, then:

	Deg. Cent.
Rise due to formation combined SO ₂ (1.80 × 8.169)....	14.7
Rise due to formation "Excess" SO ₂ (0.47 × 1.303)....	0.6

Total 15.3

The discrepancy between the actual and theoretical is 4.1° Cent. in the first case and only 1.6° Cent. in the latter, indicating that the greater part is due to radiation in slaking the lime. This is to be expected, due to the relatively high temperature which obtain in the slaker and a comparison of practice and theory of the slaking operation will bear this out. By actual measurement:

Temperature rise due to slaking (44 - 0.5), 3.9° Cent., and according to Equations 4 and 7:

	Deg. Cent.
Rise due to formation Ca (OH) ₂ Mg (OH) ₂ (1.8 × 1.601) 2.9	
Rise due to steam in slaking (1.8 × 1.92).....	3.5

Total 6.4

thereby 2.5° Cent. of a total discrepancy of 4.1° Cent. is accounted for.

The problem of radiation from partly exposed tanks and towers is too much of a task to be taken up for this purpose, and so it seems best, if more accuracy is desired, to check up theory against practice at some time when the atmospheric temperature approximates that of the water supply, and radiation losses are thereby largely eliminated. However, it seems safe to assume that the theoretical values derived above represent a fair average for all seasons.

On this assumption, an acid containing 2.00 per cent. free and 1.60 per cent. SO₂, which we will take as an average, will entail an average temperature rise of 6.4° Cent. if made in a tower from an all calcium limestone, and 16.1° Cent. if made in a milk-of-lime system from dolomite lime, without the uses of steam in slaking or cooling water in the makeup tanks.

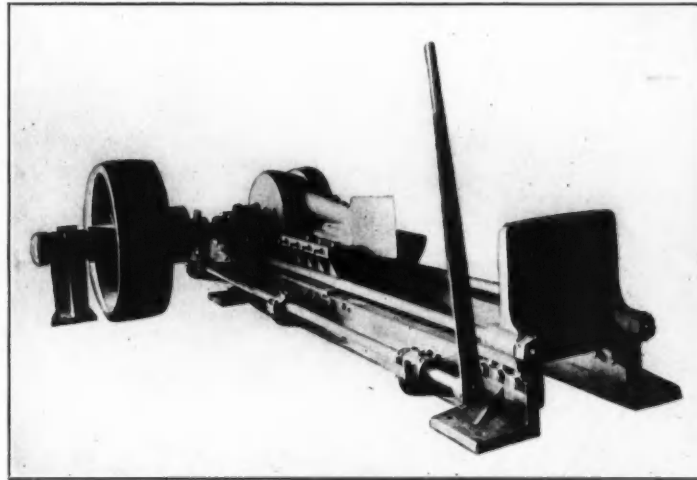
THE CHEMISTRY OF ROSIN SIZE BOILING

By J. A. DeCew, Montreal, Canada

Unless all methods of preparing rosin soaps for paper sizing produce the same results there must be a variation in the chemical reactions or combinations taking place as a result of different methods of operation. As there is a divergence in practice in this regard, and as different operators believe that their own practice is the best, a discussion of the chemical problems that present themselves when studying this subject may lead to a more rational basis for our conclusions. Although the saponification of rosin may seem very simple its chemistry is quite obscure, and I wish to present for further

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research a few of the variations in method which may effect the final product.

(1) Will the same effect be obtained when saponifying with caustic soda as when using sodium carbonate, assuming that the alkali in both cases is completely neutralized?

(2) What are the variations in chemical effect from adding an alkaline solution to molten rosin as against the addition of broken rosin to a boiling alkaline solution?

(3) What chemical effect is desired or obtained by saponification under pressure, and is the result beneficial to a paper size?

(4) Will the saponification of a molten rosin with a concentrated alkaline solution produce more hydrolyzing action than when using a dilute alkali?

(5) Are there any properties in a fresh unmodified rosin which makes it more suitable for a paper size than one which has become oxidized by age or heat, or polymerized by excessive hydrolysis?

(6) If an unmodified rosin is proved to be more efficient, then would not a rosin which has been prepared by distillation under vacuum be still better?

(7) If the percentage of abietic acid should indicate the modification that the rosin has undergone by various treatments, would it be possible to place a commercial value on the rosin, either before or after it is made into size, by establishing a relationship between the acid value and the saponification value?

(8) Is it likely that the properties of rosin may be more easily injured by heat before saponification than after?

(9) If the foregoing should be true, then would not over-boiling be more injurious to a partially saponified rosin than one completely saponified?

It is, of course, impossible to arrive at exact conclusions regarding the several problems presented without obtaining an exhaustive amount of data. The experience of the writer has however, led him to believe that owing to the fact that machinemade paper is subject to considerable strain in the manufacturing process, the physical properties of the rosin in the paper are a matter of importance, and that with some investigation a relationship could be established between the chemical and physical properties of the rosin. If this could be done, it would be possible to show why one method of boiling size is superior to others.

At the present time the analytical methods employed in size analysis indicate very little, as they consist chiefly of determinations of the amount of saponified rosin. It is obvious that these results throw no light whatever upon the physical properties of the rosin itself, or the amount of hydration of the rosin precipitated in the stock, or whether the hydrate precipitated is water and ink repellent.

TISSUE MANUFACTURERS' ASSOCIATION

The Tissue Paper Manufacturers' Association held its annual meeting in the East Room of the Waldorf-Astoria Hotel on Tuesday at 10 A. M.

The discussion covered the present status of the tissue paper industry and the outlook for the future.

Many of the members reported after the meeting that in their opinion the outlook for the rest of this year was much brighter, with prices stiffening.

Officers were elected for the coming year as follows: A. D. Coffin, president; W. R. Hobbie, vice-president; E. H. Naylor, secretary-treasurer. The following executive committee was named: A. D. Coffin, W. R. Hobbie, John Brannan, E. C. Robertson and J. C. Fogarty.

The members elected to represent the association in the Executive Council of the American Paper and Pulp Association were: A. D. Coffin, A. F. Tuttle and F. L. Stevens.

WAXED PAPER MANUFACTURERS' ASSOCIATION

The meeting of the Waxed Paper Manufacturers' Association on Monday in the State Apartment was a highly important one to the members representing this industry.

It is understood that steps were taken to appoint a committee to represent the waxed paper branch of the paper industry to lay before the Government at Washington, if need arises, any information the Government may require. This is a necessary procedure, in the estimation of the Association's members to properly safeguard the industry's interests.

Officers for the coming year were elected as follows: President, J. Knidleberger; vice-president, W. J. Eisner; secretary-treasurer, J. W. Hurlburt. An executive committee was named as follows: J. D. Goldberg, B. O. Kenrich, S. H. Clindinst, V. Minez and R. R. Donnelly.

WRITING PAPER MANUFACTURERS' ASSOCIATION

On Wednesday morning the Writing Paper Manufacturers' Association held their meeting. The following officers were elected: W. J. Raybold, president; R. F. McElwain, first vice-president; chairman Sulphite Bond Division, second vice-president; E. H. Naylor, secretary-treasurer. The executive committee named consisted of W. J. Raybold, R. F. McElwain, chairman Sulphite Bond Division, F. R. Ayer, A. C. Gilbert, A. Leeds, Thomas Beckett.

To represent the association in the Executive Council the following men were elected: W. J. Raybold, C. A. Crocker and A. H. Dwight.

PULP MANUFACTURERS' ASSOCIATION

A very interesting meeting was held by the Pulp Manufacturers' Association on Wednesday afternoon.

All of the old officers were re-elected. These are: J. E. Campbell, chairman of executive committee; E. W. Kiefer, T. J. Stevenson; M. L. Freeman, secretary.

Both the chairman and the secretary rendered extempore reports. These dealt with the conditions now before the trade, the new output coming on the market, and the present export and import conditions.

COVER PAPER MANUFACTURERS

The Cover Paper Manufacturers' Association meeting was held on Tuesday in the East Room. The following officers were elected: Sidney Rogers, president; D. L. Quirk, vice-president; E. H. Naylor, secretary-treasurer. An executive committee was named consisting of the above members, and in addition, W. H. Howes.

VEGETABLE PARCHMENT ASSOCIATION

On Tuesday, in room 109, the Vegetable Parchment Manufacturers' Association held its meeting.

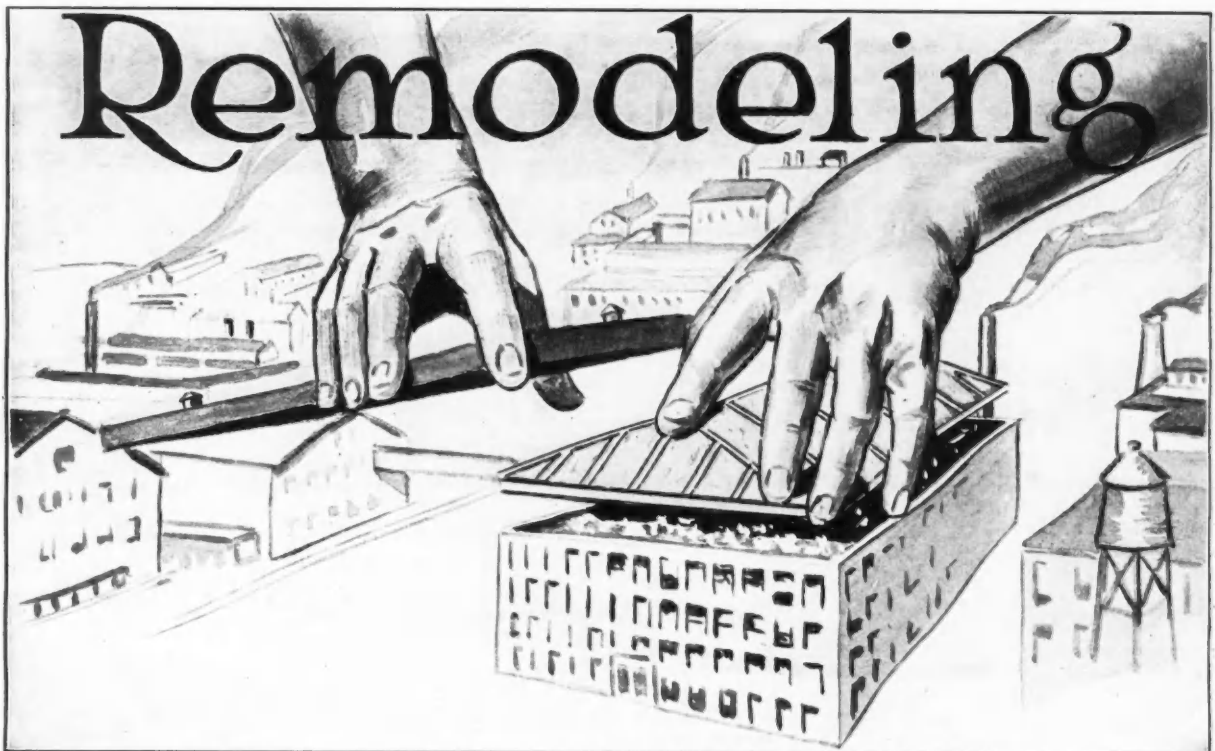
A new body of officers was not elected at this meeting, but the old body will continue in office until November.

W. F. Brunner is president of the association and R. B. Harbison, secretary-treasurer.

WRAPPING PAPER SERVICE BUREAU

The meeting of the Wrapping Service Bureau continued practically over the entire day.

No new officers were elected. The secretary, A. J. Stewartson, chosen some week ago, continues in office.



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JOBBERs *in* ANNUAL CONVENTION

George Olmsted of J. W. Butte Paper Co. Is Re-elected President of the National Paper Trade Association

The Coarse Paper Division of the Organization Held Its Meeting Tuesday Morning at the Waldorf-Astoria—This Is Followed by Meeting of the Fine Paper Division and Later by Meeting of the General Association—Various Changes in the Divisions of the Organization Are Voted—Work of the Year Is Reviewed by Well-known Men.

The annual convention of the Coarse Paper Division of the National Paper Trade Association was called to order Tuesday afternoon, at the Waldorf-Astoria, by Chairman H. E. Platt.

The Chairman: I would ask Mr. Lyter to give us a report showing what the association has accomplished, and especially in its missionary work in the West.

Mr. Lyter: Since the Philadelphia meeting of the Executive Committee there have been formed in the West three associations, whose applications for membership were formally accepted yesterday at the Executive Committee meeting. Those associations are the Wisconsin Paper Trade Association, which confines its territory exclusively to the State of Wisconsin, and has a membership of nine. The Southeastern Wrapping Paper Association, which includes in its territory those States east of the Mississippi River and south of the Southern Tennessee line, with the exception of the Carolinas. Its initial membership was sixteen, and since its formation there have been four applications received from other dealers in that territory, bringing their membership up to twenty. Last week there was formed in the Missouri Valley district an association known as the Missouri Valley Wrapping Paper Association, with a membership of sixteen. Prior to the formation of these associations, the membership of the Coarse Paper Division was 227, with a total of 45 new members, giving us a total membership in the Coarse Paper Division of the National Paper Trade Association of 272, which is considerable more than the White Paper Division has, so I think we should at least feel that we have accomplished quite a bit in the way of extending our membership in the last year.

There are a number of articles which will be brought to your attention this afternoon under the heading of committees, under the statistics, the result of the Tissue Committee conference, the result as to terms, and the fifteen cents differential for sheets over rolls, and mill brands. These will come up in their regular order of business.

The Chairman: The separate organization of the Coarse Paper Division of the National Association came into being in February, 1915, and while this is the fourth annual meeting, it is in reality only the end of the second year of the actual work of this division. I hope you will note the significance of the figures that were given to us by the secretary. Without new members we have a total membership now of 272. I believe the White Paper Division has 210. We have grown from a small standing committee on "Manilas and Wrappings" to the present strong organization with 272 members. It has not all been smooth sailing, and at times in the early days we were skating on rather thin ice, but through the earnest co-operation among the members and the real work they have put into it, we have come through with flying colors.

The last two years have been very unusual years in the history of the business. Every day has brought up new problems. We, together with all lines of business, have had to face the new conditions that have come upon us with almost kaleidoscopic rapidity. In this respect 1918 is starting out to break even the unusual records of 1916 and 1917. In spite of these conditions, we believe that we have shown that we have made real progress. Because of these conditions, there is even more scope and more necessity for co-operative work through association channels than in normal times. The word which seems to best describe conditions among the manufacturing as well as the distributing end of the business today is "chaotic." I believe most of us feel, however, that we are getting unusually beneficial results from our local association work as well as from the national body. In this connection I would like to quote from Mr. Herrlinger's very able address delivered before this body last February: "Business men generally gain a certain amount of keenness and insight from the mere personal contact with one another," and "Those who derive the most benefit from this kind of work are those willing to give and do give freely of their time and effort in its behalf."

The subject of costs is coming before us. If you have read the reports of the threatened government control of certain lines of paper, if not all lines, you will have noticed the important role in this discussion that has been taken by the matter of cost accounting. We believe the jobber is an economic necessity because he is the most economical means for the distribution of paper from the manufacturer to the consumer. While the government has not denied this, it has in a measure put upon us the burden of proof which necessitates our showing them our cost of doing business, and what we consider a fair margin of profit over and above this cost. This is simply one of the tendencies of the times showing the importance of cost accounting in modern merchandising, and it behooves us to give more attention and thought than ever before to this branch of our business. The system in each individual business should be as nearly uniform as it is possible to make it. Many of us no doubt have a system of bookkeeping which gives us our overhead and selling costs as applied to the different departments of our business, but all too frequently we do not go far enough to separate these departments into three classes of business; namely, warehouse, pier and dock, and direct mill business. For example, we may have a system which will give us our percentage of costs on our wrapping paper department. In this department we do the three classes of business, warehouse, pier and direct, and it is not fair to average our percentage of costs on all three. Most of us get a fair profit on our pier and direct business. It is on our warehouse business that we are weak, mainly, I believe, because we do not figure against this class of business

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the proper overhead. We all know that it costs us a certain amount to handle our warehouse, less to handle the dock or pier, and still less the direct business. Any cost system which then does not give us the overhead on these three classes is manifestly incomplete. Mr. Ridgway told us last year that one of the examiners on the Federal Trade Commission made the statement that he had never seen such rotten accounting as that practiced by the paper distributors. This is a subject of vital importance, and I hope it will be taken up and thoroughly discussed later on in our meeting.

In statistics, there has been a gradual change coming over all association work. Anything in the nature of price control has of course always been rigidly excluded from our work, not merely because it is illegal, but much more because it is fundamentally and economically wrong. It is a hindrance to proper growth and falls of its own weight, doing more harm than good. Association work is proceeding along entirely different lines. The dominant note in it is education. It seeks to throw light upon market conditions, as to the general increase or decrease in production and in consumption as to whether the jobber's demands upon the mills are above normal, normal or subnormal. Ultimately I believe it should go into the jobber's market—as it does in many other lines of business—and tell him whether or not the general consumption in his locality has fallen off or increased. When it does this it will be of great value to the individual in enabling him to size up much more correctly the conditions in his own particular business. Work of this kind is done through the statistical bureau. Our division of the National Association has made a start in this line of work and it is proposed to go very much farther in it the coming year. This matter will come up under "new business," and it is one of the most important lines of work we have thus far undertaken, and I trust you will give it careful thought and attention, and what is still more important, your hearty co-operation. By that I mean that when we go back after this convention, that we will see to it that the measures that are adopted here this afternoon and tomorrow afternoon in the full meeting of the association,—see to it that these blanks and these statistics are properly made out and returned to the national secretary. And if we all do this, we will have a statistical bureau that will be of great value to each one of us individually in the conduct of our business.

We will go on with the next item and ask for the report of the Tissue Conference.

Mr. Power: Mr. Chairman: There was really only one thing that the Tissue Manufacturers asked us to do, and that is, they want us to change paragraph 11 of the Trade Customs of 1917. Paragraph 11 now reads: "If paper is shipped in rolls, wound on wooden or iron cores, paper is to be removed therefrom by purchaser and cores returned to manufacturer at invoice price and freight paid by mill. Now, I will ask the Secretary, Mr. Lyter, to read the change they wish made there.

Mr. Lyter: The amendment desired is that there shall be added to the Trade Custom which Mr. Power has just read, "All cores, straw board or fibre, weighing over thirteen ounces to a foot are returnable on the same basis as iron or wooden cores."

Mr. Ridgway: By implicating those weighing less than that would not be returnable.

Mr. Power: Yes, those weighing less than that would not be returnable. I move you, Mr. Chairman, that that request be granted.

Motion seconded.

The Chairman: It is moved and seconded that the request of the Tissue Manufacturers as you have heard it read, be accepted. I would say, incidentally that that resolution has the endorsement of the executive committee.

Motion carried.

Mr. Power: While in that meeting, there were only two other matters which came up that require any action on the part of this meeting. One was the subject matter of the accepting of their

adoption of the terms "2 per cent. 30 days," and we reported back to our committee, and the committee voted that it was the sense of the committee, owing to the present unsettled conditions of business, and with the cash discount as included in the cost of the mills product, that the Tissue Paper Manufacturers should take no action at that time, and we have reported back, but what the result will be I am not in a position to say at this time. They had a meeting this morning, and I believe it was adjourned to this afternoon.

The other matter was, they spoke of having a special label made for export orders, but on that label we simply told them,—we suggested they use the same label and print on it, "Made in the U. S. A.," and that would take care of that, so I think that is what they are going to do, as far as I know. That seemed to be very acceptable.

The Chairman: Do you want any further motion on that report? If not, we can take up the resolution offered by the executive committee as to the matter of terms, that three per cent. cash discount, and the fifteen per cent. differential for sheets over rolls.

Mr. Ridgway: Offered by the executive committee? You said by the board of directors.

The Chairman: Yes, offered by the executive committee. Will you read that, Mr. Lyter?

Mr. Lyter: The following resolution was passed unanimously: "Whereas, some of our members have been very successful in obtaining from a number of their houses a cash discount of three per cent., it is recommended that the efforts of the individual member in this direction, and also for the elimination of the 15 cent differential for sheets over rolls be continued with renewed vigor."

The Chairman: I suppose you are familiar with the purpose of that resolution. The adherence to the two per cent. cash discount is by no means general, and a great deal has been accomplished by the individual members taking up the question individually with their mills in getting a reinstatement of the old terms of three per cent. In fact, one of the members of the American Pulp and Paper Association admitted frankly that they figured the discount in their costs, and the Board of Directors have in mind impressing upon each member individually to keep everlastingly at it, as it were, in their individual business, in the endeavor to have the old cash discount reinstated, and it has met with quite a considerable measure of success thus far, and if kept up will undoubtedly meet with still greater success. I would be glad to entertain a motion that that resolution be adopted.

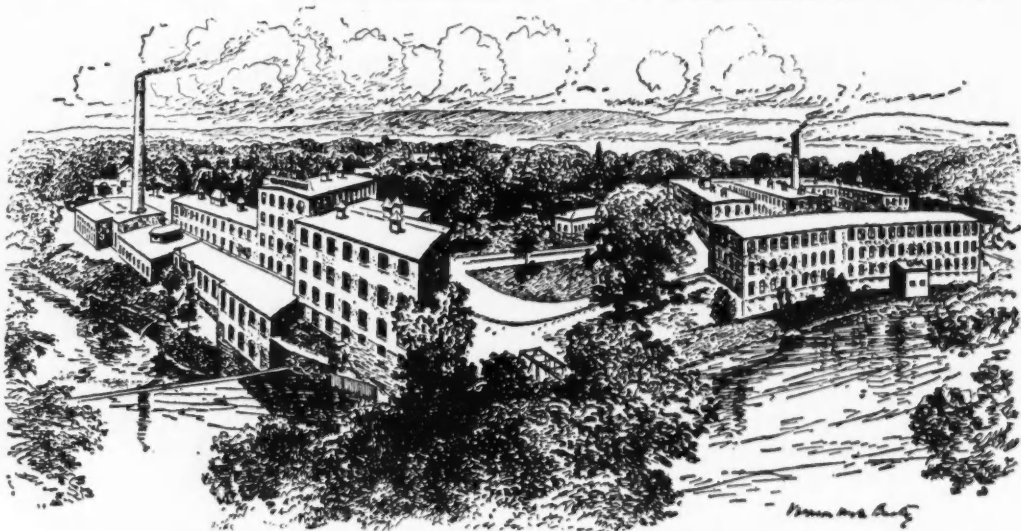
The motion was carried.

We will be very glad to have the report of the Statistics Committee.

Mr. Ridgway read the report of the Committee on Statistics as follows:

Your committee was appointed by our president at the last annual meeting for the purpose of devising a method of securing regular weekly report from our members of their purchases and sales if possible, along the lines of the Writing Paper Manufacturers Association, so that our members could intelligently judge as to the trend of business from time to time and govern their purchases accordingly. The committee decided that at first it would be well to confine reports to purchases only until our members could see the value of statistics, this being the easier report to make up—it having been ascertained that fifteen minutes daily was sufficient time to gather the information required. The necessary blanks were printed and sent to all members by the secretary, and the system was inaugurated April 11, 1917. The results have been as satisfactory as could be expected.

One of our members, representing a very large house, who at first was not enthusiastic over the plan, changed his opinion when a manufacturer of Sulphite Bond last Fall solicited his orders for several cars with the plea that in his opinion the tendency of



GENERAL VIEW OF BYRON WESTON MILLS AT DALTON, MASS. "THE PAPER VALLEY OF THE BERKSHIRES."

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prices was upward and jobbers generally were ordering rather heavily. The jobber was on the point of giving the manufacturer a substantial order when he bethought himself that "statistics" might give him some useful information. He scanned the weekly reports carefully, and there was no evidence of abnormal purchases. The order was not placed. We all know that about that time there was a decided slump in prices on that grade. The jobber was thankful that he had reported his purchases regularly in order to receive the weekly reports, as he had saved a very substantial sum.

The membership of the Fine Division is 310 houses, and of the Coarse Division 227, a total of 437, while the total individual membership of the constituent organizations, excluding duplications, is 301, of which the largest number reporting at one time was 108 in the Fine Division and 84 in the Coarse Division.

In November it was decided to divide those reporting into two classes—A-class, those reporting every week, and B-class, those reporting spasmodically. At present there are 104 reporting in Class A and 4 in Class B in the Fine Division; in the Coarse Division 81 in Class A and 3 in Class B. It was thought that only those reporting weekly should receive the weekly return reports as the trend of business could be better judged in this manner.

At a meeting of the executive board of the Coarse Paper Division held on Monday, the 4th inst., it was recommended that the following be included in the weekly report of purchases:

Kraft (which is defined as "made from sulphate pulp") divided into three classes:

- A. Point per pound or over.
- B. Less than point per pound.
- C. Any kraft containing any percentage of sulphite.

Wrapping manila (news, white manila, and butchers not included).

Butchers (including dry finish, water finish, and manila).

All fibres, dry finish and water finish (not including butchers).

Bogus and screenings.

Toilet and towelling.

Bags.

The executive committee and your statistics committee have also strongly recommended that the monthly sales in dollars and cents be reported, so that we may get an even better line on the trend of business. These reports can be sent to the Title Guarantee and Trust Company of New York City, each member being designated by a number, in practically the same manner as the reports of purchases. Immediately upon their receipt they will be collated, and destroyed, and the totals sent to all members reporting, so that there would be no question but that the individual reports would be positively confidential and absolutely inviolate.

The Chairman: I would like to say a word of explanation, however, before I put the question. You will note we have the three divisions as we had them last year, that is, Kraft, Manila and Fibres, and Tissue. We subdivided the Kraft into three sections; we have subdivided Manilas into three sections, and we have kept Tissue as it is, and then we have added the other classes. The reason the committee did it in that way, was that we would have some value out of the statistics which we have been receiving for the past year. In other words, we would have, by totalling the three classes of Kraft when they are returned to us,—we would have some method of comparison between this year's purchases and last year's purchases.

Is there any discussion on that report? We would be very glad to hear from anyone.

Mr. Severance: Mr. Chairman, on tissue paper, does that include toilet paper where you know the toilet paper is manufactured—for instance, a jobber having a lot of toilet paper—

The Chairman: I don't think I quite catch that.

Mr. Severance: In sending in the returns on tissue, if you

bought a carload of toilet paper, you know the mill you are buying it from manufactures their own tissue paper, would that go in on the report? I don't think the jobbers have been doing that.

A Member: Is there not a subdivision of toilet and towelling, so it would go in under that head?

Mr. Ridgeway: Under the new schedule, there will be tissue in one subdivision and toilet and towelling in another subdivision.

The Chairman: In other words, we have added several divisions to the three that we had last year, in addition to making subdivisions on the Kraft and Manila. That is, we have added tissue and towelling and bags to the divisions that we had last year. Is there any further discussion on that?

Mr. Ridgeway: I would like to hear a little discussion on this matter of reporting sales. Mr. Platt has called attention to the fact that the Manila Division is now the larger numerically in this association, but I would like to call attention to the fact that this division, although it is larger numerically, is not reporting their purchases nearly as well as the Fine Paper Division. For instance, out of your membership, eighty odd is the largest number of members that have ever reported in any one week, whereas the Fine Paper has given as high as 108. Now, this report contemplates going one step further than the report of purchases and profits, for the report monthly of your sales in dollars and cents, these reports to be made by you under a number to a trust company, which will total those reports and hand the numbers of the total to the secretary. Of course I take it that the reason for that is very plain to you, namely, so that there can be no chance of information of that sort becoming public property, or coming to the knowledge of anybody who has no business with it. The trust company will not have the key to those numbers, they will not know whose report they are handling, and the Secretary will have only the total of the entire number of reports received, together with the numbers of those who have reported, which would indicate merely that John Brown has reported. Now, it seems to me that in view of that, there should be no general objection to reporting your sales in dollars and cents. The idea is that the blank which will be sent to the trust company will be enclosed in a uniform envelope, there will be no marks of your house on that envelope at all, the blank itself will be perforated so that the report is on one side and the number is on the other, and that perforated part with the number on it will be put in an envelope and given to the secretary with the totals. It is contemplated beyond that to divide those reports in sending them to the members by associations. That is, the report would show, first, the total sales of coarse paper for the entire number of members that have reported, and then it would be further subdivided to show the coarse paper sales of the members of each local association. It seems to me there are a number of reasons why this sort of information would be even more valuable than the reports of purchasers. One feature of it which perhaps doesn't apply here, but which I would like to mention, is the fact that it is quite probable that an exchange will be made between the Fine Paper Division and the Writing Paper Manufacturers' Association of figures collected by each association. The Writing Paper Manufacturers' Association felt that the only thing they needed to show the full course and trend of the market is some statistics on the question of the volume of the consuming business. In other words, the amount of paper that the jobber sells to his customer. If he can get that, that completes his series. In exchange for that, he is willing to give certain of the figures at least that they are collecting, probably production, possibly orders on hand, and shipments. But there is no reason why some sort of an exchange should not be worked out on coarse paper. I am frank to say it is not under contemplation at the present time, but the New York Service Bureau of the Manufacturers might be interested in some proposition of that sort here, provided we can get some figures that are worth while. It is evidence that tonnage should be the

Handles 250,000 lbs. per day

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proper way of reporting this, but under present bookkeeping methods, that would be utterly impossible.

Now, I would dislike very much to see this division adopt this report without thoroughly knowing what they are doing, and when they do adopt it, to mean that they are going to follow this out, that they are going to report their sales under this plan.

Mr. Bond: Would it be proper to ask the people here who intend to report their sales, to signify it in some way so we can get some idea of what this really means; just find out how many are willing to report their sales every month.

The Chairman: I would like to ask, first, do we all understand fully just what this reporting of sales means? Do we appreciate its vital importance to us as individual merchants? Do we appreciate the value and the good that we will get from it by being able to size up market conditions much more accurately than we have ever been able to do before, to say nothing of the value which eventually is coming out of it? It may not come this year, but it is eventually coming, the exchange of information between the manufacturer and the jobber. Gentlemen, this is one of the most important features of work that we have ever attempted. It is one of the most valuable to us as individuals, and I want you to realize, I may say, the seriousness of it, because we have got to have—the association must have the co-operation of each individual member, and your executive committee feels sure that if you do report these statistics, that you will recognize at once the value they are to you. I would be very glad to hear any expression of opinion or any discussion on this question. It is really a big question.

Mr. Walter: Mr. Chairman, I would like to ask, through you, that instead of having those members who are willing to make the reports stand, to have those who have not answered these reports, rise, so we can find out if there is any particular reason why they don't want to make these reports.

Mr. Corning: Let me say, in answer to that, that instead of asking the members who are not reporting to stand up to shame, let those that are reporting do it, and that might be better.

Mr. Dubey: I think it would be better for each delegate of each of the constituent organizations to report here how many of their houses are reporting, and how many are not. Let us get some statistics along those lines.

Mr. Hodgkins: On this matter of our reporting sales, I just wanted to try and see if I have got this just right, or as we understand it out in our section. Now, for instance, I belong to the Missouri Valley Association. We will say in reporting we have a perforated card. On this side would be, we will say, our number was 6,—there would be marked on here M. V. No. 6,—that we were designated in that way, and then on this side (indicating) would be the amount of our sales. This card would go to the trust company just as it is. They would tear it in two, add up our sales,—add up the sales of all reporting, and report to Mr. Ridgeway the total of all sales. They would then send him this card that has nothing but the number on it, and he would know that Missouri Valley No. 6 are in there, or all that had reported from that association, and total the whole thing, and we would get the report back of just the amount of sales from that particular section. Am I right in that?

Mr. Ridgeway: That particular section, and the entire country; and also the sections all the way down. You would get the total and the subdivision as well.

A Member: Possibly I can answer that question a great deal easier by passing around some of the proposed blanks.

Mr. Seinsheimer: I would like to inquire if we report the tonnages, why that wouldn't give the desired information just as well as the dollars and cents information.

Mr. Ridgeway: Because you cannot get the tonnage.

The Chairman: You see, your tonnage report gives only your purchases from the mills. It doesn't give any gauge on the

consuming market.

Mr. Seinsheimer: It is fair to suppose that you are not buying merchandise unless you have sales for it.

The Chairman: Some of us occasionally buy ahead very heavily.

Mr. Stone: Would it be advisable to sub-divide these sales on the different grades of paper? Many of us deal in other articles, which form quite a part of our sales, twine and other things, and would it be a total report of our total sales or would they be sub-divided?

Mr. Ridgeway: It has been thought to start with that it would be better to include your entire business, excluding only such things as papers that have a seasonable market; that, perhaps, would throw the figures out of line, but it wouldn't make any particular difference in the comparisons. If you happen to be handling a set line of hair brushes, we will say—and I am interested in those with Barry—(laughter), it wouldn't make any difference if those were included, because it is by comparison that these figures are valuable. Totals don't make any difference. It is only comparisons that count, and if you keep including those in your report the result is the same. Now, it will only be here and there that these figures perhaps would be out of line at all in the houses that are doing both a coarse and fine paper business; if they include in their coarse paper sales such articles as are included in their coarse papers, and vice versa on the fine papers, it will be all that is necessary, even though some of them may have one article which is included in the fine paper department by one and in the coarse paper department by another. Statistics of this sort are valuable only as a barometer.

Mr. Wright: I have something here that was worked out by the statistics committee, and if I pass them around perhaps they may serve to help the members in their ideas.

The Chairman: I would like, gentlemen, to interrupt this discussion for a few minutes for this reason: One of the questions—new problems that are confronting all merchants today—is the matter of the new Federal income tax and how that is going to affect our overhead and our position to our salesmen. And we are very fortunate today in having with us a gentleman who has done a great deal of cost accounting work among paper merchants, as well as merchants of other lines, and who has given a great deal of study and thought to this income tax problem, and as he has come here to give us the benefit of his ideas on this subject—and he is a very busy man—I am going to ask that we suspend discussion on this statistics question to give Mr. Greenman an opportunity to talk to us. I take great pleasure in introducing Mr. Harry Greenman.

Mr. Greenman made an interesting address on this subject.

The Chairman: It is moved and seconded that rising vote of thanks be given to Mr. Greenman for his very able address. Motion carried, unanimously.

The Chairman: I am sure we are very much indebted to Mr. Greenman. We appreciate very much his courtesy and kindness in coming before us and giving us this information. I am sure it has been food for thought for all of us, and in the name of the association I thank you very much, Mr. Greenman.

We are now in a position, gentlemen, to go ahead with the discussion of the statistics. If you will take those little pieces of paper out of your pocket again and look at them, I think it may give you possibly a clear idea of these sales statistics. We would like to hear some more discussion then on the proposition of these sales statistics before the question is put and the matter is voted on. In the first place, has any one any questions to ask?

Mr. Beggs: Do the White Paper Division report their purchases in tonnage and also their sales in dollars and cents?

Mr. Ridgeway: Yes.

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The Chairman: Are there any other questions or any further discussion on this? We don't want to get away from the seriousness of this proposition. It is vital, and the question has been raised that all of our membership was not here, the whole 272 members of the Coarse Paper Division, but I want to say this, that if every member here will report and also will see that at least two other members of his local association report, we will have about three times as many reports as we have ever had before.

Mr. Blackman: I would like to speak in favor of this plan. I think if every man would send in his reports and would then study the sheets that come back, you would find there the answers to those vital questions which we have all asked ourselves a great many times. What are conditions throughout the country? Are other people speculating? Am I getting my share of the trade? Am I slipping behind or am I getting ahead? And the sales sheets, as compared with previous periods, will tell you how much of the buying is speculative. Now, you may not be guided wholly by what the other fellow does, but it is sometimes very valuable information in helping you make up your own mind if you want to go contrary to public opinion. I think that the information, combined with the studying of the statistics of the sales, is going to be very valuable.

Mr. Ridgeway: I omitted a very essential part of the plan when I stated it before, namely, that there will be reported, among the first things done under this plan, the sales in dollars and cents of all the members monthly for the year 1917, in order that comparisons may be made at once, and those totals will be sent out with the first report for the first month of sales.

A Member: To whom does that go?

Mr. Ridgeway: That goes to all the members who report. No member gets anything who does not report.

The Chairman: I would like to make one other point: Those of us who vote here in favor of the adoption of this report virtually commit ourselves to make the reports as far as we are concerned. If it meets with the approval of the meeting, I would like to go a little farther than that and ask those of our members here who will report, to so signify. If that meets with your approval, and there is no objection to it, I would be glad to ask those who will report to rise.

The Chairman: It seems to be pretty nearly unanimous.

A Member: I would like to ask how many of those who have stood up are reporting and how many are new.

The Chairman: Yes, let us ask those who are already reporting,--have been reporting during the last year purchases and tonnage, to rise.

Mr. Ridgeway: It is nearly the same as before.

The Chairman: Now, those that are not reporting who will report under the new plan?

Four members stood.

The Chairman: Now, is there any further discussion on this proposition?

A Member: I don't understand the last question that was put.

The Chairman: Those who have not been reporting for any reason at all,—possibly there are some here who were not members last year—I know for a fact that there are some here who were not members last year—any who were not reporting last year, but who will report under this new plan. That was the question. Is that clearly understood?

Mr. Leslie: Mr. Chairman, it seems to me what we want to ascertain first is with reference to a plan already in operation, namely, the report of purchases, and that should be our first consideration, and I would like, Mr. Chairman, to know how many, as the result of your talk at this meeting, who have not been reporting sales on the old present plan, and who have decided to do so.

A Member: Sales?

Mr. Leslie: Excuse me. Reporting purchases, those who have not been doing so, and are now decided, as the result of your educational campaign, to join.

The Chairman: You have heard Mr. Leslie's suggestion, and I will ask those—now, this is only on the purchase end of it—I will ask those who have not been reporting purchases heretofore, but who will hereafter go ahead and report purchases, to rise.

(Six members stood up.)

The Chairman: Are you ready for the question? All in favor of the adoption of this report as read will signify by saying aye. Motion carried.

The Chairman: While we are waiting, I would like to report back from the Executive Committee a resolution which was passed at the meeting of that committee, held in Philadelphia in September last, in regard to the introduction of mill brand in coarse papers. The Executive Committee went on record and would like to have the association go on record. I will ask Mr. Lyter to read that resolution.

Mr. Lyter: "Resolved, That the Executive Committee of the Coarse Paper Division is opposed to the handling of coarse paper under mill brands or mill labels, and asks each member of our association to discourage the practice, as the matter of brands and label should be left entirely optional with the jobber.

"Resolution carried."

The motion was carried.

The Chairman: There was another matter that we might take up now in reference to the Bulletin which has been issued by the secretary of the Middle States Wrapping Paper Association. I understand Mr. Corning or Mr. Power had some suggestions to make in regard to that. Perhaps those of you who are not members of the Middle States may not know what that Bulletin is. It is a bulletin giving the conditions of the market in the Middle West, and I believe there was a suggestion to make that a national proposition, and have that bulletin, at the expense of the National Association, sent weekly to the members of the National Association. I would be glad to hear from Mr. Power on that.

Mr. Power: Mr. Lyter has been sending out to the members of the Middle States Association a weekly bulletin of the conditions of the market as he has found them from coming in contact with the different mill men, and he has kindly sent to each member of the Executive Committee a copy each week, and thinking that those copies would be of great value to the members of Association as a whole, I spoke to him about it, and I also spoke to Mr. Ridgeway, and Mr. Ridgeway, I believe, said it could be done if this National Association would see fit to bear the expense. Appreciating the value of this, I move you, sir, that the copies of the Weekly Bulletin be sent to each member of the Association, the expense for so doing to be borne by the National Association.

The motion was carried.

The Chairman: Now, gentlemen, our guests have arrived and it is our plan to spread out a little bit and have the manufacturers sit in among us, so those who are sitting two and two, will you kindly spread out a little?

Members of the American Pulp and Paper Association: It is needless to say we are very glad to welcome you among us this afternoon. We believe the jobber is the most economical means for the distribution of wrapping paper from the manufacturer to the consumer. He invests his capital in a large and varied stock from which he can deliver small or large quantities to suit the various needs of his many customers. As a distributor he is very close to the manufacturer, we might almost say a part of his organization: certainly he represents his selling force.

Close as the link is between mill and jobber, each has his distinct problems. We must recognize that the mills have their manufacturing problems which must be solved from the manufacturing point of view, and the jobber has his distributing

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problems, which must be solved from his point of view, and both problems must be recognized by both. The end and aim of each, however, is identical: To get the paper from the mill to the consumer in the most efficient manner. In solving his problems the manufacturer must not do anything that will hinder the jobber in distributing his goods to the consumer, for he has no interest in selling the jobber's paper in such a way that the latter cannot resell it to the consumer. On the other hand, the jobber, in selling his customer must take into consideration the conditions and problems of the manufacturer.

We as jobbers are and have been more than anxious for closer co-operation with our manufacturing friends, and we believe you feel the same toward us. We consider you our best friends, the men who are back of us, and though we may honestly differ with you on some points, we feel that our ultimate aims are identical. It therefore gives me great pleasure, on behalf of the officers and members of the Coarse Paper Division of the National Paper Trade Association, to welcome you this afternoon. May I express the hope that this is but the beginning of a series of joint meetings for discussion and friendly greeting, which will tend to bring us closer together for more earnest and closer co-operation to the end that we may sell more of your papers to the mutual benefit of you, ourselves and our customers.

I would now ask the members of the Coarse Paper Division of the National Paper Trade Association to kindly extend to our manufacturing friends a rising vote of welcome. (Applause.)

We would be very glad to hear a word from Mr. Moore.

Mr. Moore's Remarks

Frank L. Moore: Mr. Chairman and gentlemen: I feel a little bit embarrassed and nervous, and I also feel that I should apologize to you somewhat for the small number of manufacturers that are here. Many of them are snowbound, many of the members are not here yet, and there are some others who do not like the taste of water, and they are downstairs, so there are but a few of us left here who are still on dry land and are very glad to come up here and meet you.

Now, last year I was very grateful for some expressions that were sent to me afterwards as to what I said to you, and it was a sort of camouflage, and the only mistake I made was I didn't get the range quite right. I thought the conditions which are existing now and have been for the last month or so would probably have come along in October or November. The only gratifying thing to me about it is that I don't think I made a wrong guess as to some of the conditions which were confronting manufacturers. You all know of the conditions we are up against now. They are much different from a year ago. They seem to be changing almost every night, due to the changing of orders, and so forth, from Washington.

I was very glad to hear your Chairman say, as he has, that he thinks we should be closer together; co-operate closer than we have in the past. That has always been my theory, and I have talked it for a number of years, not only in our own meetings, but meeting many of you around the country in one place or another, and I still believe that the manufacturer and the jobber who is the distributor of his output, should be closer together and have better understandings of market conditions as they confront both of us. It will do away with a great deal of pyramiding and runaway markets and all that sort of thing which we, as manufacturers, deplore as much as you jobbers deplore it. It will put business on a more even basis, and I believe that meetings of this kind are productive of better feelings, and when we come out and lay our cards face up on the table, why, we should be able to get somewhere to our mutual advantage, better than we can by chasing each other around the bush.

I have said in the last few months to the men who have asked

me what I thought about conditions in the future, that I wasn't prophesying or even guessing as to what they are going to be. Our conditions now are such that it is almost impossible for anyone to look very far ahead in the future with any certainty that his vision is right. I do believe, however, that as things become more settled in Washington, that all industries,—not only ours, but every other, is going to be asked to put itself on a war basis, and by that I mean where our capital will be properly employed, and where it will be employed so that it will yield a good return to help pay the war debt, which all of us are going to be called upon to help pay. In other words, it is just as essential to have invested capital protected and curtailed as it is to curtail the consumption of coal and to conserve it, or food stuffs, or man power, or anything else, because if you don't go to work and do something to conserve capital invested in business, what is going to be left to help pay our war tax? I believe that is something that is coming from Washington. I believe also that they are going to indicate to us on what basis it can be done, and it will be on a sound, practical basis. I believe that production will be curtailed to the extent of consumption, not with an idea of doing it in a way so that capital will not be able to make a return on its investment, but doing it in a way so as to make a good, big return to help pay this war tax. Now, I want to contribute every dollar that we can make towards paying our war debt, but I want to be put in a position where I can earn something so I can do it, and I think that is what all you gentlemen want. I believe that all of us who have money invested in business are going to be called upon to contribute a certain percentage of our capital towards our war debt. If the government will indicate as to what that is to be, you are going to do it, and I also believe that they are going to recognize invested capital in business as against the man who goes around with his office in his vest pocket, and looking for one or two per cent., and does not have any capital invested, and therefore, pays very little towards the support of our government. They are going to see that invested capital is taken care of. It is suggested that we should economize in everything that is being done, and properly so, but in doing it, there are many cases, and unless there is some government assistance, capital in many industries and many mills and many places will be impaired to the extent it may be destroyed. Now, I believe that capital, as we are going now, should be kept intact, should be able to earn something, because we are going to need every dollar of it, I believe, when we come to the reconstruction period. We are going to need it to be employed in the industries in which it is being employed, and I believe that the government will undoubtedly,—if what I hear from Washington is right,—indicated to me along certain lines, that production will be restricted to consumption, and on the restricted production that they will be told that they must earn a good round sum to help pay our war debt and buy liberty bonds.

Now, I think I was told that I had only five or six minutes to talk, and I don't know how long I have talked, but all I can say is, I am delighted to be here with you, and I only wish the manufacturers would pick out some of their other speakers instead of myself, but, as I said before, we are glad to be with you and I hope it is the weather conditions that has kept some away from here, and that another year they will be here on time, and perhaps if they don't have any more drinkless Mondays, they will start sailing their schooners on Monday early enough so that they can get around on Tuesday to see you. (Applause.)

The Chairman: I am sure we all echo the wish of Mr. Moore that a meeting of this kind is a step in the right direction.

It was our first intention to have this as a sort of a reception with the manufacturers, simply to chat with them and shake hands with them and say "How do you do," but owing to the lateness of the hour, and possibly also to the temperature of the room, I do not think we could do better than to listen to a talk which Mr.



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Barry has prepared for us. Mr. Barry needs no introduction to the members of the Middle States Wrapping Paper Association, and I don't know that he needs any introduction to either the members of the American Paper and Pulp Association or to the National Paper Trade Association. Those who know Mr. Barry and those who have heard him speak, know that anything that he has to say will be of benefit and interest to both the manufacturer and the jobber.

With your permission, I think we are fortunate, indeed, in having Mr. Barry to talk to us, and we will be very glad to hear from him.

Mr. Barry's Address

Mr. D. E. Barry: Mr. Chairman and gentlemen: When I prepared this little address, I did not expect to have the pleasure of the manufacturers. It was prepared largely with the idea in view that it would be delivered to the jobbers. But, in delivering this little address, the subject of which is "Business Fundamentals," I will touch upon some things that will relate directly to the manufacturers. In doing so, I want to say I had nothing in mind, did not intend to say anything that would be unkind or severe in that statement regarding the manufacturers, because, as the chairman has said, our interests are identical, and also because of the fact that you gentlemen coming here is a representation of your lines to co-operate to the fullest extent, and along those lines I have outlined some thoughts that I hope you will understand are prepared for our mutual interest and benefit. This paper, of course, as I say, will be largely of more interest to the jobbers, but it would also relate to the jobbers and the manufacturers together. I do not pretend to commit this to memory, because of the fact that I wanted to try to get into this paper some things that I think is necessary for us to have properly prepared, so I will have to give it to you just as I have got it, and take my chance.

The fundamentals in business life are not unlike the fundamentals in moral life, and they are based upon Faith, Hope and Trust, and because this is the fundamental of business, it has been possible for it to grow and bear the rich fruits and that give flavor and sweetness to the feast of civilization.

Differ as we may in regard to non-essential details, we must be as one mind in our interpretation of fundamentals.

The great world war that is now raging with unparalleled fury, has been regarded by some as a commercial war, an elemental conflict between two antagonistic and irreconcilable business fundamentals. The German has based his whole economic system upon a creed that recognizes no interest save that which is in furtherance of Teutonic ambitions. World domination commercially as well as politically has been their goal. This philosophy recognizes no rights that are incompatible with the divine right of the German superman.

The fundamentals of our political economy differ from those of the German as widely as Christ differs from Nietzsche, or Lincoln from Bismarck. Nietzsche, the great German philosopher, declared that what we recognize as the binding power of the Sermon on the Mount, is the greatest obstacle ever placed in the path of progressive civilization, because it is at variance with the law that gives domination to those that are strong enough to take, and grants survival to those only.

But, we hold there is something even more mighty than might, and more enduring than the thirst for blood and domination, and that is the spirit of Live and Let Live, and this doctrine of larger liberty, finds its highest expression only in the equal liberty of others, and because this is a fundamental of our faith, under the guidance of the God of Peace, we will defend it, with the last ounce of our treasure and the last drop of our blood, and prove that the God of our devotion is mightier than the Pagan Deity who has formed an unholy partnership with the modern Attila, King of the Huns.

Gentlemen, in business in general, and the paper business in particular, there are certain principles that we regard as fundamentals, and like our own political fundamentals, they are calculated to foster our own growth, consistent with the full freedom to grow and thrive for our fellow man, be he competitor, the source of our supply, or be he the consumer of our wares. If these fundamentals be not the base rock on which we have erected the superstructure of our trade, we must expect to see earthquakes shatter the mighty walls and towers and domes of our system, and then with painful labor and incalculable cost, we will have to go back and rebuild our ruined temples on foundations that we believe to be more stable.

The paper business, like nearly all other mercantile business, changed from time to time in the early stages. The men who made the paper in very limited quantities and with primitive machinery, did so to supply their own or local necessities. They also performed the functions of distribution. It was a simple business, simply administered, but as the industrial structure of our country evolved from the simple to the complex, a myriad of new needs grew up in the paper field. Markets ceased to be intensive and local and became extensive and general. New problems grew apace and as the old primitive method of making paper gave way to the modern method of manufacturing with its vast production and varied tonnage, that had become essential, then and there was created the economic necessity of the wholesale jobber to perform the functions of the modern method of distribution.

The jobber is now regarded as the most necessary servant of our present-day industrial society. His functions are both varied and intricate, controlling a flow of goods, involving endless details by developing systems that are considered the masterpieces of commercial statesmanship. Our work is placing goods at points most convenient to the dealer and consumer. We create the desire for better goods by constant efforts and service, as well as by personal salesmanship, thereby contributing, in no small degree, to the advancement of the community.

The jobber's task is to furnish the goods wanted at the time and place desired and in such quantities as the customer's needs require.

The jobber buys in carload lots, securing the advantage of the lowest freight rates, and in selling again, he can combine many makes and kinds in the same invoice, and this merging enables supplies to be purchased more frequently and at a great saving. Urgent orders can be filled instantly, and the advantage of having jobber centers conveniently located can not be over-estimated. He makes the buying process easy and agreeable to his customers. Again, the matter of credit. If an extension is desired, it is a simple matter of accommodation because of his close acquaintance. Most manufacturers rely upon the jobber as the proper agency for the marketing of their goods. He affords the most economical, easiest and logical method, and the only constant channel of distribution. Through large purchases by the jobber, the business of the manufacturer is greatly assisted, in producing his goods at a minimum cost. We claim this affects production to such an extent that it affords greater profit to the manufacturer and at the same time lowers the price to the ultimate consumer than would otherwise be possible.

You gentlemen know that no one mill can produce ledgers, Bristols, bonds, wrapping papers, papeterie, onion skin, news print, building paper, rubber roofing and book paper. No single manufacturing concern can efficiently, economically and profitably master the intricate details essential to the successful marketing of the thousands of items that enter into the paper business.

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Now, gentlemen, it is because the men who own and operate the machinery of production have recognized the need of an equally modern and efficient machinery for distribution that they have called the paper jobber to assume this burden. This responsibility they recognize. They cannot very well get along without us any more than we can get along without them, and most of all is the paramount interests of the great public whom we serve, and this public needs us both. And, while it is our duty to serve the public, the small as well as the large buyer, there are times when there is mighty little pleasure and less profit in fulfilling this obligation, yet it is the sum total of the reams and rolls that swell the great tonnage of the paper mills. If the jobber is to carry the burden of the small accounts, it naturally implies that he shall be protected in the privilege of supplying the large and profitable requirements of the big consumer as well, without the competition of the mills.

One of the significant developments of recent years in the book paper industry has been the change in policy by one of the oldest and most strongly entrenched manufacturers of fine book papers in the country. Here, with deliberate forethought and with a fine recognition of the rights of the jobber to have the cream as well as the skim, direct contracts with the publishers are being allowed to lapse without renewal as rapidly as efficient jobbing distribution of highest character can be established, so as to guarantee the mill's service to those who need it throughout the length and breadth of the land.

Unfortunately, this spirit of reciprocity has not yet become universal in the paper trade. From time to time, we are brought face to face with outward expressions of the German spirit of imperialism that would corner the markets and spurning the agents of distribution that have made a great volume of profitable business possible, would say, "It's mine, all mine, and I propose to keep it all." This spirit has been manifested by one company in

particular in recent years—who started to sell originally through the dealers and regular agents, the same as other competitors in these times. They later discontinued this plan and put in depot stocks in the different cities.

We also call your attention to the method of forming subsidiary selling organizations in the last few years. But, on this occasion it would be unseemly for any speaker to point the accusing finger too directly toward anyone who might be an object of suspicion, yet if this association is to continue its beneficent work of fostering the fine spirit of harmony and community of interest between the mills and the jobbers, we must face the facts as they are and not delude ourselves by camouflage of our own making.

The jobbers have not only performed a definite service to the public in the past by distributing the product of the mills, but they have also assumed in the minds of the paper buying trades, the moral obligation of continuing to supply their needs for paper backed by the service that is so essential with the efficient and profitable utilization of paper to the varied requirements of industry. And, gentlemen, if I read aright the spirit of the American paper jobber, I hazard the prophecy that he will not be found defaulting in the discharge of his obligations.

We do not want to complicate our already complicated business by the addition of manufacturing problems. We do not want to divert our capital and our energy from the channels of distribution into the deep wells of production. We do not want to substitute the imperial German creed of Greed for the fine and abiding faith in the spirit of co-operation that has made our industry successful in the past.

And yet, gentlemen, I repeat in all earnestness and in all solemnity my conviction that the American jobber will not quietly sit by and have his markets raided by those very mills that have been made to prosper very largely by the jobber's initiative, energy and integrity.

J. R. Carter, Treas.
C. A. Young

J. C. Kennedy

DIRECTORS

G. H. Lowe, Pres.

W. L. Carter

H. L. Carter, Sec'y
E. A. Carter

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Co-operation between mills and jobbers has been the fundamental of the American paper trade, yet it requires two parties to co-operate. Therefore, in the future, as in the past, those mills that recognize the reciprocal obligations existing between themselves and the jobbers, will continue to enjoy an ever increasing loyalty and service from the jobbing trade. But should the policy of other mills ignore the functions and the services of the jobber, be you well assured that the fundamentals will crumble beneath them, because the moral obligations of the jobbers to supply their customers will compel them to take such measures as their extremity may suggest to meet the changed conditions.

We as an association have gone on record against the welling of mill brands of wrapping paper. It seems so manifest that I need only mention the fact that it is a fundamental of all business that individuality is an important factor. Perhaps that best explains why some of the mills want the jobbers to substitute their mill brands instead of the jobber's individual brands. The Ingersoll watches are known the world over, because the manufacturer put individuality into the name. There may be other dollar watches just as good, but very few ever heard of them. This will serve as an illustration of individuality, or the value of a name or brand. The jobber should endeavor to make his brands as widely known as possible by national advertising, or otherwise. This leads us to remark that national advertising, while it no doubt benefits the advertiser the most, also benefits all of the trade to a certain extent.

Two of the great factors that enter into the cost of doing business are—salaries and wages and interest on capital invested. The interest factor, under reasonably normal conditions may be fairly well under control. Therefore the one that gives us the greatest worry is salaries or wages.

The salary of salesmen has seemed to be fairly well handled by some good firms, by paying the salesman a normal salary and expenses and then at the end of the year, by giving them a percentage of the profits, after a certain amount has been deducted, large enough to cover all costs of doing business, plus a reasonable dividend on capital invested. This plan seems to offer the salesman the best incentive to strive for greater success, because of his natural desire to participate in the profits he himself produces. It is, in other words, a profit-sharing plan and is in accordance with the economic law that the worker is awarded according to the amount of wealth he produces.

The present industrial discontent is an important social question and is without doubt a serious business problem, because we are

frequently brought face to face with a choice of two evils. Either advance the wages regardless of agreements made to the contrary, or have the disagreeable alternative of having a strike on our hands. Perhaps the development of large business has in some measure been responsible for this, as well as the socialistic tendencies and the high cost of living.

Some headway has been made in creating a better feeling among the workmen by giving them better pay, improving their surroundings and by proper sanitary quarters, etc. By weekly half-holidays, by the profit-sharing plan as well as group insurance, a plan now in effect by some mills and jobbers. This plan is yet in the experimental stage but has, without doubt, elements in it that would seem to be substantial, and for the common good at a nominal cost to the employer.

There are many other vital questions that I would like to touch upon such as fair and unfair competition as well as costs. We might even go so far as to suggest that some day, may we not hope that business, like the professions, will have a code of ethics for our guidance. This is an age of co-operation and if ever in the history of our business, association work can be made of real service and mutual help, now is the opportune time. (Applause.)

The Chairman: Before saying goodbye to our manufacturing friends, I want to introduce some of our new members, both to the members of our own association, and to the manufacturers who are here, but before doing that, I want to ask—we have a representative here from the W. A. Ball, Limited, of Australia, and I want to ask H. E. Pool to rise and make his bow to the association as the representative of W. A. Ball, Ltd., of Australia.

Mr. Pool: Mr. Chairman, I want to say that I have found this country to be a country of big men and big ideas. I never saw snow until I struck this country, and I hope I will never see it again when I leave. We have a similar association to yours, but being a small country we haven't so many members. It seems strange to me that men in competition, as you must be, can meet together and have such successful gatherings. I congratulate you, Mr. Chairman.

The Chairman: We also have with us three new members, Mr. Boxer of the City Paper Company, Birmingham, Ala., and Henry Wellhouse of the National Paper Company, Atlanta, representing the Southeastern Wrapping Paper Association, and Mr. Hodgens, representing the Missouri Valley Wrapping Paper Association.

I will ask these gentlemen if they will kindly rise and make their bow to the association.

MEETING OF FINE PAPER DIV. NATIONAL PAPER TRADE

The Fine Paper Division of the National Paper Trade Association met Wednesday morning at the Waldorf-Astoria, George Olmsted presiding.

THE CHAIRMAN: Time is flying, so we will try and get started, even though everyone is not here.

THE CHAIRMAN: We will now have the Secretary's report.

Secretary's Report

To conserve time, no separate report is made at this meeting regarding membership, but the entire subject will be covered in the report of the Secretary to the general meeting of the Association to be held this afternoon.

At the last annual meeting, report was made of the part taken by the Association before the Federal Trade Commission in the latter's endeavor to obtain a supply of newsprint for distribution to the publisher and shortly thereafter, in March, a considerable number of the members interested in that line went to Washington at the request of the Commission for further conference.

At this conference, those members in attendance and the Com-

mission agreed upon the margin of profit the jobber should have in the distribution of news and, at the Commission's request, a clause was inserted in the agreement to the effect that the jobber would not discriminate against any association of publishers which wanted to buy in car loads to obtain the lowest price. In spite of this agreement, the Commission in the spring and summer distributed a considerable number of cars of sheet news direct to associations of small publishers. Protest was entered to the Commission against this procedure but it was of no avail. The history of the news indictments is well known to all and there is no necessity of reviewing it here. As a result of the indictments, an agreement was entered into by a number of the news manufacturers and the Attorney-General of the United States whereby a three-cent price was fixed for those manufacturers for the first three months of this year, and jurisdiction was conferred on the Federal Trade Commission to investigate costs and to fix the price from April 1 until three months after the termination of the war. It is necessary at this time to go further into the details of this agreement except to call attention to Section IV, which provides that the manufacturers will, so far

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as lies in their power, see to it that such paper as is usually distributed through the jobber reaches the publisher at such prices as will return the jobber a reasonable profit only.

Hearings pursuant to the provisions of this agreement were notified to begin January 7 and, at the request of this Association, the afternoon of January 9 was set to hear matters which affected distribution through the jobber. Report of this hearing was made to all members with the request that they send to the Secretary the arguments to establish the economic necessity of the jobber. Request was also made of some thirty-five members, who were specially interested in News, to furnish figures of costs for use before the Commission in fixing the jobbers proper margin of profit and, we regret to report, the response to this request has been exceedingly disappointing. If the results of the adjourned hearing before the Commission on Saturday next are not satisfactory, the members have only themselves to blame, for your officers have been given but little material to work with.

On October 9, the Secretary's attention was called to a set of blanks sent to the jobbers throughout the country by the Federal Trade Commission for the purpose of gathering certain statistics relative to news and book papers. An inspection of these blanks revealed the fact that the monthly report of them to the Federal Trade Commission would entail an immense amount of work on the part of the jobbing industry as a whole. Your Secretary immediately took steps to arrange for a conference with the Federal Trade Commission, and on October 16, one week after the Association received the first notice of the action of the Commission, a large number of members, summoned by telegraph, met the Commission in Washington.

At this conference, which was presided over by Commissioner Colver, the jobbers outlined the difficulties in filling out these blanks monthly and the large amount of time which would be required. After a discussion of what facts the Commission desired to ascertain, the blanks were revised so as to furnish them, and at the same time cut down to a minimum the labor necessary to fill them out. Those jobbers, who were familiar with the original blanks, thoroughly appreciate the differences in the two sets, and we have no fear of contradiction in offering the opinion that the amended blanks can be filled out in a quarter of the time the original set would have required. We believe that in obtaining these amendments the Association justified its existence, for without an organization the paper dealer acting as an individual could not have accomplished this result in less than a month's time, if at all.

In this connection, we wish to call the attention of the members to the fact that often the Secretary is the last person to hear of matters of importance to the jobber as a body. These blanks had been issued at least five days before they were brought to the Secretary's notice, and we beg to suggest that in the future members at once notify the Secretary of any matters of similar importance.

The plan adopted a year ago, of gathering statistics of the purchases of members was put in operation early in April, and has been successful, if we can judge by the comment of many of the members. In the belief that the total purchases would be a more accurate barometer of conditions if the totals represented the reports of the same members each week, your Executive Committee, at its Fall meeting, modified the plan by creating two classes of reports to be designated as Class A and Class B. In Class A were to be included only those members who would agree to report each and every week without fail, and in Class B those who reported spasmodically. The details of this change are familiar to you all and need not be stated here. The Executive Committee at this same meeting authorized the appointment of a committee to consider the revision of the blanks and an extension of the plan. This committee will report later.

In connection with the businesses of the entire country, the paper

industry has entered upon an extremely critical period. The results of the war on the industry, and its future course, should have careful consideration, but we believe this is a subject for consideration and appropriate action by the entire Association at the afternoon session.

MR. RIDGWAY: In regard to the News matter and the adjourned hearing on Saturday of this week, there will be a meeting of all those interested in the News in the Assembly Room of this hotel, on Friday morning, at ten o'clock. A committee will go down to Washington on Saturday to present this matter then.

THE CHAIRMAN: Gentlemen and members of the Fine Paper Division of the National Paper Trade Association: Never before in the history of this Association have we held, and probably never again will we hold, a convention of this Association under the very extraordinary and trying conditions that exist today. While we are conscious of the epoch-making changes the world is undergoing, do we fully appreciate the significance of the commercial situation and the uncertainties and perplexities we are facing?

This war is the acid test, not only for all of us as world citizens, but as members of the business fraternity and directors in particular of the paper industry through these troublous times. We must rise to our opportunities and guide the craft through the rapids, and not allow ourselves to be buffeted and bumped by the rocks and shoals because we have not done our part toward charting our course.

This war will be over some time, and many of the best judges prophesy a post-war period of great prosperity for America. We of the paper industry must be prepared for the changes and readjustments that are bound to occur. We members of this Association must hold and work together to the end of placing our industry in such a position of strength and adaptability as will assure its perpetuity and continuous progress along safe and sane lines.

The slogan "Business as usual" is a fallacy. Business is not as usual, and it cannot be as usual while the war lasts. We must adapt ourselves to unusual business and set ourselves to the new tasks.

About the best guide we have for solving our many business problems is the experience of Great Britain, the world's greatest merchant and banker, and we can well turn to her experience of the past three years and a half for such guidance. Great Britain long ago decided that this war was the greatest business of the world, and every kind and sort of business must lend itself to the successful conduct of the war. As every possible industry then was devoted to helping on the war, the men and machinery available for purely commercial activities were limited, and by governmental edict. The essential industries were separated from the non-essential, and the latter are classified as restricted occupations in which no male person, between the ages of eighteen and sixty-one, may be employed. Paper and printing rank sixth in that classification. This means that the paper manufacturers of Great Britain have been compelled to materially curtail their production, which is estimated at the present time to be only thirty-five to forty per cent. of normal.

The Government of Great Britain, like the Government of the United States, realizes that business must continue to prosper if the country is to assume its share of the burden of this terrible conflict. The only way then to continue prosperous with a shortened product is to have increased price to cover overhead costs and reasonable profit.

Roger Babson advises every American business man to quit adding to his factory and look to his selling efficiency. He warns us that in the near future we will need to know more about efficient selling than how to produce more goods. Let us, then, make a close study of our business needs, and even though

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conditions are so chaotic, prepare ourselves as well as may be for eventualities.

There still remain a good many evils and abuses in our business that ought to be wiped out if we are not to be burdened with overweight. We must be stripped for action. Some of us begin to realize that the paper business has not been conducted as intelligently as it should. The paper merchant, acting in an almost triple capacity of wholesaler, jobber and retailer, has been rather inclined to mix up his principles. His margins of profit have frequently been based on a wholesale business, while the bulk of his trade was retail carrying an overhead expense of a retail institution.

I assume we are all impressed with the necessity for clearly defining our selling activities, and departmentizing our operations so that each division may carry its proper proportions of both gross profit and expense. We would much prefer that a way be found for reducing prices, but expenses won't reduce; they are steadily growing, and probably will continue to grow as long as the war lasts, and we might just as well adjust ourselves to this condition now.

I wonder if you all feel, as I do, the great good that can come to us during these times through co-operation—co-operation of the right sort—the sort that comes from a real fraternity. People are more inclined to fraternize when they are in trouble and when things are not moving as smoothly as they might. Certainly, from this standpoint, we of the paper industry are all together. The manufacturers need our help and we need theirs. What better time than now for us to work in the closest accord, with the same objectives and ambitions, the same interests to safeguard the same high standards and principles to establish. I have reason to believe that the manufacturers of the country, to a large extent, feel this same way about it. And I would like to see a movement started right here and now looking to a coalition between paper manufacturer and paper merchant that would constitute the most powerful and constructive force that has ever been put back of our wonderful industry.

In conclusion, let me urge upon the members of this association that you get your house in order, that you indulge in no idle speculations as to just what the future has in store, but that you give analytical and undivided thought to the work in hand, drawing on all experience up to the minute, to point out the way we should go, clinging to those well-established principles and policies in which we have every faith, and with an all-abiding confidence in the future, go forth to our destiny with the hope that in the end it can be truly said of us, "Well done, good and faithful servants."

We will now have the report of the Executive Committee, Mr. Ridgway.

MR. RIDGWAY: Your Executive Committee begs to report that during the past year it has held two meetings, one in Philadelphia in the latter part of September, and the second the day before yesterday.

The only recommendations which the Board desires to present to this meeting, aside from matters which will be presented by committees, is the following resolution regarding the three year plan of the United Typothetae:

WHEREAS: A report from the United Typothetae of America relative to their three year plan, shows that the members of this association have pledged themselves to the support of the plan in the amount of \$17,690 per year, or a total of \$53,070 for the three year period, therefore be it

Resolved, That the National Paper Trade Association most earnestly urges upon such of its members as have not heretofore pledged their support that they make their subscriptions to the three year plan without delay, that it may be inaugurated at the earliest possible moment, and that those in attendance at this meeting make their pledges before leaving for their several homes

in order to save time and traveling expense to the Typothetae.

The resolution was adopted.

THE CHAIRMAN: The next matter to be brought up is the report of the Statistical Committee, Mr. Bond.

MR. RIDGWAY: Your committee was appointed by our president at the last annual meeting for the purpose of devising a method of securing regular weekly reports from our members of their purchases, and sales, if possible, along the lines of the Writing Paper Manufacturers' Association, so that our members could intelligently judge as to the trend of business from time to time and govern their purchases accordingly. The committee decided that at first it would be as well to confine reports to purchases only until our members could see the value of statistics, this being the easier report to make up—it having been ascertained that fifteen minutes daily was sufficient time to gather the information required. The necessary blanks were printed and sent to all members by the secretary, and the system was inaugurated April 11, 1917. The results have been as satisfactory as could be expected.

One of our members, representing a very large house, who at first was not enthusiastic over the plan, changed his opinion when a manufacturer of Sulphite Bond last Fall solicited his orders for several cars, with the plea that in his opinion the tendency of prices was upward and jobbers generally were ordering rather heavily. The jobber was on the point of giving the manufacturer a substantial order when he bethought himself that "statistics" might give him some useful information. He scanned the weekly reports carefully, and there was no evidence of abnormal purchases. The order was not placed. We all know that at about that time there was a decided slump in prices on that grade. The jobber was thankful that he had reported his purchases regularly in order to receive the weekly reports, as he had saved a very substantial sum.

The membership of the Fine Division is 210 houses, and of the Coarse Division 227, a total of 437, while the total individual membership of the constituent organizations, including duplications, is 301, of which the largest number reporting at one time was 108 in the Fine Division and 84 in the Coarse Division.

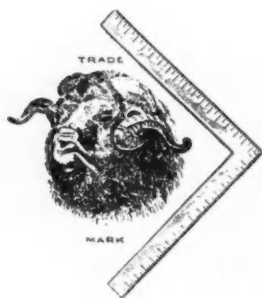
In November it was decided to divide those reporting into two classes—*A-class*, those reporting every week, and *B-class*, those reporting spasmodically. At present there are 104 reporting in Class A, and 4 in Class B in the Fine Division; in the Coarse Division 81 in Class A, and 3 in Class B. It was thought that only those reporting weekly should receive the weekly return reports, as the trend of business could be better judged in this manner.

At a meeting of the Executive Board of the Fine Paper Division held on Monday, the 4th inst., it was recommended that Blotting, bristol, cardboard, and blanks, government post-card, and jute sulphite and tag board be added to the list of weekly purchases.

The Executive Committee and your Statistics Committee have also strongly recommended that the monthly sales in dollars and cents be reported, so that we may get an even better line on the trend of business. These reports can be sent to the Title Guarantee and Trust Co., of New York City, each member being designated by a number, in practically the same manner as the reports of purchases. Immediately upon their receipt they will be collated, and destroyed, and the totals sent to all members reporting, so that there would be no question but that the individual reports would be positively confidential and absolutely inviolate.

This report really should be in two divisions. One is the matter of the extension of the present reports of purchases, and you will note that your committee recommends that the blanks be extended to include, aside from the classes of paper that are included in the present reports, the following: Blotting, bristols,

WATERBURY FELT COMPANY



Skaneateles Falls, New York

cardboard and blanks. That would be one classification. A separate division for Government post-card stock and a separate division for jute sulphite and tag board. The last division should be all tab boards. That would include all kinds.

THE CHAIRMAN: The chair will entertain a motion now to adopt this report as far as it affects the classification of the purchase statistics which we have been obtaining now for some time. We will take that up before we go into the sales statistics.

MR. BOND: I think it would be well if any cardboard men here want a different classification there, to express their opinion now about it, whether you are satisfied from bristols, from bogus to wedding, all of one class or not, or whether to divide them, and all that kind of thing.

THE CHAIRMAN: I think we ought to make this clear now.

MR. CARPENTER: I think we are liable to get too many divisions there, and I move we accept the report as it has been put in.

MR. SCHUMAN: I think we should put bristols and cardboard all in one division and say only cardboard, and if they are classed differently, it will be all right, like Government post cards. That is a bristol, and lots of people use it for a bristol board. So I think it would be wise to class all the cardboard as one, from bogus up to wedding. The reason that classification was made, I might say, first, a member of the Executive Committee felt that there should be a separate classification for Government post cards, that it was a line by itself, and was being used in a good many ways, and the use of it was increasing, and a number of them wanted that as a separate classification. Now, in the bristols and the cardboards, it was reasoned that bristols, or 75 or 80 per cent. of them—of the tonnage, at least, is made by a couple of mills, and it is quite a different proposition from the ordinary line of cardboards that are usually made by coating mills, and they felt if we just had all bristol boards, which would be that we call bristol boards, and I think that is fairly

clear, either white or plain, white or colored, low priced or high price—as bristol, and then taking all cardboards, including blanks, coated and uncoated, that it made it fairly clearly defined. Of course, those classifications could be further classified, although I think, as Mr. Carpenter said, that the simpler we can have those classifications, the better, because we have found the more we commence to classify, the more questions that arise that are rather difficult to solve.

MR. McCLELLAN: Are any of those mentioned there included in any former report?

MR. RIDGWAY: No, this is brand new. I also notice the committee have apparently overlooked the fact that litho was to be added to the present division on coated. In other words, litho papers were distinctly mentioned to be included in the coated paper report. There will also be direction that cardboards, and so forth, be figured four cases to the ton, and the report will be made in tons.

MR. McCLELLAN: I hope the motion will go through, making it just cardboards and tags, and I think it covers it all.

THE CHAIRMAN: The tags is in another classification.

MR. McCLELLAN: Yes.

MR. BOND: Put Government post cards in cardboard.

THE CHAIRMAN: Cardboard is separate as is also Government post cards. It is a separate classification, and then bristols separate and cardboards separate. Cardboards include the blanks. That is the way it stands in the report.

The motion was carried.

THE CHAIRMAN: Now we will go on to the matter of sales statistics.

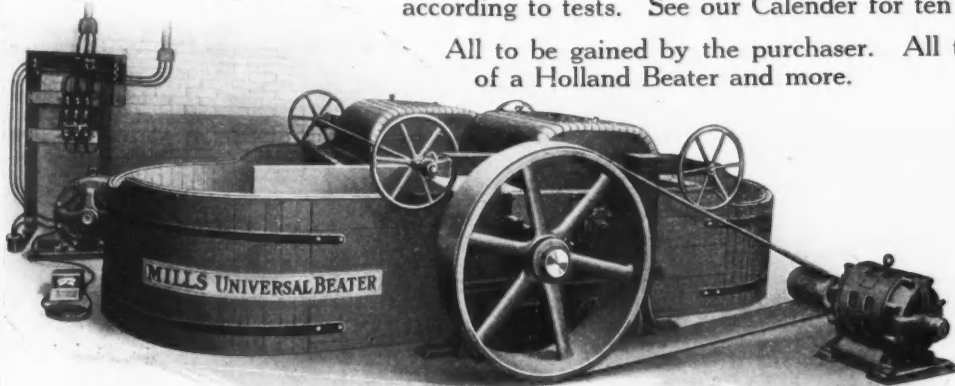
MR. RIDGWAY: You will notice that the Committee on Statistics and the Executive Committee have gone one step further than the reports on statistics that were adopted last year, namely, they want to get reports of all members as to their sales monthly,

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these reports to be made in dollars and cents. Believing that the interests of all would be better served by making these reports to a trust company than to the secretary's office, the reports make that recommendation. In making these reports, the member would have a blank furnished him with a number which would simply show the number of the association to which this member belonged. It would read "N. W. A.," for instance, "No. 76." That would be an indication that this report was made by No. 76, a member of the Northwestern Association. This blank isn't right.

MR. BOND: Why not?

MR. RIDGWAY: Because, as I understand the situation, on one side of the perforated sheet would appear just that number. On the other side would appear only the sales in dollars and cents divided into fine and coarse papers.

MR. BOND: Well, this is the one that goes to the trust company. The trust company receives this whole thing, on which the top has your number. The trust company don't know your name; they know your number. They tear that off and put that amount in the sales of the Northwestern Association and get the total of the Northwestern Association. They destroy that, but send to Mr. Ridgway the information that No. 76 has reported this amount.

MR. RIDGWAY: On this blank you have a space for the sales for the month.

MR. BOND: Ridgway don't know the name of the trust company, don't know your name. The trust company knows your number and the amount of your sales. Mr. Ridgway knows your number as just having reported for several months. If you haven't reported, then he is the one to check you up.

A MEMBER: Who does know who the number is?

MR. RIDGWAY: The secretary would know the number, as to who had reported, but he would not know the individual report of any member at all.

MR. BOND: Your number is No. 76, for instance, and you send in a report that you sold \$100,000 for February. They put down one hundred thousand in your association, tear that off, and destroy it, and send No. 76 to him that you have reported for the month of February. If he finds yours is missing, he writes, "Why don't you report?"

MR. RIDGWAY: Totals of these reports by associations as well as by the entire country would be sent to every member who had made his report of his individual sales. In other words, this report would be received by the member—would state, for instance, that the total sales for the month of January for the entire country on fine papers was so much money, coarse paper so much money, and then it would be further subdivided to show that the members of the Northwestern Association sold so much fine and so much coarse, and it would go down to each association in the same way. In addition to that it would also show the number of concerns that had reported; that is, whether 100 or 150, or whatever the number might be. Also, in order to obtain a comparison at once, until these figures begin to pile up, originally and at the outset of putting this system into effect, the members would also report in the same way their sales for the year 1917, by months, and those totals would be sent to every member, together with the first report. That would enable the member at once to make a comparison between the monthly sales of that particular month—say the month of February, with February of last year. That is the system that is proposed here.

The Chairman: It is quite necessary now that there be absolutely no misunderstanding on any point in connection with this. If there is, let us have it out now, because it is not difficult for some one here to misunderstand. In the paper business there has usually been a rather defined reluctance to giving out certain information, and included in that certainly was gross sales. Now, we feel that we get around this absolutely. The

trust company, a fiduciary concern—they are just interested in tabulating; they don't know anything about who the sender is; they have No. 76, as Mr. Ridgway has explained, and it means nothing to them; send it in to them if you want to—as you possibly would, on a water marked piece of paper, and you could mail it from Oscaloosa, and they wouldn't know anything about it. All that they know is that 76 sold so much fine or so much coarse for the month of February, dollars and cents, and when that is collated it shows the total for the Northwestern Association. Those totals are all sent in to Mr. Ridgway, with this blank half of the sheet, that simply shows that Northwestern was then reported. That is all. In other words, the trust company has the key to the sales, but no key to the man. Nor even to the association, unless he wanted to figure out what "N. W. A." stood for. Mr. Ridgway, the number, but nothing at all about the individual sales. Get that clear. Now we have talked this over at two meetings—well attended meetings in Chicago, one of which was of the Western Association last month, and another, a sort of a combined meeting in December, including the Northwestern and the Central States, and it had a very good representation, and as far as we can see, they were all in favor of this. We all know how much this sort of information is worth, of course; at least, we have some idea of how much we spend to get what presumably these statistics will give us. We have got to talk to this fellow and that fellow, and it really takes the form of "How is business?" It would be a mighty fine thing to me, and to a lot of us, if we could have these statistics to refer to, and then there is another point that there is more than a possibility that we will have an interchange with the manufacturers, and that would bring us to this point of real co-operation where we will know something about how business is actually moving, and not only how it is moving throughout the breadth and the length of the land, but as to the local associations, the constituent associations in toto. You understand no individual's sales are shown at all. The compilation when shown to Mr. Ridgway, as the total for the association only, the Northwestern Association so much in dollars and cents fine and so much coarse.

One of the things that I think this will accomplish is this: We know how easy it has been in the paper trade to listen to salesmen or sales managers in a plea that prices be reduced. He looks at his sales, and we will say they are twenty per cent. off. The salesman or the sales manager known that, and at times naturally makes fair use of it. Now supposing he takes these statistics and he finds that the average reduction in business is eighteen per cent. or twenty-two per cent., or whatever it might be. He would certainly have a better idea of what his position was than if he were just going to guess at it or listen to somebody that wants to sell goods.

To answer Mr. Carter's question, he might find that business was ten per cent. off. Well, I am ten per cent. out even at that. Now he might find that it was six or seven per cent. off in New York, in the East; it might be something entirely different on the Pacific Coast; it might be 19.30 in the Central States, if this dealer happened to be in the Central States. In other words, you bring the influence down to a smaller area, and you make it more particularly applicable to your own particular bailiwick.

MR. CARTER: Some have so many houses that you are represented everywhere all the time. It is my idea that if you had the average for the country it would be sufficient.

THE CHAIRMAN: Let me ask Mr. Carter, what would be your objection, assuming that the average situation might not apply at all in the same way to the Eastern Coast that it does to the Western Coast? What is the objection to having it limited to the constituent associations?

MR. CARTER: Because you could more easily figure out what

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you thought the approximate sales were of different jobbers than if you had it simply on a return of the country as a whole.

THE CHAIRMAN: Well, I don't think there is any Association but has so many members that no possible indication or exposition of the sales of the individual house would be quite easily camouflaged, I should say.

MR. CARTER: In this way, supposing two or three of the larger members did not put in their sales, and then concluded afterwards they would.

THE CHAIRMAN: We can have that protected, if it seems best, by taking a certain number of them that must be reported to get the returns for that particular Association. We have felt that the idea would be so generally accepted that everyone would—the majority at least—the very large majority of the membership would be very anxious to get in on something of this kind. I personally can see a great advantage, and I know a great many others can in having the returns divided up more sectionally, because the conditions are so entirely different in different sections of the country. The paper business is conducted very differently in different sections of the country, and I should say that would be one of the very definite advantages in our having these various associations throughout the country. Of course, I agree with Mr. Carter that the whole country we need, and if we couldn't get anything else, why, it would be much better than nothing, but it seems to me, to divide it up into the constituent association returns, you get an indication there of how the business is moving in the various parts of the country. You take any statistical reports, or any of the reports from any of those men or concerns that make a point of that thing, and it is always divided up into localities. It is a map charted proposition. Theoretically it would be better if we could have it even for States, but we cannot do that, but it did seem to the Committee that it could very nicely apply to the Associations, because if you look at our Associations they are made up of enough members—

A MEMBER: Right there, Mr. President. How would it be if we didn't have any report made unless there were at least six members reporting from that section? That might relieve the situation.

THE CHAIRMAN: Well, I would like to ask Mr. Ridgway. Personally I wouldn't think you would need as many as six, unless our membership was so large, assuming we had the co-operation of everyone. Mr. Ridgway, would three or four as a minimum number of reports from a constituent association to allow them to get the reports, would that safeguard us on all the different associations? Is the membership large enough on each one to cover that?

MR. RIDGWAY: The only Association that might have some objection to that is the Gulf States, which, I think, has six members. It might be better if theirs was included in, say, the Central States Association, but it seems to me that is the only other one.

MR. TAYLOR: Speaking of the Gulf States, our Association is going to be very glad to co-operate. I think we are all going to be very glad to turn in our reports. I think the point Mr. Carter has raised, on a chance of a man exposing his individual business—I don't think, with several reporting down there—I think it would be difficult to find out what each one is doing. We think there would be very little objection if they did find out. If they are doing a good business we are going to know it, and there is going to be so much in it that we feel there is more to be gained than lost by it. I believe that our Association would be very much in favor of having statistics by local associations.

MR. RIDGWAY: The next lowest number is the Northwestern with ten members, and I think that—I don't know how that Association stands on the subject, except that Mr. Leslie and Mr. McClellan, I am quite sure, have O. K.'d this general idea.

MR. CARTER: Why not take just an informal vote upon it? I

shall not press it, but I merely express my personal views, and why not, instead of taking time for discussion, just put an informal vote?

MR. THOMAS: Mr. Ridgway admits he said that Philadelphia was more centrally located, and we haven't any objection to combining our sales.

THE CHAIRMAN: I think our Secretary's suggestion is a very good one. If there was an Association that had say six members, supposing that only three of those wanted to report, I will prophesy that it won't be three months before they will all want to have them, if they will just stop and think—if they will just stop and think—because it will save a lot of money and a lot of talking. Instead of taking the time to talk all these matters over, we are reaching for the conclusions that this will give us automatically. If there were only three reporting from an Association, and they objected to it along the lines that Mr. Carter submits, why, they could just incorporate their reports with the next association, and that association could just say "Three outside members in a certain district reporting with the Gulf States," or it might be with the Western States or Southeastern, or whatever it might be, so we could easily get along that way, but I think the idea is a good one that we submit it to a vote. Let us have a rising vote of those who endorse this plan for reporting sales.

A MEMBER: Any associations?

THE CHAIRMAN: Yes, by associations.

THE CHAIRMAN: Do any of you, outside of Mr. Carter, who has stated his views—would you feel that it would interfere—would it affect your disposition to report, because it was handled this way, if it can be protected by the committee?

MR. BONESTELL: From the point of view of the residents of the Pacific Coast, our position is somewhat different from any of you dealers in other parts of the country. The bulk of our merchandise coming from east of the Missouri River, we of course are estopped from any shipments except on the Pacific Coast, whereas you are able to ship into the Pacific Coast at a profit, so that we are practically in a foreign country as far as our relations to the balance of the United States is concerned, and the question in my mind arises as to whether or not it would be to our advantage to have it known to those who might—possibly would—become our competitors for our business, if they knew the volume of business which was to be had on the Pacific Coast. Perhaps I am in error, but that is the thought that arises in my mind. Of course, that difficulty wouldn't arise, if the report was for the entire country.

MR. STEVENS: Couldn't we obviate this by grouping the various associations? Take the Associations commonly known as the Eastern States, and those Associations as far south as Washington, and generalize the Southern and Gulf States, the Central and Northwestern, and then everything west of the Mississippi River, that would obviate some of these difficulties that have been found out, it seems to me.

MR. BONESTELL: I believe that would obviate the difficulty, as far as we are concerned.

THE CHAIRMAN: I am willing to say for our houses—we are represented on the Pacific Coast, and I think that could be worked out very nicely—that is, we might like to have a general idea, but we could get that from the total, and that would cover Mr. Carter's objection, I should think, and have the Eastern, maybe, and the Central, dividing it up into zones—maybe three zones.

MR. STEVENS: I would suggest four.

THE CHAIRMAN: Yes, although we could route it from Canada to Mexico, and have three or four, and have it divided into sections, depending upon how the various constituent Associations wanted to handle it.

I don't know as the Eastern States here would have such an interest in just what the reports were on the far Pacific, but, as far as we are concerned, why, we would think it would be very

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illuminating to have the reports from the various associations, but it can be modified, of course, to cover it in the way Mr. Stevens suggests.

MR. LESLIE: I think the suggestion made by Mr. Carter and the other gentleman, Mr. Bonestell, is very good, and I have had some doubt in my mind about the different systems of working it, and this suggestion would obviate the matter as far as my part of it is concerned. Therefore I move that the statistical plan as recommended by the Executive Committee be adopted, but referred back to the Committee, so that they may apply a zone system that will be satisfactory to this plan instead of the Association method of report.

(The motion was carried.)

MR. BOND: It wasn't mentioned, but it is understood, I believe, that no one receives these reports that does not send in their report.

MR. LESLIE: The statement just made by Mr. Bond is one which should be emphasized at this time, it seems to me. If we have in any way failed to be strict in the requirements of the tonnage reports, we have been lenient with those who have spasmodically reported, and nothing of that kind should occur with these sales reports. Any concern that does not consistently and regularly and constantly make the reports shall not receive these sales reports. Does that need any elaboration, Mr. Ridgway?

MR. RIDGWAY: If you infer that members who have not reported have gotten the results, that is not so.

MR. LESLIE: I don't mean to say so, but I would suggest that possibly in that case we would work along with the concern that was failing to make reports for the purpose of getting them in line. Nothing of that kind should occur here. If a firm doesn't report, they should be cut off the list definitely, until they have reinstated themselves by some method suggested by the Committee. It seems that is very essential, and that our membership understand it. We might have those who would lose interest for a couple of months, and then suddenly wish to get the information and come in. Now, such concerns should not get the information.

MR. BOND: It seems to me, in addition to that, that our comparing these amounts will be valueless, if one week, like our reports of tonnage, we get 84, 94 or 104 reporting, those will be more important than if ten houses report this week and twelve next week and fifteen the next and twelve the next. That would be useless almost to have such reports as that. Whoever undertakes it ought to make up their mind that every month their reports will go in, and what we start with ought to be kept up for one year it seems to me. If we are going to do this two or three months later, it is going to spoil the whole matter of comparison.

MR. WILSON: In this resolution, referring the matter to the Executive Committee, is it the understanding of this Committee that the number of zones shall not be more than four?

THE CHAIRMAN: So I understand. The next order of business is the report of the book paper conference committee. Mr. Bicknell.

MR. BICKNELL: We have no report to offer, for the reason that the Manufacturers' Bureau has gone out of existence, and they have no committee. We have received certain intimation that they will probably be reorganized in the near future with the aid and consent of the Federal Trade Commission, at which time your committee can take up work with them.

THE CHAIRMAN: I think it would be in order for the Chair to entertain a motion that the Conference Committee be continued, because I think the time will come when there will be work for such a committee to do.

The motion was seconded and carried.

THE CHAIRMAN: The Chair will entertain a motion of approval of such interchange of statistical information as can be made with

the Writing Paper Manufacturers, based on the monthly sales showings, keeping in mind that that is only in toto for the country, not as covering the zones, but just the total United States figures for comparison.

MR. BOND: I make such a motion.

THE CHAIRMAN: It is moved and seconded that we arrange for such interchange of statistical information, with that condition, that it provide nothing more, as far as our statistics are concerned, than the United States total showing.

I think there will be a good many developments in this statistics proposition as we go along. For instance, I should imagine after carrying this plan on for a year, we would have quite a number of changes to suggest, but we are in a position right now that we have got to take what the manufacturers will give us. We know what we want to give, and we will see what they have to offer, and when the Committee comes back, we will see if it is anything different from what we have proposed.

MR. BONESTEEL: I would like to ask if this information is to be given to the manufacturers in money value or in tonnage?

THE CHAIRMAN: Money value, as far as this motion is concerned, for the entire country only—the United States.

MR. KEARNS: Would a jobber be supposed to subdivide his business into writing paper?

THE CHAIRMAN: We have nothing now to offer with this vote more than the total fine paper sales of the United States—that is all. And presumably, that will be of some value, but it wouldn't be divided into writing papers or any other line. It would be fine paper as distinguished from coarse.

MR. LESLIE: That is true with regard to this division, but perhaps our friend doesn't understand. The Coarse Paper Division are expecting to furnish the same kind of information—furnish and obtain from this Association the same kind of information we are looking for in our own division here.

THE CHAIRMAN: With the coarse paper manufacturers?

MR. LESLIE: No; I am not talking about the manufacturers. Were you speaking of the manufacturers' proposition?

MR. KEARNS: In the reports we submit to the manufacturers.

MR. LESLIE: The reports we submit to the manufacturers; I assume that the Coarse Paper Division will adopt a similar plan with the coarse paper manufacturers, if thought desirable. Now, there is one thing we ought to say about these reports. A good many houses are handling side lines. Those would be excluded; is that right?

MR. RIDGWAY: The only thing I understood was to be excluded was building papers.

MR. LESLIE: We decided positively that it would be excluded, and we will stick to our position.

MR. RIDGWAY: It was not so fixed in the Coarse Paper Division yesterday afternoon.

MR. LESLIE: I don't want to have this thing mixed up; we want the paper business and nothing else. Now, when it comes to the fine paper business, we want to exclude what is known as the stationery, and things of that character. If we have any such lines in the white paper business, we want to exclude that. If I am not right, I would like to have some one correct me. Mr. Chairman, is that correct?

THE CHAIRMAN: Well, what was discussed in the Directors' meeting is clearly in my mind, and that was this: That if a house took what they called their fine paper business, and always reported it that way, and we will just assume for sake of argument that they don't take something out one time and put it into another, the comparative figures would not be materially affected by these small original side lines that might be added, or subtracted, if it was a difficult thing to get it in either way. If it was what we call—what any house calls—its fine paper business, it wouldn't appear to me to make any particular difference. You might say the stationery department might be eliminated, but it is

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a matter of comparison, and, although there may be some elements injected that couldn't be just clearly defined as fine or coarse, they would not materially affect the comparative figures,

if they were regularly kept in or regularly left out. That was rather the discussion.

It was voted to leave the details to the Statistics Committee.

GENERAL MEETING NATIONAL PAPER TRADE

The general meeting of the National Paper Trade Association was held Wednesday afternoon, at the Waldorf-Astoria, Thomas F. Smith presiding.

The Chairman: Gentlemen of the National Paper Trade Association, we are entering a year of mystery and adventure.

One year ago we were a commercial country. To-day we are an organized army, organized to fight, and organized to win. Organized to fight with the flower of our youth who are going to France, organized to win by making sure that the business men of this country stand behind those men in the trenches with determination to see that support and equipment are not lacking.

To do this, it is the solemn duty of every business man who is not qualified to fight, to lend his brain and brawn in seeing that our mills and factories are run to their fullest capacity.

The revenue from the hundreds of millions invested in our paper mills, and in the paper jobbers' warehouses, furnish such a not inconsiderable proportion of the vast munitions of war that the Government should be slow to cripple it.

At the first call to the colors thousands of men from the paper industries laid off the garb of commerce to don the "olive drab," and I am proud to say that eight from my rank honored me by lending their strength to uphold the Flag.

We have before us a year of problems shrouded in the deepest mysteries which no man can possibly fathom. It is a year of caution, and no man should venture to fight single-handed as in the past.

The more I ponder over conditions, the more I feel the urgent necessity of the strictest co-operation of every paper jobber, both in and out of our association.

There was a time when a merchant sat on his doorstep and waited for his customers to call. That merchant, according to the present-day standard, knew absolutely nothing about economy or system, yet he pulled through and, in many cases, amassed a huge fortune. He did know one rule, which he always applied, and that was the rule of profit. He had no system to show him what his different commodities cost to sell, so he took no chances, and added big profits to everything.

In my opinion, the next most radical revolution in business is the real study of cost, and the application of the knowledge.

The introduction of a real cost system is like a heavily laden, slow-moving caravan. Each year sees a few converts, but nothing can be really accomplished until all paper jobbers understand and realize it to be a necessity and not a luxury.

I once asked a division superintendent if he had much trouble in preventing engineers from drinking while on duty.

He told me that when he first took charge he found a number of men who did, but that he soon broke this up by vividly picturing to the strictly sober men the great risk they ran each day in meeting on the main track one of these drinking men who had forgotten his orders. The result was that the men themselves saw the seriousness of the situation and, realizing that their safety not only depended upon themselves, but also upon every engineer on the line, took the matter into their own hands and would not permit a drinking man to remain in the service.

So it is with our cost system. We should exert every effort to encourage every paper jobber to install one before he wrecks himself and all his associates. Why should we rob Peter to pay Paul? Why should we lose in one division the profit we make in another. There surely is no wisdom nor justice in that kind of merchandizing. Yet it is done every day in the week. I earnestly

appeal to all of you who have no cost system to instal one at once.

The accuracy of which is no longer a theory, but an acknowledged fact.

The cost of doing business naturally varies in different parts of the country, but as far as I am able to determine, an average cost of nearly 20 per centum on your sales, or 25 per centum added to your invoice cost represents the cost of doing business from stock, and 7½ per centum on your sales, or about 8½ per centum added to your invoice cost represents your cost of direct sales. To this you must add a profit, unless your ambition is in working for glory only. Unless you know these facts you are unfair to yourself, to your associates, and to your customers.

I recommend that you also give to your salesman the actual cost, which includes the cost of doing business, and not the invoice cost, as is now the common practice.

Every salesman should know these facts, and should not be permitted to labor under the impression he is making a good sale when in many instances he is actually losing money for you and himself.

We should analyze our business as never before, and we should do it individually and collectively. We should increase our statistical information. We should help each other by backing up our association in collecting and distributing all information asked of us. We should have enough confidence in our association to know that all information we give will be in confidence, and remember if we are suspicious of our associates, they will be suspicious of us.

Love begets love, and so does confidence beget confidence. If you fail to add your mite, you will be like the yeoman who on meeting a friend said: "Did you know that John Harris' wife died last night?" The friend walked along for a while, when tears came to his eyes and thus he began to blubber. "What's the matter," said the yeoman; "was John Harris' wife any kin to you?" "No," said the other. "Then did you know her?" "No," said the man. "Then what is it that affects ye so?" said the yeoman. "I was just thinking," said the man, "how everybody gets a change but me." So it will be, unless you contribute, you will not get a change.

You have honored me as your president, and before passing into oblivion as all good presidents do, I want to thank you from the bottom of my heart for the splendid support you have given me, and for the many acts of friendship you have shown me. I shall pass into the ranks with gratitude in my soul, forever mindful of the cordial acknowledgment you have given the small service it has been my pleasure to render you.

Report of Secretary

With this meeting the association enters upon its fifteenth year. During the fourteen years of its existence, the paper trade has gone through hard times and good times, but never before has it been confronted with problems as serious as those which now arise from the entrance of this country into the world war. We will make the report of formal matters as short as possible before taking up the problems created by war conditions.

At the meeting last February the plan for the extension of the activity of the secretary's office recommended by the Board of Directors was approved. The work of the association, which has had to do exclusively with fine or coarse papers, has been covered in the reports made to the divisional meetings, and will not be duplicated here.

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Your secretary has, during the past year, visited New Orleans, Cincinnati, Minneapolis, St. Paul, Chicago (twice), Philadelphia and Boston, in the interests of the association, and has attended meetings of local associations in these cities. During this same period Mr. Lyter, who, under November 1, was serving as assistant secretary under arrangement with the Middle States Wrapping Paper Association, and after that date, by election of the Board of Directors, has organized a Coarse Paper Association in Wisconsin, consisting of nine members, another covering the territory in the southeastern section of the country with twenty members, and still a third in the Missouri River district with a membership of sixteen. This has been accomplished by preliminary correspondence, and the personal attendance of Mr. Lyter at organization meetings.

These three new associations have been duly elected to membership by the Board of Directors and, with the additions therefrom, the total individual membership of the Constituent Associations, excluding all duplications, now number 346. The following is a comparative table showing the membership of the Constituent Associations for the years ending February, 1917, and 1918:

Name of Association.	1917.	1918
Paper Association of New York City.....	63	63
Middle States Wrapping Paper Association.....	35	40
Empire State Paper Trade Association.....	20	20
Central States Paper Trade Association.....	30	27
New England Paper Jobbers' Association.....	31	29
Northwestern Paper Dealers' Association.....	11	10
Baltimore & Southern Paper Trade Association..	29	30
Paper Trade Association of Philadelphia.....	19	19
Pacific States Paper Trade Association.....	11	27
Western Paper Dealers' Association.....	31	31
Gulf States Paper Association.....	6	5
Southeastern Wrapping Paper Association.....	..	20
Missouri Valley Wrapping Paper Association....	..	16
Wisconsin Paper Dealers' Association.....	..	9
Total.....		346

The increase in the individual membership since the last annual meeting is, therefore, encouraging.

The Pacific Coast Paper Association, which at the time of the last annual meeting, included eleven of the Coast's houses in its membership, was reorganized early in the Spring under the name of the Pacific States Paper Trade Association, and its membership was increased to twenty-seven houses, covering the entire Coast.

The views of the secretary on the subject of a uniform cost system and its use by all members are so well known that they do not need repetition here. Some years ago the Lamb system was adopted by the association, and has been installed by a few of the members, but there can be no doubt that this system has not appealed to the rank and file of the members, apparently because it is considered an unreality, and its cost of operation is higher than the average jobber is willing to pay. Because of the fact that this system did not seem to be making headway, the Board of Directors at its Fall meeting authorized a committee to consider the subject and report to this meeting.

The report of this committee will be presented later.

Business in general, and the paper business in particular, has only very recently come to a realization of what war means to those industries of this country which may, for the want of a better term, be called semi-essential. Before the issuance of the order of Fuel Administrator Garfield shutting down all factories except those engaged in turning out munitions, etc., for a period of five days, and establishing for such manufacturers and all business, mercantile and professional, ten workless Mondays, the paper business had been conducted about as usual, but the issuance of this order has had an effect upon the paper business similar

to that which the first big casualty list from the other side will have upon the individual citizen of this country.

For some six months or more, the wholesale paper merchant has experienced a return to normal times so far as profits are concerned. The costs of doing his business have steadily and rapidly risen to a point higher than the trade has ever known, prices have declined (although there have been recent advances which, however, are due not to any increased demand, but to the difficulties of delivery and the increased costs of manufacture), and the result has been that the wholesale paper business in general made little, if any, profit in the last six months of 1917. Luckily, the boom business of 1916 did not peter out until the middle of the year, and the profits of the entire year were satisfactory, certainly when compared with pre-war returns. The experience of the last six months of last year is nothing new to the paper merchant, for he has in the past survived many periods of slack demand and declining prices, but the stoppage of manufacturing of all kinds, even for a limited period, and the ten Mondays when all businesses but the absolute essential ones are to close are decidedly new, and has started the machinery of his brain in the endeavor to find out what this business of war really means to him.

We propose to state a few of the conditions as we see them, and to draw conclusions therefrom, in the full knowledge that such a course is presumptuous in face of the fact that no precedent can be relied upon now. Perhaps, it is this failure of precedent which gives us courage to make any observations. It seems to be a time when one man's guess is as good as another's.

Every one agrees that the war must be won at any cost, but now again the business men of the country have indicated an unwillingness to make the sacrifices demanded of them. The basis of this unwillingness is invariably the belief that the proposed measures are unnecessary, and there can be little doubt that in some cases this objection is justified, but, it is respectfully submitted that blind obedience on the part of business is quite as necessary to the success of the war as it is on the part of the soldier. We do not mean by this that the business men should weakly sit around while the Government, with little, if any, practical experience in business, issues orders which may be positively foolish. They should by all possible means seek to enlighten the powers in Washington as to the needs of business and the methods best calculated to produce real results. The business man should certainly make himself heard, but, when the Government, with all facts at its disposal, issues an order, it is time to obey, no matter what the cost may be to any individual or to any group of individuals engaged in the same line of business.

Ten months of war have demonstrated that "business as usual" is an impossibility. Some businesses are better and some are worse than usual, and certainly war has not improved the paper business to date, and there are few, if any, signs of a general improvement in the near future. War cannot be waged without paper. The Government itself, and businesses closely allied to war, are using largely increased quantities, but the demand from the rank and file of the consumers of paper has fallen off materially, and it seems to us can still be decreased without in any way jeopardizing the success of the war. If this be so, is it not probable that the ever increased demands of the essential businesses for labor, materials, coal, transportation, etc., must in some considerable degree be supplied by the paper and other industries similarly situated? We believe it is not only probable, but will be absolutely necessary. It, therefore, follows that the paper industry must contribute that portion of its labor, etc., going into the production of non-essential paper to the production of the essentials, so far as the same may be necessary.

All authorities agree that production is the only basis for the creation of money, but the labor of this country can produce only so much, and it makes no difference in the wealth of the country whether essentials or non-essentials are produced, provided only

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that labor produces to the limit of its capacity. It is simply a question of the proper distribution of labor. Essential industries must have all the labor required to turn out the means of winning the war, and we are told that these industries are to-day short-handed, that their need for materials is pressing, and that the railroads must do better in the transportation of their supplies. These needs are paramount, and the Government will see that they are filled. If there is no other way, it will be done by regulation, either direct or indirect, of the non-essential industries, but no matter what means are employed there can be but one result, namely, the non-essential businesses of the country will not be able to produce and market to their full capacity.

This, in view of the present and the prospective slack demand, will be no great hardship to the paper business generally, but rather a blessing, for it will prevent over-production and, if the Government does not interfere, the law of supply and demand will take care of the question of profits. To our way of thinking, the Government must not attempt to fix prices on the non-essentials, especially if their production is to be curtailed, for, with production limited, either by governmental action, or otherwise, the only possible way in which a non-essential industry can be kept in a healthy condition is to permit the law of supply and demand to operate in a natural way. It would mean, in the paper trade, that all would be able to make reasonable profits, with which to pay taxes and buy bonds. We do not believe the production of paper would ever be so curtailed that any one would be in a position to make an unholy profit, but, if such a condition should arise, the trade itself should take steps to keep profits within reasonable limits.

It seems to us entirely reasonable to suppose that the Government is giving careful consideration to the problems which have been merely hinted at here, and we hope has and will take counsel with the best business brains of the country before attempting to work out ways and means of supplying the essential industries, at the expense of the non-essential, with the labor and materials to turn out the articles which must be had to win the war. We also hope that, should drastic regulation be necessary, the administration of any plan affecting the paper trade will be placed in the hands of some one who has a thorough knowledge of the business.

A year ago a resolution was enthusiastically passed, supporting the action of the President of the United States, in severing diplomatic relations with Germany. At that time the paper trade was at the height of its prosperity, but we are firmly convinced that the wholesale paper dealer, with or without a dollar in his pocket, is a true patriot, and is to-day, as this meeting will demonstrate before adjournment, ready, willing and anxious to do his bit and to stand behind the Government, no matter how great the sacrifice he may be called upon to make.

Mr. Ridgeway: The report of the Board of Directors. As the evident desire is to get through as quickly as possible, we will go over these and take them up item by item, making only a formal report at the present time, that at the meeting of the Board of Directors held on Monday, three new coarse paper associations were elected to membership: The Wisconsin Paper Dealers' Association, with nine members; the Southern Wrapping Paper Association, with twenty members, and the Missouri Valley Wrapping Paper Association, with sixteen members.

At the meeting of the board on Monday, the following amendments to the by-laws were discussed, and it is recommended by the board that the following amendments be made:

That Article III, "Membership," Section 11 be amended to read as follows:

A dealer and jobber is defined as follows: A corporation, firm or individual carrying a general stock of various grades of regular stock sizes and weights of paper (either printing or wrapping paper, or both), cardboard, envelopes, etc. Corporations, firms, or

individuals maintaining a branch house, or houses, such branch or branches shall not be eligible to membership as branch or branches unless the home or parent house shall be eligible to membership and shall have them so declared by the local association covering the territory in which the home or parent house is located.

I presume you see the force of that amendment at once, namely, that a branch house cannot be admitted to membership in a constituent association unless the association covering the territory in which the home house is located certifies to the eligibility of the home house.

It is recommended that the by-laws be amended further, that a new section to be numbered 7 of Article 5, shall be added, as follows:

Officers

Section VII be amended by adding the words: "and an Assistant Secretary" on the first line of said section, and change the word "the" on second line of same section to "they."

That is simply a formal amendment to cover the office of the assistant secretary.

The Chairman: Gentlemen, you have heard the recommendations for the changes in the by-laws. What is your pleasure?

A Member: I move it be adopted.

(Motion seconded.)

(Carried.)

Mr. Ridgeway: I also have to report that an auditing committee, consisting of Mr. B. W. Wilson and Mr. F. L. McClellan report that they have audited the treasurer's books and find them correct.

The Chairman: Gentlemen, the next order of business was the report of the Cost Committee appointed last year, but I am very sorry to say that the chairman of the Cost Committee, Mr. Culbertson, through circumstances, is no longer a member of our association, and consequently our committee fell by the wayside. But I want to say this: We have appointed a very active committee for the coming year, who have really agreed to work, and I think next year this time we will be able to present a cost system which will be somewhat uniform, and as simple as possible, so that we can all adopt it. I think you can look forward with a great deal of pleasure to that next year.

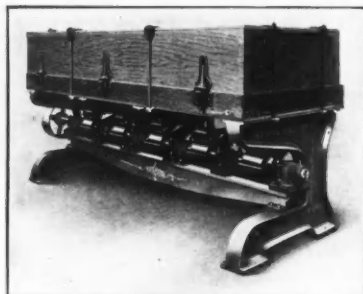
Mr. Ridgeway suggests, gentlemen, that possibly you might like to discuss that proposition about the costs. The idea, I will say, was not to create or bring forward a great, big, voluminous cost system that would be very difficult and embody all the ramifications of a cost system. The idea was to simplify it as much as possible and bring to us something we could all use in an easy way. Now, if you don't wish to discuss that at all, or have anything to say on it, we would be very glad to hear from you.

Mr. Bond: Mr. President, it seemed to me that it would be a very desirable thing in the very beginning of the cost system if the committee could consider and suggest uniform system of accounting, just to keep our books in the same way to start with, if you don't go any farther; just that uniform system of keeping accounts. Let the committee consider that.

The Chairman: A very good suggestion, Mr. Bond. I will make a note of that.

Mr. Andrews: Mr. Chairman, I should think that this new committee that is going to be appointed would undoubtedly meet with a great deal of success at the start. You will note that in the meeting this morning, it was reported in a resolution presented by the Fine Paper Division that the paper dealers had already subscribed \$17,000 a year for the next three years, to teach the printer how to keep cost systems. So, I judge from that that they will go after this with all their hearts and souls, that having gone to the expense at the present time—the paper dealers—of \$17,000 a year, to which will be added \$8,000 more, I presume, in the next few weeks, the paper dealers having provided a fund of \$75,000 to teach the poor printer how to keep cost systems, will proceed

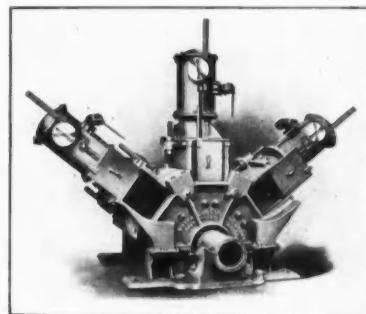
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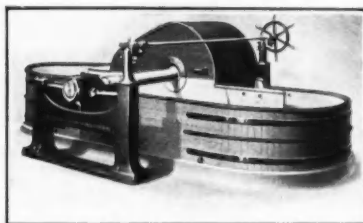
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to inaugurate a few systems themselves. I have no doubt of the great success that committee will have.

The Chairman: Gentlemen, this is a very serious question. You know it is important because I stated in my talk that it is the next greatest revolution in business, so you must remember that to be a fact. So, if you want to discuss this thoroughly, we want you all to feel that we are entering on a great revolution in business for all of us.

Now, Mr. Leslie, you always have lots to say about good things. Mr. Leslie has a system, and I know he knows the value of it.

Mr. Leslie: I am afraid to talk any more to this association. Somebody is always taking the joy out of life. We used to come down here on time, Mr. McQuillen and Mr. James Richard Carter and myself, and do all of the talking, and I think they will agree with me that after the speeches we have heard this afternoon we had better recognize our place on the advisory board and let the new oratorical development here have full swing. I was thinking when our president was making his speech—I was trying to account for it whether it was the splendid education he has had in this association, or whether it was because Kentucky has gone dry, and I haven't arrived at a conclusion yet.

This cost system in its present situation, gentlemen, is one that I might as well keep on talking about in the rambling way that I have started. We have a cost system. We started the Lamb proposition in this association some time ago, a very scientific system, but we all found it necessary to make certain modifications in it, to dispense with a large amount of the labor involved on Mr. Lamb's plan, with the result that we are just about where we were. We have informed ourselves individually perhaps regarding our costs, but we have achieved nothing that would inform our associates, the members of this association. Our president has already told you the necessity which we already knew existed for scientific cost information. We are all agreed on that, and we needn't enlarge on it at all, but I think we will have to depend on our new committee for some application of a good system, and I would only have to suggest that that committee do not wait until the next meeting of the association for a report, but that they get busy at once and take the matter up with the individual members of our association, with the various local associations, and get some demonstration here by next February of what the new cost system might do for us. I think the way to resume is to resume, and we never needed cost accounting any more than we do in this coming year, and I think that that committee should apply some system which will enable us to go ahead with some uniformity, as Mr. Bond says. I think we could get busy on the uniform cost accounting, anyhow, and start it, and have something to report next February, instead of something merely to suggest.

The Chairman: That is a very good suggestion of Mr. Leslie's, but that really was the intention of the committee. I merely mentioned next year, because we cannot always depend upon our ability to get things done, but I think that will be done, Mr. Leslie, as you have suggested.

Is there any one else who would like to discuss the cost question or who has any suggestion to offer?

Mr. Ward: I would like to ask Mr. Ridgway, haven't we been talking about this cost system now for a couple of years, and what progress have we gotten so far?

Mr. Ridgway: We began it about seven years ago, and about five years ago a system known commonly as the Lamb system was adopted and recommended to the members. That system has been adopted, I think, by six or seven houses since we have adopted it as an association. It was originally installed for the Chatfield & Woods Company in Cincinnati, and has been used by the home house, and through their organizations, in addition to these six or seven that have adopted it. A good many of the

members have investigated it, and apparently the difficulty with it is it is too cumbersome to be adopted at the present time. That seems to be the difficulty with it, and it looks as though we would have to take it step by step, and the resolution as passed by the Board of Directors was that this accounting system which has been referred to this committee, shall take up only two things, and produce results as to two things, namely, your cost of doing business from warehouse and cost from mill.

Mr. Ward: Well, the point I am trying to make was this: I think we have all gone through two years in which we can all afford any reasonable cost system, and I think that every one is in the mood to look at the thing seriously here before he may have come to the meeting, to listen to the talk about cost system, and I think he has said, "Well, I think it is a very good thing, but our business don't need it."

Now, Mr. Leslie brought up a very excellent point, I think, and that is the idea of getting the thing across, getting the information as quickly as possible. In Philadelphia we have been getting together twice a week in the Fine Paper Division at dinner, between six and eight, at which time we have had plenty of time to sit down and talk and know each other better, and there has been considerable talk about the cost of doing business. Ward & Co. have a cost system, and I think one or two other houses have in Philadelphia, but it has formed no ground for discussion, because they were not alike in any way, and in the discussions of cost, you cannot get anywhere near where we want to get, because there is nobody that can sit there and intelligently discuss what the right cost is, not even the ones like ourselves, as I say, that have a cost system. We can say what our costs are, but they are not uniform, and I think the greatest thing to do is to try to get it through as quickly as possible, because I think you have got a wish all through the association now that is stronger than at any other time, figure out something and get it in.

The Chairman: Mr. Ward, I failed to state that we realize just that condition, that what is everybody's business is any one's business, so the directors authorized an expense to be incurred, if necessary, of not to exceed \$500 to employ an accountant to devise and to work out the technique of the thing, and I think the efforts will bring fruit.

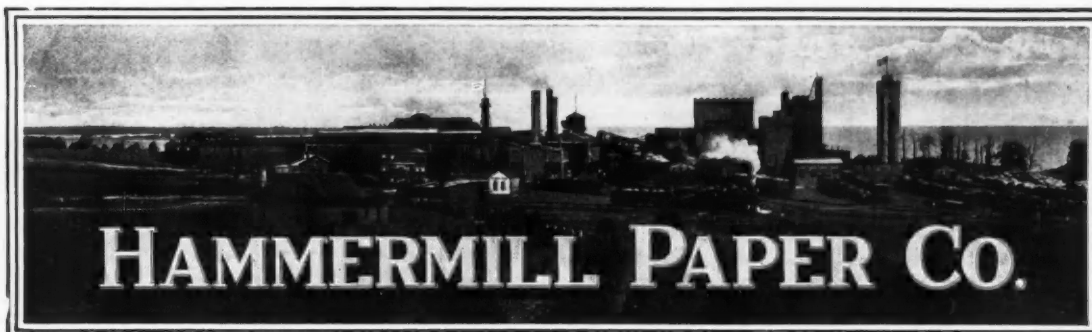
Mr. Platt: Mr. Chairman: Just one more word from Philadelphia. I want to say this, that if there is any lingering impression in the minds of the gentlemen present, that a cost accounting system is necessarily cumbersome, clumsy, expensive to put in and expensive to keep up, I want to try and dispel that impression by the statement that a cost accounting system, without losing its effectiveness and its efficiency, can be put in any business, that is simple, that is inexpensive to install, and that is very inexpensive to keep up, and at the same time that will touch the most vital point of a cost accounting system. We must all see—we have three classes of business, mill, pier and warehouse. We must all see our weak point is in our warehouse business, and a cost system that simply separates and applies the percentages of overhead to those three classes of business, will be a long step in the right direction, and a system which goes into the proposition to that extent can be made very simple, very inexpensive to install, and very inexpensive to keep up.

The Chairman: Is there any further discussion, gentlemen, on the cost system? If not, Mr. Miller, I will ask you to proceed with your report.

Mr. Miller: Mr. President and gentlemen: Your Resolutions Committee met with the committee of the American Paper & Pulp Association yesterday, and formulated the following: This is the work of the gentlemen of the committee. It is rather long, and I rather hesitate to read it, but I presume it is necessary.

No. 1, war resolution.

WHEREAS, The people of the United States, in defense of the



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Republic and the principles upon which this nation was founded, are now taking their part in the world war with no lust for power and no thought of financial or territorial gain.

WHEREAS, The issues at stake in this stupendous struggle involve the moral ideals and conceptions of justice and liberty for which our forefathers fought, the protection of the innocent and helpless, the sanctity of womanhood and home, freedom of opportunity for all men and the assurance of the safety of civilization and progress to all nations great and small.

WHEREAS, Speed of production and the mobilization of all our national power are essential to victory and mean the saving of human life, an earlier ending to the designs of autocracy and militarism and the return to the peoples of the earth of peace and happiness.

BE IT RESOLVED, That undismayed at the prospects of great taxes, the American Paper and Pulp Association and the National Paper Trade Association, without hesitation, pledge our Government its full and unqualified support in the prosecution of the war until Prussianism is utterly destroyed.

The Chairman: I think we had better dispose of each one of these as they come up.

(The resolution was adopted.)

Mr. Miller: No. 2. Co-operation for export trade.

WHEREAS, Conditions in international trade will be extraordinary after the close of the European war, and

WHEREAS, it has now been definitely established by an investigation and report of the Federal Trade Commission that before the present war American exporters were placed at great disadvantage in foreign markets by reason of the fact that under our laws they could not co-operate in export trade, and

WHEREAS, Individually they met combined competition from manufacturers and exporters of other nations, and

WHEREAS, A bill giving express permission to Americans to co-

operate for export trade on condition that such permission shall not affect restraints now imposed on domestic trade, has passed the House of Representatives and the Senate by an overwhelming majority. NOW, THEREFORE,

BE IT RESOLVED, That the American Paper and Pulp Association and the National Paper Trade Association reiterate its earlier expressions concerning the great importance of such legislation to the welfare of American industry and trade.

The Chairman: What is your pleasure?

(Moved and seconded that the resolution be adopted.)

(Carried.)

Mr. Miller: No. 3. Military Roads.

WHEREAS, It is essential that all the transportation facilities of the nation should be brought to the highest state of efficiency in order that foodstuffs may be moved most economically from the farm to the market, that manufactured products be moved at the lowest cost from the factory to the consumer, and

WHEREAS, The Public Highways offer a good, prompt and economical means to supplement transportation by rail and water, therefore,

BE IT RESOLVED, That the prompt improvement of our Public Highways is important and should be forwarded in every proper way.

The Chairman: Gentlemen, you have heard the third resolution. What is your pleasure?

(The resolution was adopted.)

Mr. Miller: No. 4. Foreign Exchange.

WHEREAS, The foreign trade of the United States for the last fiscal year shows a balance in favor of this country of nearly \$4,000,000,000, and

WHEREAS, Loans to our Allies greatly exceed our "favorable balance of trade," and

WHEREAS, The continuance of any set of conditions which tend

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to curtail imports, because imports represent the only form of cash payment which our entire foreign trade is yielding, and

WHEREAS, High foreign exchange premiums penalize imports and tend indirectly to increase the enormous inflationary debit balance which the nation is rolling up against the future in the form of foreign loans, and

WHEREAS, The advances to our Allies are now proving a boomerang leading to the depreciation of the American dollar in foreign markets, because of lack of governmental regulation, and

WHEREAS, All our Allies are now taking every step necessary to protect their own currencies abroad, and

WHEREAS, The American dollar is now at a discount of from three to twenty per cent. in neutral foreign countries,

BE IT RESOLVED, That the United States Government, through its proper departments, take whatever action may be necessary to keep at parity the American dollar in every country of the world.

(The resolution was adopted.)

Mr. Miller: No. 5. Rehabilitation.

WHEREAS, New conditions, due to the war, are continually arising both economic and social, and

WHEREAS, While men, money, munitions and ships are rapidly being called for and are now being prepared, and

WHEREAS, Congress has now under consideration a plan of insurance for the benefit of families for those who may give up their lives for their country, and

WHEREAS, The War Department now plans to instruct in some new vocation those who return to their homes, either crippled or blind, therefore,

BE IT RESOLVED, That the American Paper and Pulp Association and the National Paper Trade Association instruct their officers through proper committees to take up with each association and Chamber of Commerce members of the National Chamber, a plan of employment for such unfortunate heroes in order that this nation may offer a means of support to them, and through a referendum ascertain as near as possible the number for whom places may be secured, and

WHEREAS, In many states employers' liability laws might work a hardship on or present difficulties to employers who might desire to aid in this great work of rehabilitation; therefore

BE IT RESOLVED, That this phase of the question be referred to the Legislative Committees of the American Paper and Pulp Association and the National Paper Trade Association.

(The resolution was adopted.)

Mr. Miller: No. 6. Federal Income Tax.

WHEREAS, The Federal Income Tax and Excess Profits Taxes will be due and payable on June 15, 1918, and

WHEREAS, The payment of such a huge sum, estimated to be in excess of \$2,000,000,000 in currency, or by bank checks, except where payment is made with U. S. Treasury Certificates of Indebtedness within a short period of time, would occasion an unprecedented strain on the banks and money markets of the country, and seriously interfere with the next issue of Liberty Loan bonds, therefore

BE IT RESOLVED, That the American Paper and Pulp Association and the National Paper Trade Association do unanimously recommend that the Federal Income and Excess Profits Tax Law be so amended as to permit the payment of the Income Tax and Excess Profits Tax in quarterly installments, as follows:

The first on March 31.

The second on June 30.

The third on September 30.

The fourth on December 31.

and

BE IT FURTHER RESOLVED, That the members of this association be urged to communicate with their Congressmen, Senators, bankers and others, to the end that the aforesaid amendment may be effected at an early date.

(The resolution was adopted.)

Mr. Miller: No. 7. National Conservation.

WHEREAS, The American Paper and Pulp Association and the National Paper Trade Association are interested in the conservation of our forests and the proper utilization of our water powers, therefore

BE IT RESOLVED, That we favor a conservation policy adequate for our economic needs supplemented by investigation and educational work on the part of the Federal and State governments in aid and encouragement of a wise and proper utilization of our natural resources, and we reaffirm our policy of co-operation for the advancement of these policies and for the proper recognition of public and private rights.

(The resolution was adopted.)

Mr. Miller: This is the extent of the formal resolutions that were drawn in committee. While I am on my feet, I think it proper that we might say a word in appreciation of our retiring president, Mr. Thomas F. Smith. At considerable personal sacrifice and much work he has faithfully discharged the duties of the office of president during the past year. And, also, I wish to say a word in appreciation of our very able and efficient secretary, Mr. Ridgway, who did not have the report ready for me. I ought to exonerate him entirely from that. It was my mistake, because it was Mr. Naylor who handed me the report.

The Chairman: Now, gentlemen, the general order of business now is open to bring up any new subject which any of the members wish to bring up. We would be pleased to have any of you who have anything to say on anything new to go ahead and present it.

The next order of business will be the election of officers. We will present the names as given by the directors. Mr. Ridgway will read those, please.

Mr. Ridgway: Under the authority vested in it by the by-laws, the board of directors begs to present the following nominations for officers for the ensuing year:

President, Mr. George Olmsted, of Chicago.

Vice-president, in charge of the Coarse Paper division, Mr. H. E. Platt, of Philadelphia.

Vice-president, in charge of the Fine Paper division, Mr. R. P. Andrews, of Washington.

Treasurer, Mr. A. J. Corning, of Baltimore.

The above nominees were thereupon unanimously elected.

The Chairman: Mr. Ridgway has another matter he wants to bring before you with regard to the standardizing of catalogues. He will explain it to you.

Mr. Ridgway: I didn't want to call up the subject, but it has just been called to my attention that the Dexter Folder Company, of 200 Fifth avenue, has just gotten out a booklet. It covers the subject of standardizing catalogue sizes to make them fit the standard stock sizes. It is entitled "The 28 Standard Booklet and Catalogue Sizes that cut, print and fold without waste from the new standard stock sizes of printing papers." The Dexter Folder Company will be very glad to furnish these to any member of the association in reasonable quantities.

Mr. Leslie: Mr. Ridgway, have they got the sizes there? I mean the sizes of book print?

Mr. Ridgway: They recommend seven sizes:

26	x 29—48,	56,	63,	72,	79,	95	lb.
25	x 38—60,	70,	80,	90,	100,	120	lb.
28	x 42—74,	86,	99,	101,	124,	149	lb.
28	x 44—78,	90,	104,	117,	130,	156	lb.
30½	x 41—79,	92,	105,	118,	132,	158	lb.
32	x 44—89,	104,	119,	133,	148,	178	lb.
33	x 46—96,	112,	128,	144,	160,	192	lb.

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Supplies

The Chairman: Gentlemen, are there any other matters to be brought up?

Mr. McClellan: I wish to move a vote of thanks be extended to Mr. Lyter for the splendid work he has done during the past year. He certainly has done splendid work and been of great assistance to the association and to our secretary, and we should show our appreciation.

(Unanimously carried.)

Mr. Merriam: May I be heard in connection with that statistics matter? I want to urge upon every president of his association to do as I did here in New York. I admit that I was very lukewarm on that matter until I understood it. At our Philadelphia meeting I promised a gentleman there that I would call personally on every man in New York—member of our association that was not already reporting, and I found without exception that every one of those men said, "Yes, we want to know about it; it is in the air, we have heard a good deal about it in a general way, come in and sit down and tell us all about it," so that Statistics Committee went with me, and every man we called on, without exception, said, "Yes, that is a fine thing, and you can count on me in the future." Now, at our Monday meeting, if you remember, I promised I would say these few words urging the president of each association to take that upon themselves, and if they are not thoroughly acquainted with it, they ought to be, and to acquaint themselves with the true conditions, and then call personally on your individual members and explain it, and I am very confident that they will fall in line.

Mr. McQuillen: Gentlemen, I move a rising vote of thanks to the president for his good work, and to all the other retiring officers. Those in favor will signify it by standing up.

(Unanimous.)

Mr. Olmsted: Gentlemen of the National Paper Trade Association: First, I want you to know that I appreciate this honor that you have conferred upon me. I am sure the other officers can say the same thing, and I also appreciate the very serious situation that is confronting us all. We are very much like a ship that is on an unchartered ocean. We don't know just what we are going into, and I realize fully that we are going to have undoubtedly during this year a great many very perplexing problems; problems that in a measure we probably can draw on our experience as we would wish to solve, but the one particular message that I would like to carry to you all, and in asking it of each, and I am sure I am going to get your full co-operation, and that is this: That it seems to me our slogan, the principle we want to follow particularly this year is this, that we must lend our individual effort to the end of serving our community's interest. That is as clearly as I can put it. We are all more or less in the final analysis individualists. Regardless of how we put it, we are all to think more or less of ourselves as entities, and we have got to figure that this is a community and that this is a neutral matter. We cannot be thinking of ourselves alone or even our limited districts. I think we have all seen that. I know in my country we have really been in the habit of feeling that if we cleaned our front walks in front of our 50 feet or 100 feet of ground, that that is about all we have got to do, but in the last month or two we have been in the position of looking at it very differently. We have got to get out to see that the roads are clear to allow the fire apparatus to get to the hydrants, so if there was a fire in one of our houses, why, all would have lent their aid in making that loss as little as possible. Now, that is the way we have got to look at this proposition. Our interests in a measure we may say are at stake. It isn't a question now of east or west or manufacturer or merchant; it is a combined community proposition from the standpoint of the best interests of the industry, and we have all got to get together, and we ought to get that message to the manufacturers; let them feel that this is not a selfish proposition, that we feel that this is just one great big institution of which we are each an integral part.

PAPER BY-PRODUCTS AN AID IN WINNING WAR

Ground has been broken for the new government building at Mechanicsville, N. Y., for the manufacture of acetone, to be obtained from by-products of the West Virginia Pulp and Paper Company plant located across the Stillwater road from the proposed new plant. It is said that the new building will be erected at a cost of \$100,000 and will give employment at first to about sixty. The site of the proposed building is partly on lands of the West Virginia Pulp and Paper Company and state lands, formerly the bed of the old Champlain canal. These lands of the state have been ceded to the United States through a bill introduced in the Senate by State Senator George H. Whitney, signed by Governor Whitman, becoming chapter 1 of the laws of 1918. It is also said that acetone is obtained by distillation and will be used as an ingredient in the manufacture of a special varnish for the coating of aeroplane wings. The contract for the new building has been awarded by the signal division of the U. S. Army.

MANUFACTURERS NOT AT WAGE MEETING

Secretary A. D. Naylor, of the American Paper & Pulp Association characterized as an absolute untruth the report in one of the New York newspapers that "a committee representing the paper and pulp manufacturers" was to confer at the Hotel Astor on Wednesday, "with a committee from the various labor unions relative to fixing a schedule of wages for the year beginning May 1."

The report stated that "the workers are demanding increased compensation under the proposed new schedule." Secretary Naylor amplified his statement by saying he had learned some weeks ago that Mr. Burke, of one of the paper making brotherhoods "was holding a meeting at the Hotel Astor on the 7th," but beyond that he knew nothing. The manufacturers, he stated, were not officially represented in any way.

SONS JOIN JOHN W. BANKER

The two sons of John W. Banker have joined him in his business at 17 White Street. They are Harold A. Banker and Leslie A. Banker, both graduates of the Sheffield Scientific School at Yale. Harold was a member of the class of 1916, while Leslie graduated in 1909.

The firm of John W. Banker is exceedingly well known to the trade, having built a reputation based solely on merit. The firm makes specialties of twine and cordage, besides handling large quantities of paper.

Mr. Banker started in business for himself in 1898, but has spent 44 years in the paper trade. There is scarcely a paper mill in the country that has not used his twines or cordage and found them to be of exceptional quality. The motto of the concern seems to be "Quality is remembered long after price is forgotten."

A. BRAUNSTEIN SELLS OUT.

A. S. Landsberg, having recently purchased the interests of Alexander Braunstein, his former associate, is now the sole proprietor and owner of the Hamilton Card & Paper House, Inc., 27 Greene street, New York, N. Y. Mr. Landsberg recently underwent a very serious operation when it became necessary to amputate one of his legs. He is now, however, back at his desk. The Hamilton Card & Paper House, Inc. handles the Superior Typewriting Papers, as well as Hiawatha and Hamilton Bond and a complete line of envelopes.

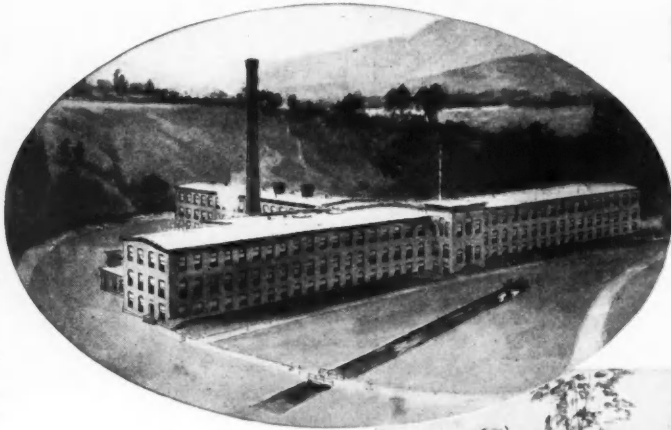
GLAZED PAPER MANUFACTURERS' ASSOCIATION

An interesting session was held by the Glazed and Fancy Paper Manufacturers' Association on Tuesday morning.

Up to the time of going to press the change in officers, if any were made, could not be secured.

CRANE & CO.

Makers of
Bank Note,
Bond,



and

Parchment
PAPERS



DALTON, MASS., U. S. A.

A. P. & P. A. Has Patriotic Banquet

Hooverized Menu Is Served, But In Spite of This the Annual Dinner Thursday Evening at the Waldorf-Astoria Is the Usual Brilliant Success—No Souvenirs Are Distributed, But the Money Thus Saved, \$1,800, Is to Be Given to Soldier Fund—Speeches Are Unusually Interesting and Entertaining—Judge Moore Is Toastmaster.

The annual banquet of the American Paper and Pulp Association was held at the Waldorf-Astoria and was well attended. It was a Hooverized dinner, the menu being arranged altogether in accordance with the views of the Food Administrator. The speakers included Rev. Nehemiah Boynton, D. D.; Col. Sir Walter Lawrence, G. C. I. E., C. B., and Thomas L. Daly. In introducing the new president, G. W. Sissons, Jr., Mr. Daniels, the retiring president, spoke as follows:

I wish to extend to our guests here a most cordial welcome. And before I turn the gavel over to the toastmaster of the evening, I want to congratulate the American Paper and Pulp Association on its splendid selection of a president, my successor. (Applause.) I bespeak for him, Gentlemen, that same hearty, cordial and enthusiastic support which you have tendered always to me. I am very sure in Mr. Sisson you will have one who will ably perform these duties and carry you on to continued success.

It has been truly said that not alone those who are at the front fighting the battles to make the world safe for democracy, but here in this country—in the workshops and in the mills and in the many other ways in which we are contributing toward the support and the furnishing of supplies and materials so necessary to maintain that army, are those loyal workers here. Their contributions are taken in various forms; and I am sure you will be pleased to know tonight, gentlemen, that the fund which you are giving—the Souvenir Fund—amounts to over eighteen hundred dollars—is to be given for war sport. (Applause.)

This contribution, as you know, goes as a donation of the fund for the souvenirs which we have given out on these occasions in the past.

Our service flag, a part of which you see here (the flag did not clear from its point of suspension) representing 8,136 men who have gone to the front, with a border consisting of 34 stars representing the States in which pulp and paper are manufactured, I believe is the best evidence of what the paper industry has done as its contribution to this war.

You have noted from your program that Judge Moore is to be the toastmaster this evening. It would be superfluous for me to undertake to introduce Judge Moore to an audience of this kind. We feel we have suffered a loss recently in his leaving the Association work, but I am very glad to see he has only gone to the camp of our allies, and is always ready to respond to any call; and I am now going to ask him to step to the front and meet this fire: Judge Moore!

Remarks of Judge Moore

I have consented to attend this meeting with the distinct understanding that not a word shall be said about prices, curtailment of production or division of territory.

There is no good reason, indeed, why I should be in this conspicuous position at all, or why the gavel should be passed from the hands of your accomplished and highly esteemed president into mine, unless it be in keeping with the well established regulation that the commander-in-chief should not subject himself to the perils of the firing line, leaving such dangers to be faced by

those who can be more readily spared. If sacrifice must be made, better far that I should fall than he.

It is a real pleasure to greet you, I can assure you, and to know that so many of you have survived the hazards of the wicked war and wanton weather. Indeed, it may be due to the downward trend of the mercury and the coal pile, that some of you are here. Perhaps you have come because you know you would find it warmer in the Waldorf than at home.

I am gratified also to note that, despite the difficulty and harassing conditions we have all encountered, you nevertheless bear the marks of prosperity and contentment. It is pleasing to look upon your good clothes and hopeful faces. I do not know, of course, whose clothes you wear, but your faces at least belong to you.

Moreover, I am glad to observe you do not resent the decree which is responsible for the avidity of this occasion. Believing in preparedness, those in authority have thought it best to accustom you to the long and universal drought that is so generally predicted.

For a long while most of you have been engaged in making pulp and paper, just as your fellow-men have been busy making other articles of commerce; but paper and steel and clothing and shoes and all these material things are now the by-products of your productive activities. The task to which Americans are devoting themselves with all the fervency of an absolute consecration is to make history, to make individual and national character, and to make the world a fit habitation for the unborn generations.

Those of you who have reached the maturity of days might indeed endure to the end of our allotted time a restriction of our liberties, and bear the humiliation of a cruel tyranny, rather than subject ourselves to the sacrifices of a struggle, if that were all. But true men and brave men do not live for themselves alone; their final thought is the glory and fullness of the heritage they may provide and leave to their children. We want to know that when we are gone, those who come after shall not fail to enjoy the countless blessings of that human freedom for the preservation of which we have ceaselessly fought and cheerfully died.

To this holy cause America has consecrated her all. Whatever differences of opinion may have been entertained in days gone by, there will be henceforth no variability or shadow of turning. The purpose of the country has been declared, and that man who shall at any time hereafter purposely thwart that purpose, or in any manner fail to devote himself unreservedly to the full accomplishment, is not a true American.

The response of our people has been most inspiring. They are eagerly making sacrifice and deeming it a privilege. That man is forever an outcast who withholds aught of what he has or what he is that may be needed for the support or comfort of those who have courageously gone to the front to fight our battles for us; who guard the line all day long and all the night long in utter darkness, save for the lurid glare of the bursting shells. No man with a spark of patriotism or soul will stop to count the measure of his income while the boys are dying for thirty dollars a month.



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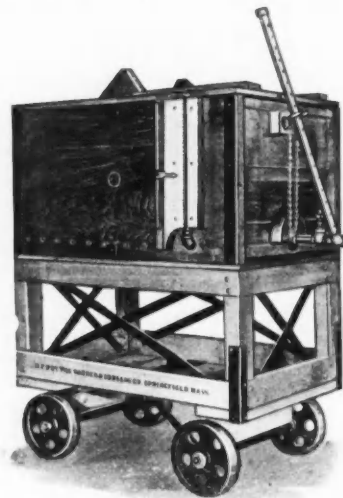


"LONG LIFE"
Swivel Casters

THE WARREN & IRRGANG COMPANY

Springfield, Massachusetts

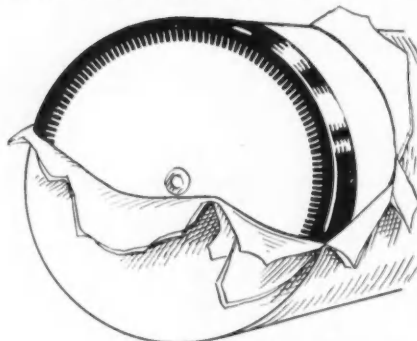
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The tragic news that came to us this morning, apprising us of the sinking of an American transport and the loss of 261 of our own men, deeply distressed us; but it will be clearly demonstrated that those brave lads have not died in vain. Will this frightful occurrence deter us, or for one moment slacken the pace of those who are pressing to the front. No! It will only serve to strengthen our determination and to accelerate our activities. Though their voices are chilled they have nevertheless joined the silent call of the martyrs to those who survive, and we shall not fail to heed. From the great unmeasured deep, as from the countless new-made graves, comes forth the resistless appeal:

"In Flanders field the poppies grow
Between the crosses, row on row
That mark our place: while in the sky
The larks, still bravely singing, fly
Unheard amid the guns

We are the dead. Short days ago
We lived, felt dawn, saw sunset's glow,
Loved and were loved; and now we lie
In Flanders field.

Take up our quarrel with the foe.
To you, with failing hand, we throw
The torch. Be yours to bear it high.
If ye break faith with us who die,
We shall not sleep, though poppies blow
In Flanders field."

There was a time when we looked upon the Atlantic Ocean as a broad expanse of water which separated us from the allied countries on the other side. Today it has become a common highway that unites us, and we are fortunate in having a distinguished representative of one of our allied countries to come to us tonight to tell us something of those conditions concerning which we are so anxious to hear him speak.

When I learned that it was my task to introduce this distinguished man, I approached it with some fear and trepidation; but since I have been seated by his side and found him so human and companionable, I am no longer afraid. Sir Walter Lawrence, it needs only be said, under a commission of Lord Kitchener had opportunity in the field of his activity to inform himself about these conditions in a way that few men have had opportunity. It will delight us to hear from him tonight, and I am not going to detain you longer. When we present him, we are going to all join in singing, as you will find in your hymn book—the British national anthem, "God Save the King."

I now have great pleasure in presenting to you Sir Walter Lawrence. (Applause.) "God Save the King."

Colonel Sir Walter Lawrence, G. C. I. E., C. B.

Mr. President, Ladies and Gentlemen: I thank you, sir, for the honor that you have done to our flag, and I desire to associate myself with you, sir, in what you have said about this tremendous calamity that has happened today. Our thoughts are with the friends and relations of those gallant men. Statistics bring poor comfort to the bereaved, but it may interest you to know that we have transported thirteen million men across the seas, and we have only lost two thousand seven hundred from hostile action; and I regret to say that of those twenty-seven hundred twenty were British nurses—done to death by these infamous ruffians.

You may imagine, ladies and gentlemen, what we felt last April when we knew that you were coming into the war. It was not then, believe me, for your man power or your material resources, great as will be their effect ultimately on the issue of the war—now. What we wanted was your approval. We thought that

we were right, but when you came in we knew that we were right. (Applause.)

Your coming in was the seal and the consecration of the justice of our cause, the cause of law against force; of civilization against the most ferocious barbarism that the world has ever witnessed.

Now it was my good fortune very early in life to make great American friendships; and I have kept these in repair. I was early inducted into your literature, and I always hoped, I almost felt sure, that if any great world emergency arose, that America and Great Britain would stand shoulder to shoulder. (Applause.) And, thank God, it has come. What else? With some of you it was the call of the blood, the call of race, the cry of the soul; but with all of you it was the quiet, insistent whisper of conscience, the national conscience of America, which stands for honor, good faith, and for decency. (Applause.)

We have the same language, the same law. We have the same ideals. Your great Ambassador and my great friend, Dr. Page, has defined that ideal. The ideal of the American republic, he says, is that every man should have the fullest possible opportunity of developing his individuality, and that nothing should stand in the way of that development. Prussia stands in the way. Our history has been guided by one ideal, just as yours has. Our ideal was "Hands off in the Low Countries," and we have always fought fiercely to resist the establishment of an aggressive military power in the Low Countries. We knew that if any aggressive power settled on the mouths of the Scheldt or the Rhine, that it would arrest the growth of our liberties and retard our national life. It was our European "Monroe Doctrine." You too, if you had had a jealous, covetous murderous neighbor looking over the gate into your fair fields in the south would not have developed this glorious great country as you have. We are impelled by the same ideals, by the same outlook on life. There has been a little something that has kept the two English-speaking nations of the world apart. Dr. Page a short time ago said this: "On the two English-speaking nations of the world the future safety of the world depends." That is a great political fact. May I tell you a little story apropos of that speech. Our King, whom I served for eighteen months as Chief of Staff, was down a week later in Bristol settling, as he settled week by week, some labor dispute. An American gentleman was down there and was presented to our King. Our King said: "That was a remarkable speech of your Ambassador about the future safety of the world depending on the two English-speaking nations of the world. 'Yes, sir,' he said, 'but there will be a good deal of German spoken after the war.'" "Really!" said the King, somewhat surprised, and thinking the remark was a little irrelevant; "really! Where?" "Hell!" said the American. (Applause and laughter.) Now, great as will be the effect of your coming into this war, I am thinking and have always thought far more of the result after the war. That leads to enormous considerations. Before I come to them I would like to say that the little something that has kept us apart is in a great measure due to the teaching of history in your schools. Now, I have studied the contemporary literature of the time of the War of Independence. I have also studied your history books and do not find the facts that I am going to mention to you mentioned in your history books. Do you know this? That the war was made by a German king? A mad king, who died insane; a son of a German princess; a man who could hardly speak English; who went for his worship to a German chapel? Do you know, as I know, who studied contemporary literature, that the whole of England was against it? In those days we were a population of some eight millions, and only 150,000 had the vote. They voted for what we called the pocket boroughs, and they were in the hands of a venal court who truckled to the King.

Why, their names we still revere in England—officers who threw up their commissions—and, mind you, it is death to throw

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up your commission. These gallant men with great careers before them, threw up their commissions rather than fight in that infamous war against their brethren in the American Colonies. (Applause.)

London, which was then, as it is now, in the heart and the conscience of our country—London was dead against it. Think, then, of what Pitt and Burke and Charles Fox thundered against this outrage. But the German Princess said: "George, you must be a king." And he was such a king! He had to hire thirty thousand Hessians, and in my tour through the South I saw the barracks where those Hessians spent a lot of time as involuntary guests. (Laughter.)

No, gentlemen, we are starting on a glorious new tradition, the tradition of the Twentieth Century—and let us forget the old, bad tradition. And I think the new tradition of the Twentieth Century began twenty years ago in Manila Bay. (Shouts of "Hear! Hear!" and applause.)

Now, I went to see your American army in France, and on my way down I called on a very old friend of mine, Sir Julian Bing, a man I have known all my life. (Applause.) I said to him, "You had some Americans with you when you took the Ridge of Vimy?" And he said; "Yes; I had 700 Americans. And let me say, I have been over that Vimy Ridge, and an army that could take that Vimy Ridge could take anything in Europe."

He walked up and down in his room and said, "The Americans are very earnest, very modest and very helpful men."

I went to your area and saw your men and your officers, and they are very modest men, as all good soldiers should be. I talked to them, to the officers and the men, and they said to me: "If you will only say in America what you say here, you will be doing good."

They realize they are up against the most tremendous proposition in the world. I have seen your great camps. I know what the material is, and as I have said to audiences: "I have seen German prisoners; I have seen the German wounded; and to compare them with the American lads I have seen is comparing mud with gold." (Applause.)

Quality, quality is going to tell. I was very delighted in Virginia, when a dear old negress said to me: "Oh, those Germans, they are so common, and they have got to be taught." (Laughter.)

Well, there is one thought that always strikes me: You know we are up against the most subtle and most devilish, and, up to the present time, a most efficient machine. The Prusians knew that, man for man, they were not better; they were not the class of certain other races which are represented on these walls; so they cleverly set to work and said: "We will turn human society into a machine, and that machine shall conquer the world." But they forget one thing which is known to you and to every body that manufactures, and that is that you cannot make a first-class article out of second-rate material.

Well, your men feel this, and they say this—they said: "It is a big thing." I said, "Yes, it is a big thing, but so was the Panama Canal a big thing, and you did that." They say, "We will put it through if the country is behind us." Now, you know the meaning of the word morale—the morale of an army. When Lord Kitchener used to send me out month after month, the first question that our generals would ask me was this: "What are they thinking; what are they saying; what are they doing in England?" And when, as time went on, and I was able to say, "The whole of England, men and women, are in it." Their faces would brighten up. It is not the men in khaki; it is not the men in the trenches—but it is the men in the trenches with enormous national weight behind them.

I have said to so many ladies in America this, and I say it to all of you: "Write to the boys; always write cheerfully. Send them any little news, however trivial; write cheerfully, though you think gloomily."

I have seen the man who receives a letter, and I have seen the man out there who never receives a letter. When I first went to your area, the first question I asked the officer who took me around and said, "What do you want to see?" I said, "I want to see your post office." You have no idea until you have been there, what letters mean. There are many ways, and I can only say this, in the brief time I have to address you, that there is not a single man or woman or child that cannot help. They are very, very far away—your men—they are far away, and it is all the more incumbent that they should be cheered up from home.

I can remember a little scene as I was leaving your area, and a splendid man, Robert Bacon, who is doing humble work out there—he was your Ambassador—he was showing me off, and he said:

"I wish I were going to America with you to show you around." An American soldier walked up to me and said, "Are you going to America?" "Yes," I said. "I wish to God I was," he said; "I had a kiddie born the day before I left America." When will he see his kiddie? Not till he comes home for good. Therefore, put every inch you have got in you, every ounce you have got in you. Think of nothing else; and one thing I have said to every audience, and I say it again: "Don't talk about war aims; remember there is only one war aim." War aims confuse the soldier. There is only one war aim, and that is to beat down Satan under our feet, to exorcise this evil spirit that has turned Germany into a hell and Europe into a sepulchre; to hunt down this infuriated wild beast who is worrying—worrying everybody—maiming, wounding, outraging, and humiliating, and at the same time whining—whining. He starts out to conquer the world, and when his infernal time-table is upset, he turns round and whines and says, "They are hemming in the Fatherland. It was they who attacked me." Why, if he had gone out like a second Napoleon—a Napoleon of the Twentieth Century—to conquer the world, he would have gone down to history famous—infamously famous, but famous. But he is a pinchbeck Napoleon. He turns round and says we attacked him.

Now there is so much to say about the war that I never know where to start, sir, and I never know where to end, but you would like to know about our navy and our army. We call it our silent navy, and our army is equally silent; but let me tell you a few things this silent navy has done. We have transported, as I have told you, thirteen millions of men up till last June. In the first seven months of last year we had transported overseas nearly seven million men, two million horses. Think of it. Thirty-one million tons of explosives; fifty-one million tons of fuel, the fuel that we have to send to our gallant allies, to France and to Italy, and one hundred and thirty-one million tons of food. These are big figures—big figures. We have put down three thousand six hundred miles of permanent railway track, and two thousand four hundred miles of light railway. We began last March our transcontinental railway across France and Italy to the Mediterranean. We began it in March. We opened it for men in June, and we opened it for material in August. (Applause.)

Do you know this. That we had to import our material for making roads, our metal. We have to import our timber for propping up our dug-outs. We have to do everything. It is a big thing. Why, if you had only seen the country there, it is like a huge London—factories, oh, yes. We have learned many a lesson in this war. War is a very destructive, wasteful thing, but by bitter experience we have learned to be very economical. Think of this: Last year from the sale of rags and old leather we have over one and one-half million pounds sterling.

Now, I am going to give you a figure which will interest you, gentlemen. Soldiers are very fond of jam. We have purchased one hundred and ninety-eight million pounds of jam. We found about a year ago that we could not get tin for our jams. So we have to come to you. We put our jams now into what we call

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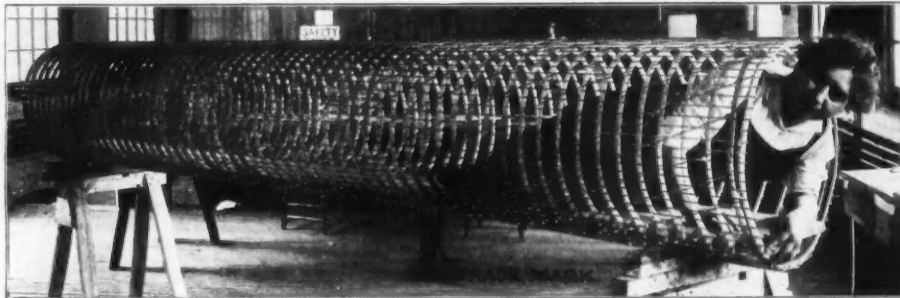
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and Book Papers

wood pulp containers; and the economy effected by that is such that, from using your wood pulp, we are able to save every month enough steel to make a ship of three thousand tons. (Applause.)

I only mention this fact—I am delighted that I can pose as an expert in wood pulp manufacture. (Laughter.) I only mention it to show you what an enormous thing war is, and what an enormous effort lies before this glorious country. It will want, as I said, every ounce of your strength.

Well, our Navy has enabled us to send these things overseas. I could tell you of some of the actions; I could horrify you with some of the details about U-boats. Our Government, unfortunately, will not publish the details, but our men, our sailors, and I know something about our sailors, they in the ports, they know, they talk and they remember, and they will remember long after that vile medal which was struck to commemorate the destruction of the Lusitania passes out of the currency of the world. These seamen say to me and to others: While we live and while our boys live, if any of these people come into our ports, we will drown those people in those ports. (Applause.) And that is the horrible thing about this war. If there had been a spark of chivalry, a spark of decency, we would have shaken hands with the Germans as we have always shaken hands with a man who put up a good fight (applause), provided he fought fair, I remember when I went out to France first, I stayed with an old French gentleman, and he said to me: "The German Emperor has destroyed peace. He has also destroyed war." I do not know whether the remark was original, but I have thought a great deal about it. I have seen things in France. I have seen things in French families where I have stayed, which has led me to feel that war as made by the German Emperor, war must come to an end. I used to think that while man was man and while woman was woman, that there would always be war. (Laughter.) But I am beginning to think when I see this murderous, bloody, mechanical war, without one spark of chivalry, when I see it in France and see its results in England, I am beginning to think that Providence is working in her quiet, inscrutable way, and is using Emperor William as her agent to bring about that glorious vision which the man of wide vision who looks from the Atlantic to the Pacific, from America to France, looks forward to; I believe that that vision will be realized. What we are after is peace through victory.

If you could only read, or could have been present at the debate of the Senate in Paris, March 31 last, and could have heard what those fiends did on the retreat from the Somme! I have seen it with my own eyes; I have verified it. If you could know that, you could not marvel at them saying that "Peace by compromise would be treachery!" Treachery! It would be folly; it would be infamy! (Applause.)

Let us look at home. Just think of peace by compromise, whether it be the eastern compromise or the western compromise, it would be but a mere truce, and we would have, after fifteen years, a renewal of a more horrible war. You would live in preparation, and become what no Anglo-Saxon people want to become, a military people. Preparing for fifteen years—and God help America and God help England. We want to live our lives in peace, and be free and be individuals; and the only way to do it is to carry on this war slowly, thoroughly and relinquishly. We must make the Prussians know that war does not pay. It has paid huge dividends to them three times, but this time the dividend will be passed, and that accursed trust of Central Europe will be broken; it will be bankrupt—bankrupt in assets, as it has long since been bankrupt in honor. (Shouting and applause.)

I am as certain as I stand here that we have got them. (Applause.) We have got them and they cannot get out. (Applause.) They have broken the laws—every law—and they have got to pay the penalty. They must be punished in the eyes of the world; and let me remind you that it is a difficult thing to do, but we shall do it. We are doing it.

I hear sometimes in my journeys in the South, a little anxiety about the "Drive on the West." I can assure you that our generals would be very glad to have them start that drive on the West. At this moment they are standing in front of us, six men to the yard. Where are they to place the seventh and the eighth? Last year the camouflage was that they would drive us out of Bagdad; that Falkenhayn was here, and that Falkenhayn was there; but we knew every day just where Falkenhayn was. And we know within one hundred men just how many Turks there are and where the Turks are. But does any nation under the sun announce its intentions in this sort of way? It is all for German consumption and for the consumption of neutrals.

Well, to do this thing thoroughly, once and for all, to free the world, to make the world better and happier, it must be done relentlessly. Think what it would be if we did not do it thoroughly! Where would democracy be? Let me say that we were always as democratic politically as you, and now we are becoming socially as democratic as you. (Applause.) We are coming out of this a glorious and better country and a safer country. I sometimes say the Emperor William has been a fairy godfather to us. He has made us. He may have the same beneficent effect upon this huge continent of yours. He may knit you together as no other force or influence could. But the more I think of it, and I think of it day and night, I have had wonderful opportunities of studying it, and the more I think of it I am prompted to say: The way is difficult, and I fear me long! It is slippery with mud and blood, and it is blinded by smoke and poison fumes. It is barred by wires of steel, and in it are holes where our men lie dead in the cause of liberty. But they push on, and some day they will gaze on a sunlit sword that leads to the delectable mountains of peace; and on the top I see the glorious tricolor of France, your Old Glory on one side and our Union Jack on the other. (Prolonged applause.)

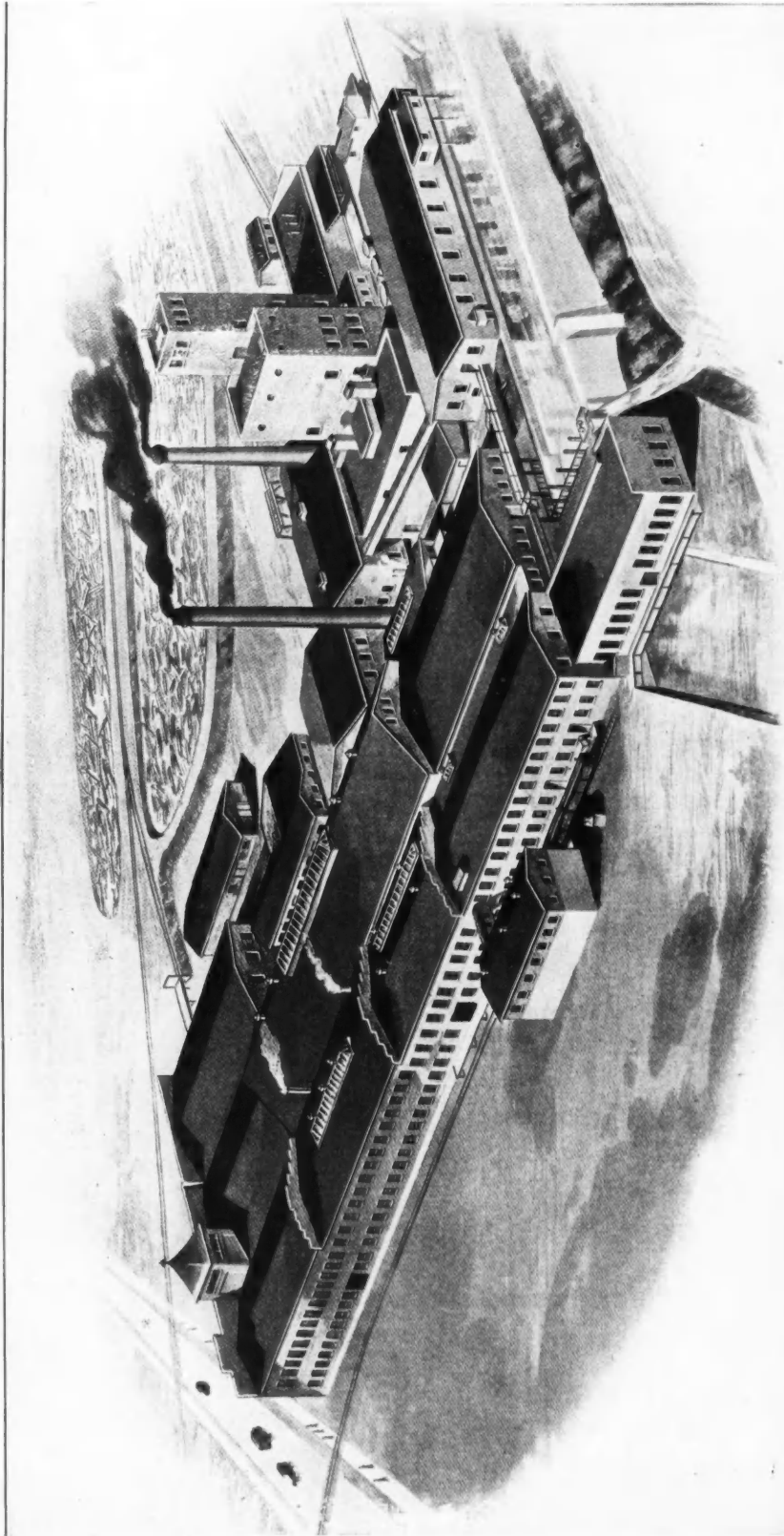
The Toastmaster: I am perfectly sure, gentlemen, that you have been deeply impressed by the splendid address of our honored guest, as we have been deeply honored by his presence. And now we pass to our next.

Some of you may know I have recently become a commuter between Philadelphia, the City of Brotherly Love, and New York; and it was the more easy for me to make partial residence in Philadelphia because I knew it to be the home of a man through whose writings I had learned to admire and to love before I met him.

In recent years it has been my good fortune to claim his acquaintance and friendship. A man of political genius, of literary accomplishments and reputation, and, above all, full of human kindness. He is not as stated on the menu, for those who know him and love him do not call him "Thomas A. Daly," but simply "Tom Daly." You will be delighted to hear him, as I am always delighted to hear him; and now when I introduce him and present him to you, we shall honor another gallant Ally by standing and singing, and this time we will have the light, so that those of you who do not know the words, can read them. We will sing two verses of the French national anthem. And I present, to immediately follow the singing of this anthem, Tom Daly.

Thomas A. Daly Wins His Audience

Mr. Toastmaster, Ladies and Gentlemen: When a friend of mine heard that I was coming to speak before this distinguished assemblage tonight he said to me, "Won't you be terribly nervous?" No matter how I felt, I said, "No." "But," said he, "I understand they are to have there an eloquent member of the British nobility, distinguished churchmen and judges." Said I, "Who, if not the Irish were born to stand before judges?" (Applause and laughter.) And it was another Irishman who stood in that position upon one occasion and the judge, shaking a finger at him, said, "I have seen you before." "Yes, Your Honor," said he. The judge said, "Your face is very familiar



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to me." "Yes, Your Honor." "Well, and what was the charge the last time I saw you?" "Well, Your Honor," said he, "I think it was thirty cents. You took brandy and a big one. I am the bartender at Gilligan's saloon."

Now I was asked before I came here if I would try to make a patriotic speech. An Irishman will try anything once. I have accomplished a difficult and remarkable thing for an Irishman, pronouncing each word distinctly and with fervor, I have sung, "God Save the King" in the dark. (Applause and laughter.) I have always tried to be helpful in a patriotic way. The other day I was riding out to my home in Germantown, which some of you may know is a suburb of Philadelphia, and in the seat in front of me were two young girls. One of them was telling her friend of a luncheon party she was going to give the following day. "My dear," she said, "it may seem rather extravagant in these trying times to spend so much money for a social luncheon, and Lucy Smith, who is always saying things just to be mean and not to be helpful in any way, you know her kind, Lucy thought that we ought to take this money and give it to the Red Cross, but since this luncheon is to be given at my house this time I have the arrangement of things, and so I said I would make it especially patriotic with the decorations and all that sort of thing, and was not that a splendid idea. So tonight I am going to make fudge and custard and lemon snow. I do love lemon snow. Don't you? And I do hope it will not be like the last time because the red ants got in it." So I leaned forward and said, "I am an old man, and my daughter, my advice may be helpful to you, and I would suggest that you go ahead and make your lemon snow, and if the red ants should come, if you will take my advice you can accomplish your patriotic purpose and at the same time rid yourself of two-thirds of your ants if you will arrange to paint each second ant white and each third ant blue. (Laughter and applause.)

Now I feel tonight that I am as patriotic as the average man here tonight, because I have tried in my humble way to do something to win this war, and at the same time find a safe way to camouflage my income tax report. (Laughter.) Now, the government allows me \$200 for each child, and Mr. C. H. Clinton, who stole Judge Moore from you, could tell you, if he wished, how much that means to me. (Laughter.) But in the next three or four paragraphs they take it all away from me, and I feel that the government in this case is very much like that slick crook who stole a poor old widow's money, and when she complained told her that she was too old to have such responsibility, but anyway, in the goodness of his heart, on his way to the bank, he would stop at the society for organized charity, and have someone come around and investigate her case through a forgnette. (Laughter.)

Gentlemen, I am proud of the part my Irish brothers have taken in the world's wars. You know it was an Irishman, wounded in Flanders, who said to another Irishman, also wounded, "Well, Mike, sure this is a Hell of a war."

"Yes," said Mike, "but it is better than no war at all." (Laughter.)

And it was one of these same men who when he got to the hospital was found to be more seriously wounded than was at first supposed; but he was anxious to get back to the front again, and the nurse told him he would have to be in the hospital for some months, if he ever got out at all. He could not understand that, and said he had to get back to the front. They wanted to know why. "Well," said he, "I think I know who done it."

Now in the list of the dead of the Tuscania I hope there will be a decent sprinkling of Kelly and Burke and Shea, but I venture to predict here; I have not seen the papers—but I venture to predict that when the list of the boys who went down with that ship is published, the majority of those names will be German-American.

Now that is something to think about, and the point of it all

is this: France is fighting for the Motherland, the German peasant, in his ignorant way, is fighting for the Motherland—not the Fatherland—we are fighting for the Motherland, and the heart of the Motherland is Home. Not your father's home; not where your own home was, but where your home is. So it was with this prediction of mine as to these German boys when I was aroused from my warm bed early this morning and told of this disaster, and told to write a bitter verse about it for my paper, the *Evening Ledger*, of Philadelphia, it was with no bitterness for the well-meaning German people, but only for the monstrous tyrants who control their destiny at this time, that I wrote this "Hymn of Hate":

"Tuscania and 200 dead!"

Through the wild ocean's swell
The cables in their oozy bed
The darkling tidings tell,
And westward in the winter night,
To dim the gold of morning's light
Out rings the deed of Hell.

Tuscania!—Rest thee and thy dead
Beneath the deep sea surge!
From out thy cold and oozy bed,
God's vengeance shall emerge.
His sea shall be our flaming path,
And in the clangor of our wrath,
The Hun shall hear his dirge." (Applause.)

The Toastmaster: And now you can understand why I have spoken of the heart of the man as well as of his intellect. (Applause.)

Our last and final speaker (applause) is not so much a guest of this association as he is a public institution. He is as much a part of the paper industry as trade customs. (Laughter.)

I do not have to say a word about him, and I would not because he can say it better himself when he tells his own story in that splendid way that he always does. A man who knows well whereof he speaks, and speaks well whereof he knows.

We have in the past had him with us on many occasions, and we have enjoyed the Rev. Nehemiah Boynton. (Applause.)

This year we have brought Chaplin Boynton (renewed applause), and such is the comprehensiveness of his grasp of thought and vision and heart that when we introduce him we will unfurl all the flags and sing the first and the last verses of our own national anthem, the Star Spangled Banner. (Applause.)

Rev. Dr. Nehemiah Boynton (Chaplain U. S. Army)

Mr. Toastmaster and Distinguished Guests (renewed applause), My Friends: I certainly feel the embarrassment of this moment from the military standpoint at least, that it should be in the presence of a distinguished colonel, in his uniform, on the one hand, and an Irishman who is wearing his uniform under his dress suit, on the other, and a humble lieutenant in the American army, that it should be left to him to say a word which should be said, of appreciation on the one hand and of loyalty upon the other. (Applause.)

I was greatly encouraged, however, when the colonel was good enough to say, in the course of his remarks, that they were eventually going to be more democratic in the delightful country he comes from, and so I reminded myself, with reference to this rank business, that it was an Englishman who said, "Rank is but the guinea's stamp; a man's a man for all that." (Applause.) And so a humble lieutenant may stand for an American in this generous welcome you have given to these other flags and to your own, a welcome received on the part of us all as a testimony of your grateful appreciation of the more than three thousand men in your great paper and pulp association who are tonight beneath the Stars and Stripes, fronting with their young lives the tremendous situation which summons every man who is

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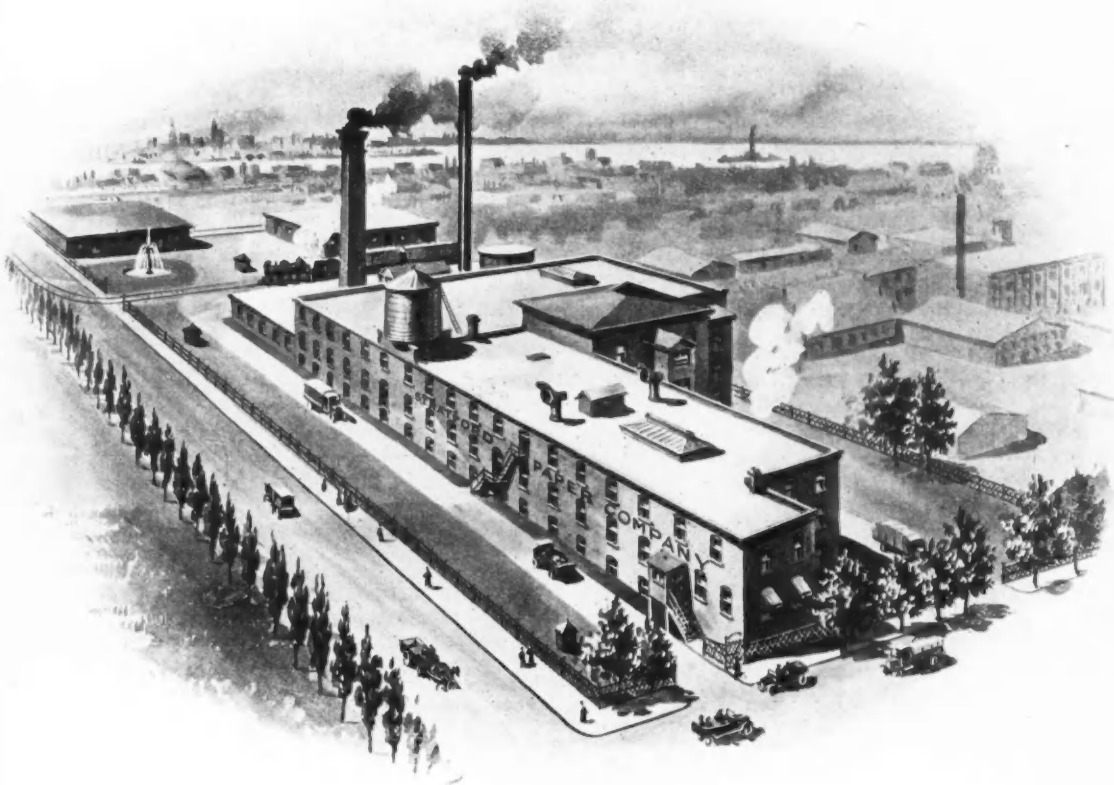
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in America and who has red blood in his veins, to contribute all there is in him; or, if so be he has a yellow streak in him, to go and hang himself. (Shouts and applause.)

I could not but think when the chairman of the evening referred so pathetically to those coming days in our national history when we should all be saying, "Water, water, everywhere and not a drop to drink." (Laughter.) No days when there would be any damn Gilligans with saloons to write about, of a dry experience I had in dear old England. It was a time when I parted with a shilling, and when a poor minister parts with a shilling you may know there is a sound of the going in the tops of the mulberry trees. (Laughter.) Every American colonel who goes to England for the first time has an ideal which he wants to reach, and my ideal was to say, "Raw-ther" as our English friends do, and not, rather, as we Americans do; and I was trying it on the dog. I stood beside a policeman on a very rainy day, and I ventured to see if I could use the word in the English way. I said, "My friend, it is a rath-er wet day today." He said, "Dry enough around here, American." I had failed. I lost my shilling; and the only way I have got it back is telling this story over again and again on these after-dinner occasions.

The last time I was here I was a minister of more or less repute; tonight I am not a minister, I am a chaplain in the United States Army. (Applause.) And, as Wordsworth says, "As happy as a lover," because it is my choice, privilege and my noble opportunity to have around me from 4,000 to 5,000 young men of as noble blood as this world can boast, who are fitting themselves to go over the sea in spite of every obstacle and line up with our English and our French brethren on that foreign shore, and bring in victory which is one day as certain to come as for the run to rise when tomorrow morning shall dawn. (Applause.)

I am wondering whether I can tell you in an informal sort of way anything about these young men which will give you a broader appreciation and comprehension of what is going on away back here, so far away from the firing line. Most people when they see a file of soldiers marching down Fifth avenue think of them as being all alike. They are all dressed in khaki, which is alike; they are all carrying muskets, which are alike, and they all carry bayonets.

It is just a company of soldiers, that is what it is, but when anybody begins to think that it is that, so far from being all alike, why, they are all absolutely different. It is not simply a crowd on the common level. There is the butcher, there is the baker, there is the candlestick maker; there is the doctor, there is the lawyer, there is the Indian Chief. There are men in that squad who have lived all their varied walks of life, from the hod-carrier to the undertaker, and from the carpenter to the Judge upon his bench—all different, in the life calling from which they come, but all absolutely united in one strong and constant and inevitable purpose—to show the great world how, when the depth of the soul of America is stirred in the interests of fraternity, or of righteousness, nothing in the way of humanity shall be withheld, until one day again the right shall triumph, and justice shall be at home upon the human threshold.

Well, now, when those boys come into camp, the difference is at once seen. The first thing that a chaplain with half an eye sees, is the boy being transformed into the man. Now, there are no words of depreciation to be said about our camps, but after all, they are not just exactly like home. For example, our water arrangements at this season of the year freeze up every night, and they are thawed up every morning. We have our mess down there; it is good; it is plenty good enough for a soldier; but it would not be exactly a replica of this feast which has been spread before us tonight, to which every one of us have given such faithful attention, and in the performance of which we have, with such earnestness and eagerness, fulfilled our patriotic duties. (Laughter.) But the thing which goes on in camp which you notice, is the boy being transformed into the man. It is a wonderful sight. I know one

fellow, for example, an only son, and a son from a very wealthy family, who never knew what it was to deny himself or be denied. The trouble with his life had been that his loving father and his affectionate mother had made this think we call life, too tremendously soft for him. It is the worst thing you can do for your boys, to make the morning of their lives too soft; and he in his enthusiasm, enlisted, and down he came. You can imagine the colonel knows how to put the restrictions of military life on a boy like that. And there is one of two things which is going to happen. If there is a yellow streak, it is going to come out, and if the man is living down there beneath that softness, there will be just a struggle or two, but after a while, the man will emerge; and after he has been down there three or four weeks, he luffed it under my luff—that is a nautical term which I use in the summer when I am on my boat, and you get general significance of it, and he says to me, "Chaplain, I begin to think they are after me." I say, "What is the matter, my boy?" "Well," he says, "You know they have taken away my pass," and he says, "I have to get up an hour earlier than I did when I first came here, and the grub is not so very good. I think they are after me," and I looked him in the eye and I said, "My boy, of course, they are after you, that is the way to make a soldier out of you." I said, "You have got in you. You had a noble father and a beautiful mother. Now is your chance to make a man of yourself, my boy. Buck up—buck up," and he looked me in the eye, and a glim came into his own, and he said, "Chaplain, I will buck," and he did; and today he is no longer a boy; he is a man, and he is all ready when he is called, to go across the stormy tossed billows of the sea, and carry himself like a man, and his Americanism, whithersoever it shall be summoned. There was a young chap down there who applied for a discharge on the ground of dependency. It transpired that his father was a semi-invalid, and that his mother was reduced in circumstances, that she washed the floors of lawyers' offices from five to seven o'clock in the morning, in order to get money enough to support herself and her invalid husband, a pretty good case for a discharge, and the boy thought he ought to be taking care of those people. The mother heard of it—the ladies are here—the mother heard of it, and she came down to the camp, and she said to the Colonel, "Colonel, I understand that my son, who is a brave fellow, has applied for a discharge on the ground of dependents." "Yes," the Colonel said, "And he seems to have a very good case. Your husband is an invalid." "Yes, sir." "You have to work from five until seven o'clock in the morning washing lawyers' office floors, in order to get money enough to carry you through the day." "Yes, sir," she said, "But I want you to understand, Colonel—I want you to understand that my boy is not going to be deprived of the privilege, which is his, of fighting for his country at a time like this, just because we have it a little hard at home, and I stand here to say to you, Colonel, that my boy has no dependents. I can take care of myself and my husband, and I want him to go to war."

It is only an illustration of the way in which the boys are being made over into men. I went to a dance the other night. It was my duty (laughter); the duties of the chaplain are very varied, I assure you, and it was my duty to go to this dance. It was down here in the Terminal Docks, the Bush Terminal Docks, where we have perhaps 150 boys taking care of the stuff that comes to you and goes from you in the ships, and the Social Secretary had arranged for some of the girls who were working there, to come and meet some of our splendid boys. So, as it was necessary on the part of the girls, to have some ladies there to chaperon properly, it was, of course, necessary on the part of the boys to have some men there. So the Colonel and I went down, and as we went into the room, we noticed that it was one of the most delightfully arranged dances we had attended for a long time, and we have attended quite a number of them. We noticed that there was one man who was a floor director. He seemed to have the thing in splendid control, and I was so inter-

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ested in him, that I looked to see if I knew him, I did not know him. We have, as you know, a good many men down here, and I noticed he was a sergeant. I said to the Colonel, "Who is that man who is the floor director. Do you happen to know him?" "Oh, the sergeant there; know him!" He said, "He was a professor in Columbia University." Think it over. A professor in Columbia University who had been willing to enlist as an ordinary soldier for the sake of his country, and who was now using such ability as he had in the way of leadership to influence, and his influence was mighty and great, those boys who were under him. That is the kind of material which we are finding there, boys being made into men, and men making great sacrifices for their service.

You did not know that the Chaplain had an automobile, did you? (Applause and laughter.) Well, he does; given him by the Empire State. He cannot stop to say automobile, times are so busy, and it is such a long word, so we just say "Ford." That is all. (Laughter).

The State gives each Chaplain a little Ford to run about and do his work with, and the Government gives gasoline and fixes tires and all such things, and also a chauffeur. My chauffeur was a stranger to me, as he offered to do my bidding. But after a little conversation with him, I found he was one of the experts of the Packard people here in New York, and was having a salary eight times as much per month as the salary he was receiving for serving Uncle Sam, as happy and as dignified, and as efficient in running that little car of mine as he was, and more so, in the factory from which he came.

He ran it so mighty well, that I made a mistake in telling some of the superior officers that he was running it well, and they made him second lieutenant and sent him down to Georgia to prepare to fly in the air. That is what has become of him. I could talk by the hour and tell you the way in which the folks that you call

boys, as they come under the early discipline of this magnificent National enterprise of ours are being transformed into splendid, forceful, self-contained, courageous and adventuresome men, and any old woman who tries to make you believe that your boys and mine, for I have two besides myself in this business (applause) that your boys and mine when they go to camp, have nothing else to do except play football with their character, why, you tell that dear deluded sister that she is thinking about the dark ages; she is thinking about something else. There may be now and then a boy—God pity him—whose character is not improving under camp conditions. Forty-nine times out of fifty he brought those damaged goods with him from civil life and their origination was not in the camp. It was only a renewed expression there of what had been initiated elsewhere. Mothers, give me your boys fresh and clean and pure as they come into our camps today, and 49 times out of 50 we will send them back to you again whose magnificence of character and of courage, will cause a new beat and a new thrill of pride in your motherly and in your sacrificial hearts. (Applause.)

There is another thing we are finding out down there in camp, for this has got to be a Chaplain's talk tonight, and that is that the men who wear the khaki cannot win the war. They cannot do it. They ain't big enough. They ain't strong enough. There are not resources enough: This war cannot be won until not only we have mobilized your splendid boys and sent them over the sea, but until we have mobilized to the very last item and degree, the resources which are within the grip of the business and of the professional men of American. (Applause.) Why, you business men, do you know that you have three-fifths of all the gold there is in the world in your grip just at this present time, and if you do not give it up, the war is lost. That is all there is about it. (Applause.) Every effort which is made to mobilize in the interest of the treasury of Uncle Sam, that his pocket book may not

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have the suspicion of leanness, no matter what the drafts may be upon it, is an act of patriotism of the very first degree on the one hand, and necessity on the other, and that is what they are doing. Just let me tell you how they are mobilizing. Take such a little thing as these War Service Stamps, for example, by which it is proposed to raise two billion of dollars from the people who have not the large amounts to give. You know that we are 100,000,000 people here in America. There are only 15 million that have any savings accounts or have any bonds or have any stocks, or have anything of that sort; 85 million of our people are just living from hand to mouth, and it is in the area of those 85 millions of people where nine-tenths of the ultra radicalism and unpatriotic utterances with relation to our country, come from. The moment you put a man under a bit of responsibility, you change the character of his radicalism.

Some of you men today are making your fortunes out of what was waste ten or fifteen years ago. You know that ten or fifteen years ago things that in the rush of American business you did not think worth paying any attention to at all you called them by the distinguished name of by-products, but they were practically waste in the business ten or fifteen years ago, which you have found out can be utilized to make splendid and profitable returns. We have to look at the waste of our countrymen in a business-like way; waste which consists of a great company of people who as yet have made no sacrificial connection with the great and vital needs of our country, who as yet, have not had their imagination captured by this wonderful and necessary idea of making democracy safe for the world and it is just up to you and me and whoever else has got the vision, representing as I do in my humble way a portion of that three-fifths of all the gold in the world, it is up to us to lead the mobilization of our country for war stamps, for liberty bonds and for any other things that we can do.

You say are not we doing something? Oh, elegant. You know the temper of the average business man has changed in the last ten or fifteen years. Our friends over the sea fifteen years ago if they wanted to get right in under our fifth rib would say we were a nation of dollar hunters, that that was what we were looking to every day, that we were just simply a nation of dollar hunters, and then some of the more enlightened of them found after coming in contact with some of our representative men and women that we were not a nation of dollar hunters after all, but that the thing which spurred the business man on was the love of the chase, just as riding to the hounds. You know how that spurs the English on. It reminds me of a little story I am going to tell you about the American made rich who went over to London and who wanted to get in with the lords and ladies over there and he did not know how to do it and he was trying very hard to find out some way by which it could be accomplished. One day one of the lords very kindly and courteously sent him a letter inviting him to ride to the hounds. This man was rich but he could not ride horseback. He wanted to go tremendously bad, and so he sat down and he wrote a letter and he said: "My dear lord, I greatly appreciate the courtesy of your invitation which you gave to me the other day to ride to the hounds. I should be very glad indeed if by any possibility, I might be able to accept. The trouble is, my dear lord, I am not so much in the saddle but I am all hell in a hack." (Laughter and applause.)

They are saying about the American business man today that he is not simply in it for the profits; that he is not in it for the

pleasure of the chase but that he is beginning to feel the spirit of stewardship with relation to his country and his world; he is beginning to feel the summons of a still small voice which is saying to him, "That which you accumulate is not your own; it is yours for the sake of the needy world around you," and the way the business man of America is rising to that appeal and to that change is simply magnificent. You know business men who have absolutely turned their backs upon their offices and are giving their whole time, morning, noon and night, to the working out of the problems which shall mean our taking our share in the alleviation of the situation which confronts the world. I met a lawyer who has a very fine position as consulting attorney in one of the great insurance corporations the other day. He said to me, "I have not been in your office for six months. I have not made 10 dollars for my country in six months. They sent me out on this little governmental errand six months ago. I have been giving all my time and attention to the government. That tide is rising and it will rise in the paper and pulp association more and more as the days go by because the war cannot be won until the business men of our country who have in their grip most of the three-fifths of the gold in the world appreciate that behind the men there must be the money for the equipment in order to bring the days of victory which are before us.

I see you are enlarging your business. I am glad for that. I noticed in the paper yesterday that the Kaiser and his military men were wearing paper pants. You know I think they would be rather chilly in the temperature of the last week or two, but they will be a burden to them in the temperature that they are headed to. (Laughter.)

Then a simple word of a humble chaplain who stands before you tonight—mobilize. Mobilize every power that the business world has today, and lay it upon the altar of our country and out of the sacrifice which comes to you in so doing, you will begin to put into your characters something of that same spirit of manhood and adventure and confidence which lives so splendidly in the lives of your boys who have kissed you good-bye, and have said, as they turned toward the camp, "You may be sure I will play the man." Thus one day democracy will have been made safe for the world; thus, one day the arts of peace will again be respected by all the nations of the earth and through the blood and through the sacrifice of these tremendous days, the soul of our American people will have been elevated, till again shall be made true that couplet of James Russell Lowell's, who told us years ago that civilization sometimes does move forward upon a powder cart, and that other word of his—earth's greatest peoples got her soul and sent earth's greatest nation. Then, as the shadows of the evening come along, my friends, as they will come along to everyone of us, in the enlargement of our lives, which come to us through the loyalties of their patriotic sacrifice, maybe we will think, now and then, of the beautiful words of one of our own American poets, too soon gone to his reward, "When to sleep I must where the fathers sleep, when fulfilled the trust, and the mourners weep; when though free rust the sword hath lost its worth, may I bring to earth, no dishonored dust." (Applause.)

The Toastmaster:

Gentlemen, in your behalf, I want to thank sincerely these, our distinguished guests, who have honored us by their presence, and helped us by his utterances, and this concludes our program.

THOSE PRESENT AT THE A. P. & P. A. BANQUET

A
Leslie Abbott
G. G. Abernethy
A. A. Adams
E. M. Adams
S. S. Alcorn

L. M. Alexander
M. W. Alexander
W. J. Alford, Jr.
B. G. Allen
John H. Allen
Thomas E. Allen

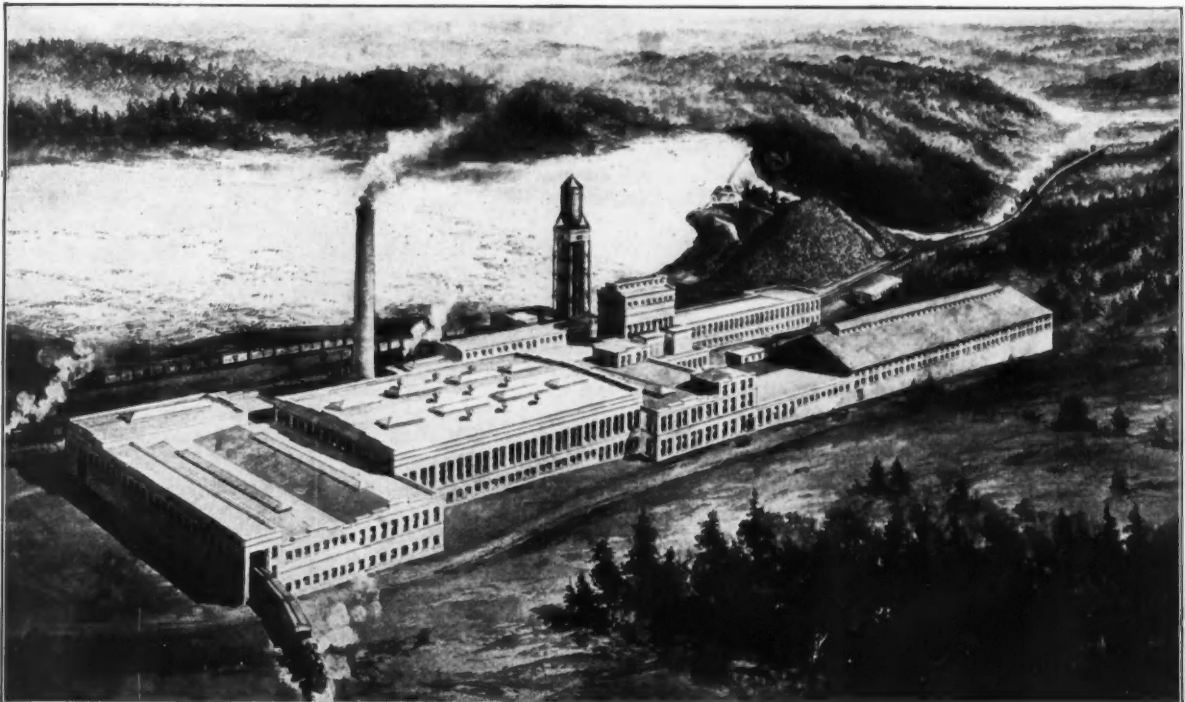
Mr. Andler
J. Anderson
J. A. Anderson
J. A. Andrew
J. A. Andrews
H. P. Andrews

A. B. Andrews
R. P. Andrews
P. L. Andrews
E. H. Angier
C. A. Anthony
M. A. Armstrong

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F. A. Augsburg
P. W. Ayers

B

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O. Bache-Wiig
H. F. Badgley
John Bailey
C. W. Baker
John Ball
Charles Ballin
Harold A. Banker
John W. Banker
C. G. Bancroft
E. S. Barber
Norman Bardeen
George E. Bardwell
F. B. Bare
Hiram Barney
J. V. Baron
D. E. Barry
N. E. Bartlett
J. D. Barnum
S. E. Barton
E. A. Barvoets
Richards Bauer
Harold Beals
H. W. Beaucher
Folke Becker
G. W. Becker
Karl Becker
Thomas Beckett
W. E. Becraft
E. W. Bedford
W. H. Benedict
S. R. Benjamin
S. C. Bennett
Bernard Benson
M. J. Bernard
C. N. Bicknell
L. H. Bigelow
L. Bittner
W. M. Blackford
Gordon Blanchard
L. N. Blanchet
Louis Block
Eugene Boggs
B. F. Bond, Jr.
B. F. Bond
Benj. O. Booth
Jos. A. Borden
G. P. Bothwell
J. A. Bothwell
Chas. W. Bowden
H. H. Bowman
F. M. Boyer
Rev. Nemiah Boynton
J. X. Brands
J. Brannon
Daniel Brannon
A. E. Breitenstein
F. H. L. Bridal
Edward H. Bridge
L. P. Broadhurst
W. F. Bromley

Albert L. Brookhouse
Charles Brown
Ellis Y. Brown
Fred L. Brower
Stuart H. Brown
W. F. Brunner
R. H. Bryan
R. J. Buck
C. E. Buckholz
F. D. Bull
P. H. Bull
E. G. Bullis
Alfred J. Bunge
Fred T. Burkhardt
A. A. Bush
Seth L. Bush
Geoffrey Butler
C. M. Butterworth
M. O. Byrne

C

H. J. Cadwell
Capt. H. O. Cadwell
Alex Calden
James A. Cameron
Chas. Campbell
F. J. Campbell
R. L. Campbell
J. A. Canfield
Holley R. Cantine
Martin Cantine
Guy E. Capron
S. Caplin
Campbell Carrington
R. Ward Carroll
H. P. Carruth
Albert P. Carter
Hubert L. Carter
James Richard Carter
W. A. Castle
R. A. Cauthorne
A. F. Cayford
Louis Chable
C. Washington Chabot
Geo. E. Challes
R. C. Chapin
W. N. Chapin
Geo. F. Clark
C. A. Clough
Raymond Clapp
Frederick C. Clark
W. C. Clark
R. M. Clements
J. E. Clenny
C. H. Clinton
A. B. Coffin
D. D. Coffin
H. R. Coffin
John D. Coffin
A. H. Cohen
J. G. Cohen
T. W. Cole
A. M. Collins
C. W. Collins
H. H. Collins, Jr.
Isaac Collins

Chester W. Colson
Harold Conde
Thos. F. Conroy
C. W. Cook
G. B. Cook
E. W. Copelin
C. E. Cortis
H. J. Corwin
Mr. Cowdery
R. E. M. Cowie
Russel A. Cowles
F. E. Cox
C. H. Coye
Geo. E. Crafts
Willis S. Crandall
M. L. Cramer
C. A. Crocker
W. H. Croft
Lester Crouse
W. H. Crowell
Wm. R. Crump
H. H. Curtis
Wm. B. Curtis

D

Thos. A. Daly
Jean Danckwardt
Jas. S. Danchy
A. B. Daniels
S. Dauman
W. O. Davey
F. R. Davis
J. N. Davis
T. K. Davis
W. L. Davis
W. M. Davis
A. L. Dawe
W. Y. Dear
C. W. Deardon
I. Wood DeCant
J. C. DeCoster
J. C. Deery
W. J. Demerest
H. A. Dickie
Henry Dickhaut
Clarence Dickinson
Howard C. Dickinson
W. B. Dillon
M. C. Dobrow
Allison Dodd
P. T. Dodge
H. F. Donahue
W. H. Donaldson
F. R. Dunn
Theo. W. Dunn
W. D. Duryea
J. W. Dwyer
L. T. Dwyer

E

W. M. Eastman
G. A. Eastwood
Chas. E. Eaton
E. W. Eaton
Wm. E. Ebbets
J. A. Edgerton
W. E. Ehrnholm

E. F. Eilert
Stanley J. Eisner
Wm. J. Eisner
C. O. Ekvall
H. Elliott
F. B. Ellis
R. W. Ellis
Herman Elsas
J. G. Elz
Lowell Emerson
G. P. Emps
W. S. Epply
A. W. Esleeck
I. N. Esleeck
D. C. Everest
H. N. Ewing
Sharpless Ewing

F

John H. Fahey
Porter Farwell
R. E. Farwell
Alton Faunce
T. H. Ferris
Jos. S. Filbert
R. H. Fischel
P. S. Fiske
Howard Fitzpatrick
E. A. Flanagan
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L. Flint
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Morris Gold
J. D. Goldberg
A. B. Goodrich
C. A. Gordon
Ellsworth D. Gosling
D. S. Gottesman
Saul P. Gottesman
Leon Gottheil
Thos. Goulard
Chas. J. Grant
M. H. Grassly
W. A. Gray
Samuel Graydon
G. E. Greene
J. N. Greenshields
P. W. Gridley
H. W. Guettler
H. J. Guild
Frederic Gurney

H

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E. M. Hall
F. Halvorsen
A. E. Ham
C. S. Hammerschlag
S. Hanson
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K. W. Hardon
Thomas J. Hare
G. S. Haring
R. O. Harper
W. D. Harper
H. L. Harrington
T. W. Harrington
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M. T. Hartley
Gunner Hartmann
J. S. Hartman
Hon. A. C. Hastings
R. S. Hatch
Judge M. Hawk
John A. Hayden
L. F. Hayward
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W. L. Heath
Gustav E. Helling
W. E. Hering
W. J. Herrmann
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C. A. Heyward
C. A. Heyward
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W. R. Hobbie
Jos. L. Hodgins
S. J. Hodgins

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F. E. Holbrook
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W. H. Holden
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A. H. Hopper
Forest Hopkins
Byron L. Horn
A. E. Hosking
R. T. Houck, Jr.
W. H. Howe
W. E. P. Howell
W. H. Howes
A. L. Hughes
H. A. Hughes
Francis M. Hugo
C. A. Hunt
F. J. Hutchinson

I

Frank Idler
F. J. Idler
H. H. G. Ingalls
Edward Inwood

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Arthur L. James
J. C. Jennings
G. D. Jensen
Cory S. Johnson
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J. B. Jones
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A. M. Joyce
W. D. Judd
S. E. Junkins

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V. K. Kellogg
Raymond Kelly
Thomas A. Kenney
Leo Kenreich
F. E. Kessinger
Phillips Kimball
F. E. Kimberly
J. C. Kimberly
J. Kindleberger
Alfred Kinn
C. H. Knight
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F. T. Locke
H. C. Lucas
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F. W. Lyon
W. H. Lyon
Curtis E. Lyter

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F. N. McCrea
R. F. McElwain
Arthur McEwan
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C. B. McGrath
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R. D. Magill
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Ernst Mahler
J. F. Main
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Frank G. Merriam
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H. H. Meyer
Ben. L. Miller
F. E. Miller
O. A. Miller
Hon. Warner Miller
Gerrish H. Milliken
Frank P. Mills
W. H. Millsbaugh
Arne Moltzau
J. A. Monagas
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J. R. Montgomery
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F. L. Moore
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Edward S. Moores
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W. N. Munroe
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John C. Murray
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L. E. Nash
W. E. Nash
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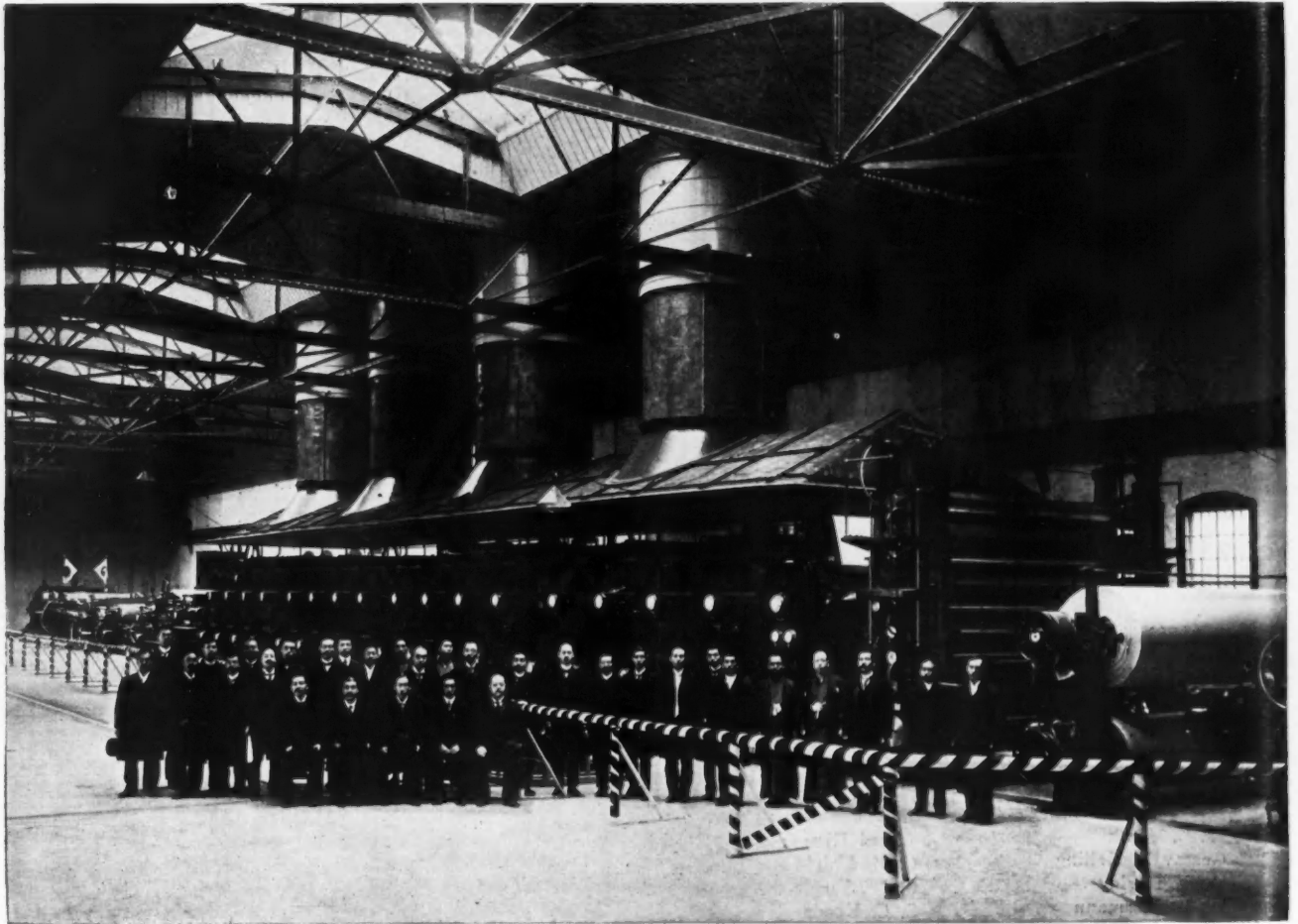
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W. G. O'Connell
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Mr. Oldham
George Olmsted
Harry Olmsted
David O'Meara
David O'Meara
M. O'Meara
William O'Meara
A. E. Osborn
L. A. Osborne
G. N. Ostrander
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J. A. Outterson

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M. C. Peixotto
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F. W. Poyntz
Dr. E. E. Pratt
D. W. Pratt
C. H. Preston
E. T. Preston
J. E. Prevost
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Chas. S. Proctor
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B. F. Reist
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W. D. Russell
W. D. Russell
John F. Ryan
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S

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F. E. Scott
A. C. Scrimgeour
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George M. Seamon
T. E. Sears
G. H. Seddon
Jacob Seibert
John W. Seith
Louis Seinsheimer
Albert Selbert
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F. J. Sensenbrenner
John Sensenbrenner
R. M. Shathearn
C. A. Shaw

Fred R. Shaw
H. S. Shellington
Owen Shepherd
G. W. Sheridan
C. W. Sherman
A. B. Sherrill
L. H. Shipman
Walter Shuttleworth
A. J. Sigel
U. S. Silbar
J. P. Sill
T. M. Simpson
Chas. H. Sisson
Frank T. E. Sisson
Geo. W. Sisson, Jr.
Lewis H. Sisson
Rufus L. Sisson, Jr.
Rufus L. Sisson
Geo. W. T. Skinner
Frank A. Smith
E. C. Smith
George A. Smith
Howard C. Smith
L. E. Smith
C. Howard Smith
R. H. Smith
Thos. F. Smith
W. G. Smith
Wellington Smith
H. Smock
J. L. N. Smythe
C. C. Snedeker
Hon. Bertrand Snell
Ralph M. Snell
W. B. Snyder
M. Sone
D. Fred Souders, Jr.
A. Southon
R. H. Spears
R. W. Spencer
Fremont W. Spicer
C. W. Spikerman
A. H. Standley
W. D. Stanger
J. H. Stannard
Francis U. Stearns
Geo. A. Stebbins
John Stebbins
W. C. Stebbins
Arthur E. Stephens
J. N. Stephenson
E. B. Sterling
F. N. Stevens
Frank L. Stevens
Louis T. Stevenson
T. J. Stevenson
W. B. Stevenson
Linwood B. Steward
B. S. Stewart
A. J. Stewartson
E. J. Stoesser
John E. Stoker
Henry W. Stokes
F. A. Stone
A. E. Stralton
A. C. Stratford

E. H. Stratford
F. B. Stratford
Raymond I. Straus
L. H. Strom
Ira T. Stroud
W. A. Stuart
W. H. Stuart
F. H. Sturtevant
J. J. Sullivan
O. F. Swanson
Hon. T. C. Sweet
Jesse Swift
Willard E. Swift

T

Roger B. Taft
P. J. Talbot
A. A. Tanyane
Job Taylor
H. M. Taylor
R. M. Taylor
C. K. Textor
A. E. Thomas
Morgan Thomas
F. L. Thompson
H. B. Thompson
R. H. Thompson
F. R. Thorn
C. B. Thorne
A. B. Thorpe
R. C. Tilden
Frank C. Tindale
Geo. R. Tolen
Geo. Tompkins
States D. Tompkins
George H. Trabold
Robert H. Treman
H. N. True
Geo. F. Tuttle

U

A. D. Unger
United States Paper Maker
S. A. Upham

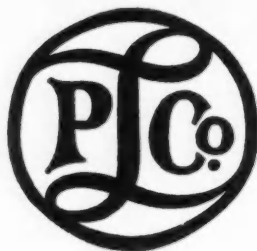
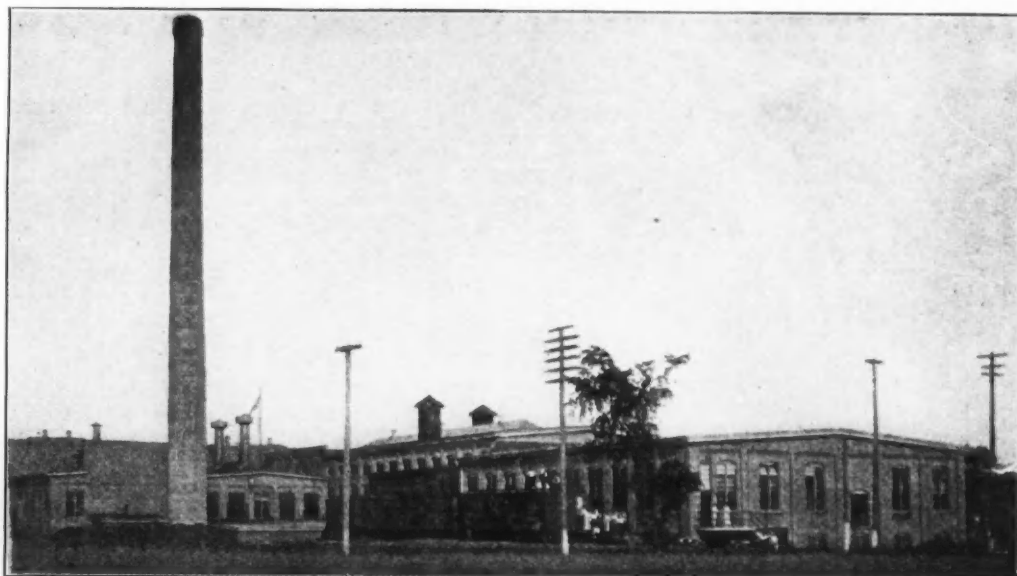
V

W. B. Van Allen
George H. Van Dyke
C. G. Van Gilder
John B. Van Horn
H. E. Van Riper
H. M. Van Valkenburgh
Bryant Venable
Charles Vose

W

B. Wagner
H. V. Wagoner
U. M. Waite
Rowe C. Wales
E. C. Walker
Elwin Walker
W. H. Walker
Thomas Compton Walsh
S. B. Wardwell
A. N. Waring
D. F. Warren
J. J. Warren

(Continued on page 389.)



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Up-Building of American Writing Paper Co.

During the Past Year Many New Methods Have Been Installed and Many New Departments Have Been Instituted—The Importance of Service Efficiency and Control Have Been Given More Recognition Than Ever Before—Evidence of How Highly Systematized the Organization Is Becoming May Be Seen on Every Hand—Some Important Changes.

Written for the Annual Number of the Paper Trade Journal

Following the good fortune of the American Writing Paper Company in obtaining George A. Galliver as the guiding chief of its affairs, comes the announcement that Mr. Galliver has since been elected a director and member of the executive committee of the company, which is further evidence of the esteem in which he is held by his financial associates.

It is of interest to also note that many beneficial and efficient methods in the handling of the internal work of the company have been put into effect of late; new departments have been created, and additional ones are organized at the instigation of Mr. Galliver as fast as the need or advisability of them is manifested.

Organization Becoming Systematized

That the organization is becoming highly systematized is evidenced on every hand. The past year has seen the advent of a thoroughly equipped accounting and cost department and the creation of the office of comptroller of the company, to which position F. R. Gee has been elected.

The general purchasing department of the company has been generally reorganized and greatly strengthened under the able management of Martin L. Cramer, purchasing agent, who was formerly connected with the Michelin Tire Company in a similar capacity.

As another move looking toward better control, the traffic department, formerly located in Springfield, has been centralized at the head office in Holyoke, under the supervision of Mr. Cramer, chief of the purchasing department.

Committee of Standardization Formed

Still further evidence of improvement is indicated in the establishment of a committee of standardization, consisting of five members, of which the manager in charge of sales is the chairman. This committee has charge of the standards of the company's products, and when it is considered that there are about thirty-four regular standard "Eagle A" mill lines of bond paper alone, each of which comprise anywhere from 16 to 30 individual items, not including fully as many "Eagle A" ledgers, and about an equal number of "Eagle A" linen papers, the need of manufacturing control will be fully appreciated, as also the fact that the work of this committee is one of some proportions and of no little importance.

This committee in standardization is most ably assisted by the department of tests—the chemical laboratory—a department that has been an integral part of the American Writing Paper Company organization for years, and which has lately been augmented with additions to its already most complete equipment, so that with a constantly increasing number of assistants this department of tests bids fair to be, if it is not already, the most complete chemical laboratory in the paper industry, and surpassed by few private laboratories in the country in any line. This department is in charge of H. P. Carruth, who, as is generally known, is president of the Technical Association of the Paper & Pulp Industry.

Work of the Sample Department

We have to do things a certain way for a certain length of time

only to realize that they won't work. The paper business is evidently no exception to the rule. In times past, most of the outgoing samples were forwarded to customers or prospects by the respective divisions of the company. Now all this is changed, and installed at the head office is a most completely equipped sample department—under W. J. Norton—formerly assistant advertising manager. This move has made for better service and despatch and is a department long needed by the company.

The stock in this sample department is kept up to the minute, bright and fresh, by the constant receipt from the various manufacturing divisions of samples of new runs, which replace the older or obsolete stocks. The need in this department of a highly ordered system may be realized when it is known that at present there are some 4,000 items in the sample cabinets and that this number is constantly increasing as the company brings out new lines. It may be of further help to realize the work and proportions of this department by stating that the average daily dispatch of samples approximately numbers 1,200 individual items.

In an organization the size of the American Writing Paper Company any change of methods or creation of new departments necessitates the most careful forethought and consideration, owing to the vast amount of business handled and the need of installing the simplest yet most effective means of achieving the desired results.

Keeping a Running Inventory

To effect a constant control and to better its service, the company has undertaken the proposition of keeping a running inventory of stock manufactured and on hand at its various mills, including not only regular branded mill lines, but all of its specialties as well. This is a task of no small importance, as may be imagined. The system comprises a separate inventory card for each stock item of each line. Some of the company's larger mill lines have 125 to 150 individual cards, each representing a separate item of stock, and some idea of the immensity of this proposition may be gained from the fact that this inventory totals approximately 4,500 individual stock items. On each of these cards is recorded the stock on hand, against which is charged all shipments, so that the actual product remaining on hand may be determined at a glance. By this system it is possible to establish a minimum and maximum of stock necessary to care for the business on the various lines, and it enables the company to know automatically when the minimum has been reached on a certain product, in order that a new run may be made and stocked, thus making it possible to always have on hand a sufficient quantity of the necessary items.

This system of a running inventory is one of immense effectiveness in maintaining the requisite amount of stock on hand of the company's various lines, and will prove highly efficient in meeting the needs of the trade.

It may be of interest to know that the inventory of the company shows stock on hand to the value of approximately \$4,800,000, an amount found adequate to meet the demands made upon it.

(Continued on page 279.)

J. P. LEWIS CO. MAKES IMPORTANT IMPROVEMENTS

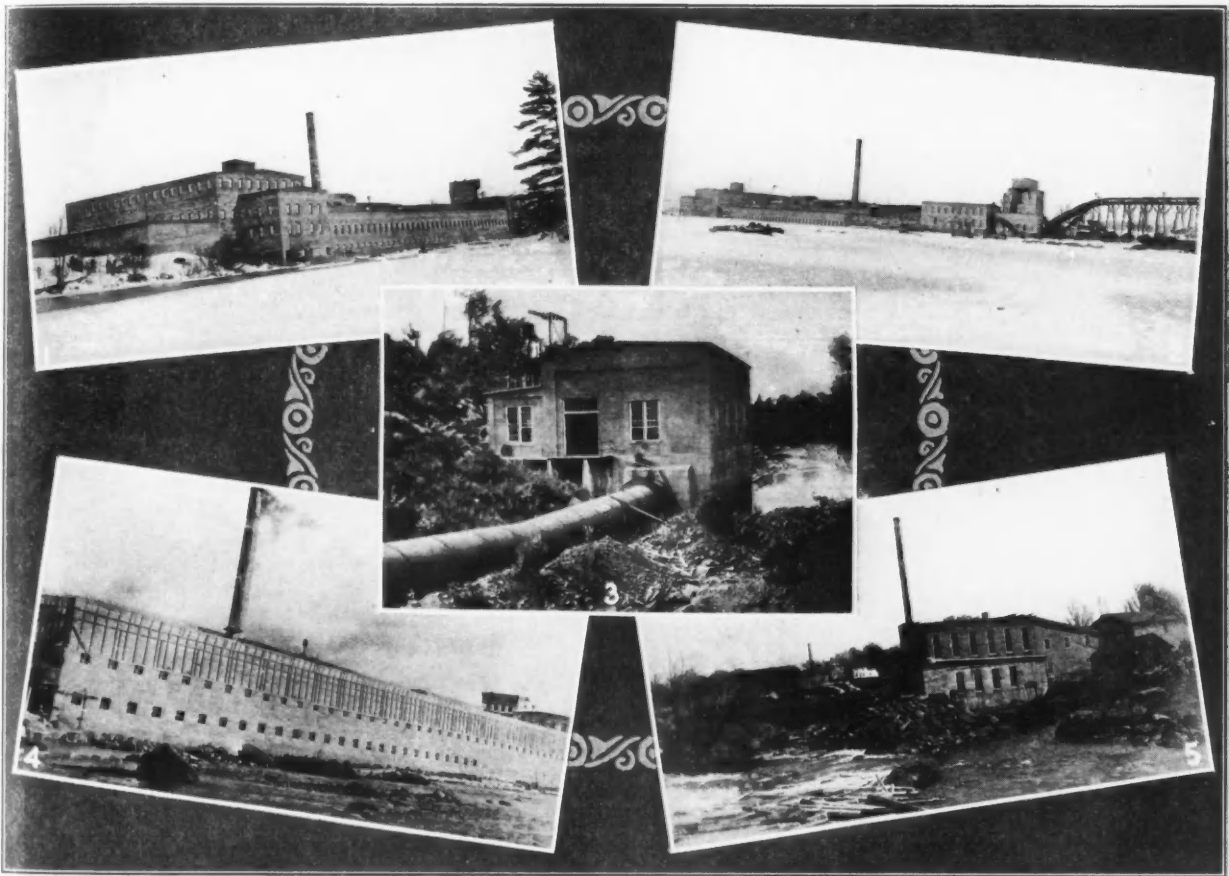
Written Specially for the Annual Number of the Paper Trade Journal

The business of the J. P. Lewis Company, manufacturers of wood fibre board and products, at Beaver Falls, N. Y., which has been making important improvements, was originally started as a pulp mill 35 years ago by the late J. P. Lewis, who was for many years a well known figure in the trade. A few years later a board mill was erected and this was destroyed by fire, but was immediately rebuilt.

Last year the company finished the rebuilding of its original or No. 1 machine room, the massive concrete structure, 306 ft. x 46 ft. being built over the old wooden structure, which was later

The company was the originator of Beaver Board, the well known wall covering, the board being made by it for several years prior to the erection of the Beaver Company's own mill at Thorold, Ontario. H. S. Lewis, president and general manager, being also treasurer of the Beaver Company of Buffalo.

The company expects to have its new mill—the Hampton division—in operation this Spring. The buildings are of heavy reinforced concrete, the machine room being 180 ft. x 55 ft., and the machine a 72-in. cylinder, built by the Sandy Hill Iron & Brass Works, is already erected.



NO. 1, HAMPTON DIV. AT LEFT; NO. 2, GENERAL VIEW OF PLANT; NO. 3, POWER HOUSE, EAGLE FALLS; NO. 4, MACHINE ROOM; NO. 5, PULP MILL.

turned out. The machine was also rebuilt during the past year by the Sandy Hill Iron & Brass Works, Hudson Falls, N. Y., and entirely new wet end and additional dryers being installed, as well as six new Packer screens, stuff chests, and three direct connected Jordans, supplied by the E. D. Jones Sons Company, Pittsfield, Mass. The machine is electrically driven, the equipment being furnished by the Westinghouse Company.

The company at present operates two machines with an output of 40 tons per day, and the product consists of milk bottle caps, manila, jute and combination boards, a specialty being made of pasted boards.

The beater room is 150 x 55 ft., and the equipment, which was furnished by the E. D. Jones & Sons Company, consists of four 1,000-lb. beaters, and two direct connected Jordans, and a Lannoye pulping machine has also been installed. There is also ample finishing and shipping room, and a raw material stock-house, 150 x 50 ft.

The mill will manufacture high grade black and colored specialties, as well as light and medium weight cardboard, which were the lines formerly made by the Hampton Paper Company, when it was operated by A. P. and Lawson Ramage, previous to the

(Continued on page 385.)

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The Manufacture and the Use of Resinate of Soda

Rosin Size for Waterproofing Paper, So Far as Can Be Ascertained, Dates Back to 1806, But Even Later Little Was Known of Its Chemical Properties as a Sizing Agent—Percentage of Uncombined Rosin That a Rosin Should Contain Depends on the Conditions Under Which the Rosin Size Is to Be Used, as Grade That Will Give Best Results in One Mill Will Not Work in Another.

Read Before the Technical Section by W. J. Lawrence, of the Western Paper Makers Chemical Co.

As rosin is the base of rosin size, so also is the physical and chemical composition of rosin an all important factor in the manufacture of rosin size, and so the manufacture or distillation of rosin to be used in the manufacture of rosin size should first be considered.

Rosin is the anhydrous residue from the distillation of turpentine gum obtained from different trees of the pinus family. Chemically, rosin is chiefly abietic anhydride with smaller quantities of acids allied to isomeric or polymeric with abietic acid.

Some Peculiar Properties of Rosin

The color, the chemical composition and the melting point of rosin all vary with the age of the tree from which the turpentine gum is drawn, and the methods employed in the process of distilling. Commercial rosin melts at varying temperatures between 160 and 250° Fahr. The old method of distilling rosin and the one used by small distilleries even today is to heat the turpentine gum in small copper or iron stills over an open fire. Using stills heated by open fires, when the water and turpentine are distilled off the residual rosin assumes a thick and viscid consistency, and since rosin is a poor conductor of heat, it is practically impossible with an open fire to prevent those parts of the rosin which come in contact with the bottom and sides of the still from undergoing decomposition. This not only darkens the rosin, but causes it to be contaminated with rosin oils resulting from the decomposition. The proper process for distilling rosin is with super-heated steam, as while water boils at 100° centigrade the boiling point of turpentine is around 160° centigrade, therefore, superheated steam drives off all of the turpentine, and rosin of pale yellow color is always obtained, as there is no decomposition in the process of distilling. While the boiling point of turpentine is 160° centigrade the turpentine oils volatilize in water vapor at a much lower temperature, and if the crude gum turpentine as it comes from the trees is made fluid by heating to a temperature in excess of 100° centigrade and open steam is blown through it the steam vapor will carry with it all of the turpentine, and after the oil of turpentine is distilled off the residual rosin can be dried in the still by the use of superheated steam, leaving the rosin in a perfectly pure state, with the exception of the foreign matter, such as sand, bark and pieces of wood which it contains. This foreign matter can be removed completely by forcing the rosin in liquid form through a filter press using heavy cotton duck as a filtering medium, but as the process of filtering is costly this is only carried out in one or two plants. The use of superheated steam in the distilling of gum rosin has the further advantage that very large stills may be used and large batches of rosin manufactured at a time of uniform color and composition.

Disadvantage of Common Method

As has been pointed out, rosin contains a body having the properties of an acid so that it dissolves on boiling with caustic alkalis giving a solution of an alkaline resinate.

The common practice in the manufacture of rosin size is to

boil the rosin to be saponified in a solution of carbonate of soda, the acids of the rosin expelling the carbonic acid from the soda with effervescence, and combining with the alkali, forming resinate of soda or rosin size. The disadvantage of this method, however, is that very long boiling is necessary to saponify the rosin, and as the rosin clots together in the hot solution, presenting only small surfaces in proportion to their size, they offer considerable resistance to the saponification reactions.

In the manufacture of rosin size we find it best to start the saponification of the rosin with caustic soda, and after a certain stage in the saponification has been reached, to finish or complete saponification with carbonate of soda. If rosin is boiled with even a weak solution of caustic soda, the liquid soon becomes milky, and, on examining this liquid with a magnifying glass, it will be seen that rosin is spread about in it in the form of very small particles. This shows that the first effect of the action of the caustic soda is to form an emulsion, consisting of a number of minute particles of one liquid suspended in the mass of another. Up to this stage in the process only an emulsion has been formed, and it is only after long boiling that the rosin dissolves, the liquid becomes clear or transparent and saponification is complete. If carbonate of soda is added as soon as the emulsion is formed, the surface then offered by the rosin causes a vigorous reaction accompanied by rapid evolution of carbonic acid.

Formerly rosin size was boiled in small kettles, using either steam jackets or steam coils for heating, but it has been found that by boiling in large digestors with the aid of superheated steam that the rosin granules are broken up better, that a better combination is effected between the particles of the rosin and the alkali used, that all of the carbon dioxide generated is driven off, that the resulting rosin size is free from volatile matter, and uncombined alkali, and that a rosin size of more uniform composition is obtained.

Rosin Size Probably First Used in 1806

The use of rosin size for water-proofing paper dates back, so far as records can be found, to 1806, when it was first used in Germany, and even later when the use of rosin size became much more general, little was known of its chemical properties as a sizing agent.

What Is the Real Sizing Agent?

There has been a continued discussion as to what is the real sizing agent, and practical experience has shown that, while rosin size containing a percentage of free rosin works most economically in some cases, that there are conditions where it will not do the required work, and in many instances a neutral rosin size is more practical.

The percentage of free or uncombined rosin that a rosin size should contain depends on the conditions under which the rosin size is to be used, as a grade of rosin size that will give best results in one mill will not work to advantage in another on account of the varying conditions of stock and water.

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- “ Feeney Automatic Stuff Box
- “ Monarch Diaphragm Screen
- “ Ramsey Patent Grinder Valve
- “ Baker & Shevlin Split Winder Shaft
- “ Baker & Shevlin Worm Knotter
- “ Baker & Shevlin Worm Washer and Thickener
- “ Improved Butterfield Barker Attachment
- “ Baker & Shevlin Patent Bronze Valves for Sulphite Mills
- “ Baker & Shevlin Patent White Metal Valves for Sulphite Mills

Also wet machines, pulp thickeners, grinders, centrifugal pumps, stuff chests, tanks, bronze, white metal and lead pipe and fittings for sulphite mills, as well as a general line of machinery for pulp mills and paper mills.

BAKER MANUFACTURING CORPORATION

Formerly

BAKER & SHEVLIN COMPANY

SARATOGA SPRINGS, N. Y.

High Twine Prices—The Cause and Remedy

Since the Beginning of the War in 1914 Prices in the Twine and Cordage Industry Have Greatly Increased—Not Since the Civil War Has Cotton Sold as High at Present, and This Is True of Many Other of the Raw Materials—Prices Sure to Continue High After Peace—Buyers Should Remember That Twine Is Used by the Yard and Buy on This Basis.

Written Especially for the Annual Number of the Paper Trade Journal by John W. Banker.

The war has affected the twine and cordage industry in the same way it has affected every other branch of commerce and trade, and the radical changes in price which have occurred since August, 1914, are no less startling than those in other lines of business.

All Twine Prices Have Advanced Radically

All of the various grades of twine, and cordage in its many forms, as spun from the better known fibres such as cotton, jute, flax, American, Manila and sisal hemp have experienced the same perpendicular advance in their respective prices.

Not since the Civil War has raw cotton been known to sell at the unheard of level of 32 cents and better per pound for nearby deliveries, with spot cotton at the time this article is written at \$32.40 per 100 pounds. Cotton yarns and twines have only naturally advanced accordingly with the better grades of wrappings, sash cords and "linen finish" twines selling well above 50 cents per pound. Quite a change we will all agree from the 6-8 cent per pound level (for raw cotton) of only a few years ago when the "Buy a bale of cotton" slogan was given national prominence.

Jute Abnormally High

Jute grown principally in Calcutta is today abnormally high in price, both for the raw fibre and in its many manufactured forms, such as yarn, twine, rope, burlaps, etc. While the crop in itself has not been noticeably short at any time during recent years, the demand for the fibre has been enormous, with war requirements the largest factor to be considered. Ocean freight rates, the marine and war risk have added cents per pound to the price in this country, to say nothing of its being almost impossible to get shipments through, irrespective of the cost.

Out of the receipts, government requirements have been large, particularly for the higher marks of jute used in spinning high grade jute rope, this same rope serving as a centre for wire rope in turn employed very extensively in the making of submarine nets. It is very easy to account, therefore, for the high prices which have obtained for jute twines and cordage such as paper makers', tube rope, fine tube yarn, India twine and others.

Some Foreign Fibres Practically Unobtainable

Flax and Italian hemp as imported before the war from Belgium, Russia and Italy, are today practically unobtainable and such stocks as remain in this country are held at prohibitory prices, and hence, only specified in exceptional cases for manufacturing needs where no substitute will answer. In the case of Belgium, there is, of course, no need for comment as to where such flax, as has been grown since 1914, has gone, whereas Italy has forbidden the exportation of hemp except by special license and then only in small amounts. Some flax has left Russia by way of Archangel, but no great quantity, and the expense of bringing it to this country has added to the already high price.

Improvement in Quality of American Hemp Twines

By reason of these facts, it is very seldom that we see today any

Italian or flax sewing or wrapping twine used for commercial purposes. In this connection it is interesting to note the improvement in the quality of American hemp and the resultant improvement in the quality of American hemp twines, particularly where such twine has been spun with the idea of its being used as a substitute for flax and Italian hemp twines. The writer has in mind one twine in particular, spun entirely from native grown hemp and made in the standard commercial sizes, which for yardage and tensile strength, compares very favorably with those twines spun entirely from Italian hemp and which is far superior in the same respects to those twines spun from Italian hemp and some adulterant fibre, as, for example, jute. This grade of twine referred to is today enjoying a remarkable demand both in this country and for export.

Other Twines Also Affected

As with all soft fibres referred to, so has the same condition of affairs obtained with all hard fibre products. Manila and sisal hemp grown extensively in Mexico have been directly affected by the troublesome times in this latter country during the past few years, and what with an abnormal demand, to some extent, of course, for war requirements, have risen very rapidly in their respective prices. In 1914 and preceding years 9 to 12 cents per pound was a fair price for the better grades of manila rope, whereas today pure Manila rope is selling at about 32 to 34 cents per pound basis, with inferior grades only slightly lower. Sisal products have advanced, roughly speaking, from 6 to 9 cents per pound to 19 to 23 cents per pound basis—the present market.

High Prices Even After Peace

While the war lasts and in all probability for a very considerable time after any peace treaty is signed, will this same condition and present high, if not even higher, prices prevail. What then is the ultimate consumer's remedy for these high prices, and how can he keep his "twine bills" from continually mounting? This, a question which should properly interest the paper trade in particular, inasmuch as statistics show that as an industry more twine and rope is consumed by paper manufacturers than by any other branch of trade, is easily answered. Instead of merely figuring together with other items (of expense) these continually higher costs in the price of their product, rather more thought could and should be given to seeking out that twine or twines affording requisite strength and otherwise satisfactory for the intended use, at the lowest net cost per unit of length of twine. It is unfortunately true in most instances that the axiom, "length and strength for a cent," does not occur to the average buyer of twine. Even though his requirements are very large he will invariably pick out some twine which is apparently satisfactory and low (compared with other twines in the pound) price. Right here is where this sort of economy begins and ends and true economy can only be obtained where yardage is also considered. More often than not is it true that a twine double and treble the price of some inferior grade is after all cheaper on account of its greater yard-

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age per pound of twine. It is readily conceivable, too, that this same higher-priced twine must, of necessity, be made from some very much better and stronger fibre, giving the user the resultant benefit in its other properties, such as free from stretch, free from oil, uniform as to size, to say nothing of its better appearance.

Should Seek Cheapest and Best Per Foot

Purchases made with these facts in mind and on this basis, cannot but prove more satisfactory in the results and value obtained than is ever possible where only the price per pound is considered. Let the buyer of twine keep ever before him the fact that while he buys by the pound, he uses the material by the foot, and what he is in reality seeking, or should seek, is that twine which is at once the best and cheapest per foot. Also, it is well to realize that the higher the market, the more necessary and at the same time the more effectual the saving by such means becomes.

It is most fitting, too, that due consideration be given to the purchasing of twine, as for that matter, to the buying of everything just at this time when our government is urging thrift and wise economy in the conservation of materials and labor for the successful prosecution of the war.

TOLUOL COMMITTEE OF TECHNICAL ASS'N

Relative to the proposed use by the War Department of sulphite turpentine for the recovery of toluol, Dr. Milo R. Maltbie addressed the Technical Association on Thursday afternoon, and a committee was appointed to investigate the possible resources of sulphite turpentine in different parts of the country. On very good authority it is said that the War Department may communicate by telegraph with the mills of the country in order to save waste sulphite turpentine.

The committee comprises Henry E. Fletcher, chairman, Alpena,

Mich.; F. M. Williams, Watertown, N. Y.; W. E. Byron Baker, Lockhaven, Penna.; P. A. Paulssen, Kimberly, Wis.; Henry F. Obermanns, Erie, Pa.; Morris W. Hedden, Crown-Willamette, West Lima, O.; George K. Spence, Johnsonburg, Penn., and E. R. Barker, Boston, Mass.

TISSUE MANUFACTURERS' BANQUET

At the McAlpine on Tuesday night the Tissue Paper Manufacturers' Association held its annual banquet.

A novelty for the occasion was the showing of a five-reel film, accompanied by a talk by Captain Donald C. Thompson, staff photographer for *Leslie's Magazine*.

The film dealt with war conditions on the several battle fronts of Europe and was greatly appreciated.

Mr. Perry, connected with the food administration in Washington, delivered a talk on food saving as applied to winning the war.

The dinner was conducted strictly along the lines laid down by the Food Administration in Washington.

The affair was well attended and was a big success.

BINDERS' BOARD ASSOCIATION

On Thursday the meeting of the Binders' Board Manufacturers' Association took place.

An election of officers was held, with J. W. Purtil, of the Wasuc Mills Company, elected president; H. H. G. Ingalls, of Ingalls & Co., vice-president; A. B. Goodrich, Riverside Paper Manufacturing Company, secretary-treasurer.

The president, vice president and, in addition, Robert W. Post, of the Westport Paper Company, comprise the new executive committee.

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News Print Hearing Postponed to March 4

Henry E. Wise, Chief Counsel for the News Print Manufacturers, States That He Has Experienced Great Difficulty in Getting the Proper Figures Together for the Hearing and Postponement Is Granted Because of This Reason—Commissioners State, However, That There Will Be No Unreasonable Delay—Mr. McIntyre Is Cross-Examined at Length.

(From the Regular Correspondent of the Paper Trade Journal)

A full day's hearing was held at Washington, D. C., Monday, before the Federal Trade Commission in the news print matter, at the conclusion of which the Commissioners agreed to the motion of Henry E. Wise, chief counsel for the manufacturers that the case again be postponed until Monday, March 4. It was agreed that the hearings should again start at that time and that they would be continued until the case was cleared up.

Among Those Present

Among those present were: Henry E. Wise, C. A. Thompson, and T. L. Philips, representing the manufacturers; the following attorneys representing the American Newspaper Publishers Association, Henry E. Davis, Guthrie G. Plante, William F. Allen, Stephen S. Gregory, and Louis Goldman; A. G. McIntyre, paper expert of the A. N. P. A.; Mark Hyman representing the Attorney General; Frank G. Glass, of the A. N. P. A.; G. E. Hosmer, of the National Editorial Association; J. H. Zerbey, representing the newspaper publishers of Pennsylvania; and other newspaper publishers; also John Walsh, chief counsel for the Commission. Commissioners Harris (chairman), Colver, Fort, and Murdock, were present to hear parts of the testimony.

Many Difficulties Being Encountered

At the very outset of the conference yesterday Attorney Wise, for the manufacturers announced that he was not prepared with the statistics which he had hoped he would have had in hand by this time when he asked last month for an extension of time in which to have the figures prepared. Telling something of the difficulty of getting the proper figures together, Mr. Wise said that the inquiry is new in its scope and that there are no precedents for the determination of selling costs. He said that one of the things to be taken up by the manufacturer would be the actual investment and what the return to him should be. This, he pointed out, was no easy matter to determine. There is not one manufacturer involved in the case, Mr. Wise said, who could show the actual investment of his company. The book value, in this case, is not sufficient. The books would not reflect the worth of the properties to-day. Mr. Wise stated that appraisements were being made and that the actual field work on a couple of the mills involved had already been made and that office work was in progress. He told of the trouble which he had experienced in trying to get a hold of some firm who could make the appraisements, and make them in the near future. He said that the manufacturers are sparing no expense in this matter.

At this point Mr. Wise suggested to the Commission that if they have not arrived at a fair cost by April 1, that the present price could be used for the time being and that when the final just price had been reached if below the present price the mills would rebate and if it was over the present price the publishers could pay over the deficit. He then spoke of the two forms of contracts which are now being used by the paper manufacturers.

It was at this time, early in the hearing that Mr. Wise asked that the hearings be postponed until March 15 at which time he

was of the opinion that he could bring in all the proof which he would have. In connection with future testimony Mr. Wise said that the manufacturers would claim that wood should be chargeable on the basis of the market value and not on what the price has been.

Mr. Davis for the Publishers

Attorney Davis, in a short statement, said that he had not come there prepared to give the publishers' side of the case but that he had been led to believe that testimony would be forthcoming at the conference. He said that he believed that the paper business was sort of a public utility and should be so handled, that it is not an ordinary business. He asked that he be allowed to see the answers made to the questionnaires which were sent to the manufacturers by the Commission.

Mr. Wise said that he had every intention of making the questionnaires a part of the record in the case. He said that he courted an examination of the answers made and that he offered no objection to Mr. Davis' seeing the answers made.

In a further statement Attorney Davis said that the publishers do not intend to pay the maximum figure of 3 cents after April 1, unless the Commission finds that cost just and he pointed out that the decision on the just cost of paper could never be arrived at by that time if the manufacturers were allowed to wait until March 15 to enter their testimony in the case. He said if they could do nothing better they could consider the problem in the light of Commissioner Pringle's Canadian report. At this point he asked the Commission what had been done about the price fixing for the M. & O. which was to have gone into effect January 1, 1918, and was told that an agreement had been reached until the main question is settled. Mr. Davis seemed to wish to have Mr. Wise's cross-examination of Mr. McIntyre delayed.

Not Interested in "Ancient History"

At this point several word battles took place between counsel for the publishers and manufacturers in which Mr. Wise stated that his clients were not interested in "ancient history" but are interested in the figures of cost of production as they exist now and not as they existed 15 to 18 months ago. Commissioner Murdock remarked that it seemed to him that the manufacturers were trying to get out of the New York agreement, Mr. Wise denied this and said that they all wished to live up to every word of it and that it was their intention to do so. The New York agreement, he said, however, is subject to two constructions, in which Commissioner Fort seemed to heartily agree. Namely whether or not the price should be fixed by the Commission on or after April 1 or whether the price could be named any time after that time.

Will Not Unreasonably Delay

During the discussion about the extension of time in the case Commissioner Colver said that the Commission would certainly not delay the case beyond a reasonable time. He said that if the figures were not in tact so that a decision, as to reasonable

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price, could be of use to the Commission that a decision would be reached on the best information available certainly not long after April 1. Mr. Wise stated that everything would be forthcoming as soon as possible and that if the Commission saw fit to set a price and the price did not seem fair to the manufacturers they might have to appeal for a review by the Court of the proceedings.

T. L. Phillips, of St. Louis, who has been preparing data in connection with the M. & O. and St. Francis' replying to remarks by counsel for the publishers that there has been unnecessary delay, told in a few words of the work that had been done in those two mills.

The matter of the standard form of contract then came up and Mr. Wise put Mr. McIntyre through a stiff cross examination during which he endeavored to show that Mr. McIntyre is not an expert at all and does not know what he is talking about in connection with the manufacturers' problem.

Referring to the last hearings, those in January, Mr. Wise said that for his clients he stands on the standard form of contract now used by them.

Mr. McIntyre Cross Examined

In beginning his cross examination of Mr. McIntyre, Mr. Wise went very thoroughly into the work of Mr. McIntyre much against the objections of counsel for the publishers, whose protests were overruled by the Commission. He asked about the A. N. P. A., the duties of Mr. McIntyre, the personnel of the paper committee, etc. He asked Mr. McIntyre if it were not true that the paper committee of the A. N. P. A. were trying to control the purchase of paper and if he (McIntyre) in a bulletin of the A. N. P. A. had advised the editors of the country not to purchase paper except under certain conditions.

The personal history of Mr. Intyre was gone into at great length from the time he entered McGill University, when he helped to organize the Canadian Pulp & Paper Association, etc.

Getting back again to the matter of contracts Mr. McIntyre frankly admitted that there were editors to whom he personally would not extend a credit of thirty days. The question of the title to paper when purchased by the publisher was brought up and Mr. McIntyre promised to furnish the Commission with a list of publishers who had been bothered by the manufacturers on this point. He spoke, in this connection, with the trouble which Frank G. Glass had had with the Great Northern Company, as introduced in the testimony in January.

Mr. Wise brought out the fact, at this time, that according to McIntyre's own statement the publishers, on January 1, had on hand between 200,000 and 300,000 tons of news print paper and that that amount was carried over from the year before and that the publishers are being allowed to use the paper although paid for in 1917. This is a contradiction of the statement made before by Mr. McIntyre to the effect that paper purchased in one year by the publisher could not be used the next year. Mr. McIntyre also admitted that under normal conditions the publishers had been able to get a reasonable amount of extra paper per month from the manufacturers above their allowance if they needed it.

Weight Valuation

The matter of the variation of the weight of paper was then gone into to some extent. Mr. Wise asked if it were not impossible to make an exact equal weight at all times and Mr. McIntyre admitted that it was but thought that there should be only a slight variance. On the matter of contracts Mr. McIntyre stated that he had seen, perhaps on special contracts, of the Laurentide Company a limit of variation in weight of only 2 per cent. He said that the Great Northern had a 3 per cent. variation and he stated that he had seen a regular International contract with a letter attached for a 3 per cent. allowance.

In all of his questioning Mr. McIntyre did not seem able to "remember" any of the names of the editors involved in any

of the contracts and in most cases could not "remember" the names of the mills involved, but he promised to file data with the Commission. In connection with the overweight of paper Mr. McIntyre stated that he had had thousands of paper tests made during the past year for the publishers. He said that one company had averaged a systematic overweight of 3.8 per cent. but he admitted that he had never notified the company. He said that he had only notified the editors and he did not know what, if any action, they had taken in the matter. He stated that during the past year the Laurentide and Belgo Company had also run much to overweight as well as others.

Mr. Wise also went into some detail on the question of the sale of the paper on sample, Mr. McIntyre standing out for specifications; the date of settlement and the fact that the paper should be sold f. o. b. destination instead of at the mill. The matter of returning cores was also gone into.

Mr. McIntyre stated that the A. N. P. A. is handling the sale of paper from the Northcliffe mills without contracts. Mr. Wise suggested that some of the paper is being sold at a rate higher than 3 cents.

It was at this point, after Mr. McIntyre had been on the stand for at least half a day, that Mr. Wise again asked for adjournment and the discussion ended when it was mutually decided that he would start presenting his case to the Commission on Monday, March 4, and that by March 15 at least he would have some of the appraisal figures ready to be presented to the Commission.

Jobbers' Hearing February 9

Insofar as is known here to-day the news print jobbers will appear before the Commission on Saturday, February 9, this week.

UPBUILDING AMERICAN WRITING

(Continued from page 267.)

Of interest outside the head office, and aside from the constant improvement in equipment at the various mills, as new ways and means are adopted to keep the products up and abreast of the times—the changes and improvements at the George C. Gill Paper Company Division of the company are most noteworthy. Here a new 150-in. book machine has been installed and new additions built to the mill proper at a total cost approximately of three-quarters of a million dollars.

Other institutions worthy of note are the central repair shop, where the company undertakes all minor repairs of its equipment, and which has proven to be most advantageous in the quick handling of emergencies.

Under the same category of efficient control comes the general store. Here are housed all of the items of equipment and supplies that the various mills are regularly in need of—belting, hardware, brooms and the thousand and one items demanded by manufacturing plants. Through the knowledge gained from past experience all equipment is as nearly standardized as is possible, and a substantial saving rendered the divisions in supplying their wants. Through this department a minimum and maximum of supplies have been established in order to govern and control requisitions.

From this brief sketch of the innovations in methods and control of the company's affairs which, together with others, still contemplated, all of which make for a higher efficiency, it would seem that Mr. Galliver, the new president and general manager, is laying the foundation of an organization that is bound to take its rightful place among the country's leading industries.

Lockwood's Directory of the Paper, Stationery and Allied Trades contains an unusually large number of revisions. Orders now from the Lockwood Trade Journal Company, 10 East Thirty-ninth Street.

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CANADIAN MANUFACTURERS MEET

Technical Section Holds Important Meeting Preceding the Meeting of the Association Proper

F. J. Campbell, General Manager of the Canadian Paper Co., Is Chosen to Head the Association During the Ensuing Year—Numerous Interesting and Helpful Papers and Reports Are Read at the Various Sessions of the Convention—C. Howard Smith, the Retiring President of the Association, in Annual Address, Says the Present Is a Critical Time in the Industry—Some of the Papers.

The annual meetings in connection with the Canadian Pulp & Paper Association, brought to a close with a banquet at Montreal, Que., on Friday night, were the most successful in connection with the organization, not only from the point of view of attendance, which included practically every prominent man in the industry in Canada, but also from the instructive papers and addresses that were given. Altogether about 150 delegates and guests were present. In line with the general policy in Canada during the war, the distribution of souvenirs at the banquet was discontinued, and instead a collection was raised for the Tobacco Fund for Canadian soldiers at the front, and a sum of over \$1,300 was quickly subscribed.

The annual meeting of the association proper was preceded by a meeting of the Technical Section, at which papers dealing with the technical aspects of pulp and paper manufacturing were read. Some of these papers will be found in another part of the present issue of the PAPER TRADE JOURNAL. These papers were: "Pyrites in the Sulphite Mill," by Dr. Alfred W. G. Wilson, of the Mines Branch at Ottawa, followed by personal observations by G. D. Jenssen of New York, who illustrated his remarks with lantern slides of important Norwegian installations; "The Pulp Wood Situation and Prospects in the Dominion," by R. H. Campbell, director of the Dominion Forestry Branch; "The Water Powers of Canada," by A. M. Beale, engineer of the Dominion Water Powers Branch; "The Estimation of Cellulose in Wood," by Dr. B. Johnson and R. W. Hovey, B.Sc., of the Dominion Forest Products Laboratory, Montreal; "Practical Paper Making," by J. J. Sullivan, of the Rolland Paper Company, St. Jerome, Que.; and a review of the pulp and paper industry in Canada, by A. L. Dawe, secretary of the association.

In the latter paper Mr. Dawe dealt at considerable length with the pioneer work of pulp and paper making in Canada, saying that as far as could be ascertained, the first paper mill in Canada was founded at St. Andrews, Que., in 1803, by a party of Americans who had obtained concessions from the seigneurs, while the second was established at Bedford Basin, Halifax, in 1819, by R. A. Holland, publisher of the Halifax *Herald*. He paid generous tribute to the part taken by the Riordon Pulp & Paper Company, now the largest manufacturers of sulphite pulp for export in the country. Their organization, he said, was established in 1867, ten years before confederation. They first traded in paper at Brantford, Ont., and in 1863 began the making of wrapping paper at St. Catherines, Ont. The company began the manufacture of sulphite at Merriton, Ont., with a 30-ton mill in 1887.

Mr. Dawe proceeded to deal with the great growth of the industry as a whole, remarking that whereas in 1881 there were five

pulp mills in the country, with a capital investment of \$92,000, employing 68 people, and with an annual output valued at \$63,000, in 1915 there were 32 pulp mills, with a capital investment of \$47,626,237, employing 4,734 people, with an output valued at \$10,952,466. "The development from 1915 to the present time," he said, "in the manufacture of pulp is a matter of common knowledge."

As to the paper industry, the number of mills in 1915 was 48 and the value of paper produced, \$29,395,535. In the fiscal year 1890 the exports of paper were valued at \$122, while for the fiscal year of 1917 they amounted to \$26,072,646, and in 1918 it was safe to estimate they would be very close to \$35,000,000. The export of all kinds of pulp in 1908 was valued at \$168,180. This rose to \$14,032,920 in 1917, and for the present fiscal year would be approximately \$25,000,000. The latter figures referred to chemical pulp alone. Mechanical pulp rose from \$2,652,098 in 1908 to \$6,371,133 for 1917.

"The story of the export of pulp and paper from Canada to every corner of the world," he remarked, amid applause, "is one that should stir the imagination of all our business men."

As to the prospects of the industry from an investment point of view, Mr. Dawe acknowledged the courtesy of Richard O. Johnson, a prominent Montreal financial expert, for an analysis by that gentleman, in which he said:

"In regard to news print companies, it is generally recognized that the Government's interference with their operations will eventually redound to the benefit of existing manufacturers. It has prevented new construction, and consequently it has kept new competitors out of the field. The present high cost of materials will probably prevent any more construction for some time to come. Large earnings the majority of the companies have made, in spite of heavy taxation, have enabled them to place their plants in a highly efficient state and in a strong financial position, which places them in a position to meet the competition of European manufacturers with more confidence than was before possible. Companies have established new markets for their products and by fair treatment to their customers there is no reason why they should not be retained for all time.

"The wholesome co-operation between the manufacturers of this industry affords the investor a protection that he little realizes. The best brains of the industry are available for its good as a whole, while a healthy but sane competition exists among the companies in the marketing of their products. We feel that holders of the better class of these securities can look forward to the future with absolute confidence."

Mr. Dawe concluded by saying that the census returns for 1915 showed that there were 15,686 persons employed in the industry

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We sold and shipped over 1,000 stones during 1917 and are arranging to double that record this year. On receipt of your inquiry we shall be glad to name you prices for your 1918 requirements.

in Canada, with wages amounting to \$10,520,913, not taking into consideration the enormous number of persons employed in cutting and preparing the pulpwood for the mills. These numbers had of course increased since, and there was probably no class of workers in the Dominion whose interests were so well taken care of as those in the pulp and paper industry.

Education in the Industry

T. Linsey Crossley, chairman of the Committee on Education, in his report stated that there was an awakening interest in education among the men in the industry, but they would not be said to be wide awake yet. He spoke of the efforts that had been made to establish technical schools, and said a subcommittee had been appointed, consisting of Messrs. Carruthers and Costogan, to confer with the secretary of the Canadian Manufacturers' Association and Mr. Burton, of the Textile Institute, on the subject. These four gentlemen had not yet been able to get together, but they had met individually, and the attitude of the two organizations named was that the Canadian Manufacturers' Association appeared to be too much occupied with concrete troubles to undertake active educational work, while the Textile Institute was prepared to cooperate with the paper mill men in any way possible. The committee had made arrangements with the Central Technical School of Toronto for a class of 10 or more men to be started at any time on the two weeks' notice. This class would run for three months and take up draughting, chemistry, physics, mathematics, mensuration and English, at a cost of about \$75 per capita for the course, the bills to be rendered by the school to the individual companies sending men. To date only six men were in sight. The Riordon Paper Mills at Hawkesbury had inaugurated a school during the past year, while at the Industrial School at Thorold the enrollment for 1916-17 was 100. There was a possibility of a school being started by the Bathurst Lumber Company at Bathurst, N. B., while at the Shawinigan Technical School shortness of staff had prevented any special class being started at present.

Samples of Canadian-Made Papers

Reporting for the committee engaged in getting together samples of Canadian-made papers, C. B. Thorne, chairman, said: "Since the last annual meeting, when a full and complete set of samples of Canadian-made papers was prepared, it was proposed to extend this work towards gathering a similar set of samples of papers imported into Canada. On making inquiries it was found that owing to the enterprise of some of the Canadian manufacturers that the imports of standard lines had diminished to a very large extent, and that only papers which at present it is impossible to make in Canada are being imported. It is also the intention of this committee to gather a set of samples of papers that are being made in Europe, and which might be adapted to our own needs should they show any improvement as to quality or construction over our present methods."

Current Technical Literature

J. N. Stephenson, chairman, reporting for the Committee on Abstracts, said that an arrangement had been effected with the American committee for an exchange of abstracts, and it now looked as though the scheme would operate successfully. The work of classification had been practically completed.

Election of Officers

At the annual meeting of the Association proper the following officers were elected for the ensuing year: President, F. J. Campbell, general manager of the Canadian Paper Company, Windsor Mills, Que.; vice-president, J. A. Bothwell, general manager of the Brompton Paper Company, East Angus, Que.; secretary, A. L. Dawe.

A Critical Time in the Industry

In his valedictory address the retiring president, C. Howard

Smith, said that the year 1917 would long live in the annals of the pulp and paper trade as one of the most critical and important periods in the industry. "In the early part of the year," he said, "the extraordinary demand for pulp and paper that had commenced in 1916 continued, and to a certain extent increased, the peak being reached in March and April, the demand then slackening gradually to a normal, and in some lines, a subnormal demand. Notwithstanding this enormous demand of pulp and paper for export the mills continued to supply the regular requirements of Canadian trade, and no Canadian industry suffered for want of paper.

"The constant attacks on the industry by the publishers, and notwithstanding the fact that they were being supplied with paper at more than 15 per cent. less than the paper would have brought in foreign markets, led the Government to fix a price of 2½ cents per pound on news print. As the consumption of news print in Canada is only approximately 14 per cent. of the total manufactured, the manufacturers were compelled to accept this price, and to endeavor to meet the situation by a distribution of tonnage and an arbitrary cash contribution from the different mills who were not manufacturing for Canadian requirements."

"The investigation made by Controller R. A. Pringle, K. C.," said Mr. Smith, "has borne out the contention of the manufacturers as to costs, etc.

"The pulp and paper industry is one of the basic industries of this country and it is of the utmost importance that it should expand and increase its exports, so as to help maintain Canada's favorable trade balance," he continued, and quoted the following figures:

"In the year ending March 31, 1890, the exports of pulp and paper were \$168,302.

"In the year ending March 31, 1912, the exports were \$8,961,424.

"In the year ending March 31, 1917, the exports were \$46,476,699.

"An increase in five years of \$37,515,275.

"These exports can still be increased and a greater amount of prosperity brought to Canada provided the manufacturers of pulp and paper are not hampered by unjust legislation, but are treated in the same manner as any other manufacturers," he stated.

"At this time, it might be well to point out, the imports of paper and paper products are still large:

"The imports, year ending March 31, 1912, were \$6,352,463.

"The imports, year ending March 31, 1917, were \$6,848,422.

"These imports are made up of a great variety of paper and paper products, but there is room here for several mills to specialize and take care of this demand.

"The development of pulp and paper manufacturing requires large capital investment, and great risks, as it is always a pioneer industry and means the opening up of new country. An adequate return on capital must therefore be allowed for, and an opportunity to obtain a return commensurate with the risk involved. A return of 7 per cent. on an industry of this nature is not sufficient, when governments are offering 5.86 per cent. on bonds and many municipal and foreign bonds will yield a return of 8 per cent."

Discussing general conditions, Mr. Smith said: "The manufacturing conditions for 1918 will be severe; supplies of raw material are low and almost impossible to secure. The coal situation could not be worse and there does not seem to be any immediate prospects of improvement. It is a serious menace to Canada, as we only supply about half our regular consumption, the total consumption being some 300,000,000 tons of both bituminous and anthracite. The coal production of Canada should be increased to the greatest possible extent, and so far as possible we should supply our own requirements. The production of other sources of fuel, such as lignite and peat, should receive the greatest possible attention from the Government and every facility given to develop these different sources of fuel.

"In this connection the development of Canada's water powers assumes even greater importance.

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"The labor market is short of men, and with the continued call on men for the front and for the vital industries, there is no sign of improvement. This shortage in labor has materially increased the cost of wood, and has seriously reduced the amount of wood gotten out. In the last 10 years the cost of getting out wood has more than doubled. The car shortage has already been the cause of several periods of shutdowns in some mills."

Regarding the pulp industry, Mr. Smith remarked: "It is of vital importance that technical education be greatly extended in this country, so that properly equipped men may be available to meet the growing demand for trained men. This section is doing pioneer work in this respect, and deserves the greatest encouragement from the executives of the different companies."

The Secretary's Report

In his annual report the secretary referred to the spirit of friendliness and co-operation that had marked the pulp and paper industry during the past year, which was a stabilizing factor of considerable importance to investors. The gathering of statistical information had proceeded during the year with marked success. In this connection Mr. Dawe reported that from February 1, 1917, to December 31 last, 21 paper mills had reported a production of paper and boards of 145,697 tons, with total shipments of 142,088 tons, leaving in stock 3,609 tons, or only 2.5 per cent. of production.

These shipments had been made as follows: In Canada, 125,650 tons; to the United States, 12,736 tons; and elsewhere, 3,702 tons. These export shipments, amounting to 16,438 tons, or 11.2 per cent. of production, he considered as showing a very satisfactory percentage, and gave proof that the members had benefited by the advice given them by Sir George Foster, the Dominion Minister of Trade and Commerce, a year ago to increase their export business. The statement of receipts and disbursements showed a satisfactory financial condition, with a balance on hand of \$2,775 after meeting all expenses.

Mr. Dawe added that a crisis in the sulphur and coal supply had been averted by co-operation among the members.

Wrapping Paper Section's Report

Presenting the report of the Wrapping Paper Section, F. H. Wilson, chairman, remarked that the tonnage for the first half of 1917 was approximately equal to the tonnage of the first six months of the previous year. During the second six months, however, there was a marked shrinkage, compared with the corresponding six months of the previous year, due to stocks which had been accumulated by jobbers and consumers, and bought on an advancing market. The stocks were now reduced to a normal basis, and were perhaps even lighter than ordinarily carried. The outlook appeared favorable for a healthy demand throughout the present year. As to prices, last year they remained stationary, and, generally speaking, firm, up to about the middle of November, when, due to a reduction in raw materials, the prices of wrapping paper were reduced to the extent of from \$10 to \$15 per ton, according to grade. Prices have since held firm, with no subsequent alteration.

Coated Mills Busy

F. H. Gage, chairman, reporting for the Coated Section, said the mills had been busy during the first six months, and had had a falling off in orders in the last six months, due to customers expecting a drop in prices and being anxious to clean up stock. He proceeded:

"The price was not advanced in same proportion as No. 1 machine finish or super-calendered papers, but in order to keep down cost, publishers and printers have been substituting No. 1 super-calender papers for coated. The importation of all grades of coated papers, bristol and blanks has practically discontinued, and are now being made in Canada. We have not been able to secure any very important export orders. On account of unsettled conditions it is impossible to expect very brisk business for the first six months of this year, but the mills may have all the orders they

can make with the present labor and coal situations, and the unforeseen difficulties we may have to contend with.

"It is difficult to get colors, but not as serious as it was. Most colors are now obtainable, although the difference in price between various shades is very marked. For several months we have been able to obtain enough casein in Canada for our requirements, but the quality is somewhat uniform and the price very high. It has been rightly said that our first business is to win the war. This is the first business of every firm represented in this section, and while we realize that material prosperity means much, still over and above this is the fact that in reviewing the events of the past year we must put first and foremost the readiness of the people of Canada to sacrifice themselves and render service for the good of the empire and mankind.

The Woodlands Section

Ellwood Wilson, chairman, reported the successful inauguration of the Woodlands Section, and outlines the subjects to be dealt with at future meetings with a view to extending knowledge of this important branch of the industry.

Board Section

John F. Taylor, chairman, in his report of the Board Sections' activities for the year, reported that no new mills had been operated during the past year, with the exception of the Spanish River Pulp & Paper Company, who were making wrappers for themselves, and the Abitibi Power & Paper Company. The relations between the various board mills continued to be satisfactory, and while business was not as plentiful at the present time as they were a year ago, there was every reason to believe that it would increase, and that the production for 1918 would exceed that of 1917. The production for sale for 1917 was 66,866 tons, which was 1,783 tons, or about 2.6 per cent. less than for the year 1916. The export trade was hampered by the fact that the shipping situation was still in a very disorganized condition. Had condition in regard to shipping been otherwise, undoubtedly the chief exporting mills would have produced more board for the English market, where prices had been standing at a high figure. A fair number of inquiries from foreign markets were being received by some of the larger mills, but owing to high ocean rates and lack of bottoms, it was almost impossible to handle this class of business.

Technical Section

Dr. John S. Bates, of the Forest Products Laboratory, reported three meetings of the Technical Section during the year, and said it was gratifying that the companies in almost every case had shown themselves in sympathy with the aims of the Technical Section, and had no false illusions about throwing their mills open to the technical men of the industry. He dealt at length with the work of the various committees, and paid special tribute to the valuable assistance of C. B. Thorne, S. F. Duncan, H. Helin and F. A. Sabbaton in designing the new experimental pulp mill and apparatus at the Forest Products Laboratory, as well as in the discussion of the scientific investigations which had been carried on for the benefit of the industry. Three new committees, he added, were suggested by the council—a Committee on Program and Publications, to arrange for papers and to take charge of the publication of the annual business volume and annual technical volume of the section; a Committee on Machinery, to serve as a clearing-house for new apparatus and processes of interest to the industry; and a Committee on Statistics, to collect figures and information of value to the pulp and paper industry.

The council further suggested amendments to the by-laws defining more carefully the qualifications for membership and providing for an increase of annual dues. The aim was thoroughly to organize the technically trained men in the industry and heads of manufacturing departments and to make the Technical Section a medium of greater service to its members.

The membership had increased during the year from 85 to 110.

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He spoke of the good work done by A. L. Dawe, the secretary, and suggested that the time had come for strengthening the secretary's office by appointing an assistant to look after matters of technical interest to the industry.

The Felt Division

G. M. Graves, chairman, in the course of his report for the Felt Division, spoke of the consternation caused at the beginning of the year by the inability of the mills to get British rags, and said the Department of Commerce at Ottawa had already issued notices which were posted in every postoffice in the Dominion, urging the people to save all waste and paper rags. Further assistance came through an embargo placed by the Minister of Customs prohibiting the shipment of cotton rags from Canada. This order was vigorously protested by some of the rag dealers, and as a result a special representative from the Minister of Customs was delegated to investigate by personal canvass existing conditions as regards supply and demand, which resulted in the embargo being rigidly enforced and enabling the manufacturers to test and prove that Canada does make sufficient stock to supply its roofing industries. He added:

"Inasmuch as the felt paper manufacturers have suffered serious loss, damage to machinery and in some cases to human life through inferior and false packing of rags, it was decided that for the protection of our trade we must prepare a standard classification of roofing stock and standard trade customs. This was done with the assistance of Mr. Dawe, and this classification and trade customs was sent to the leading dealers and packers of this material in the country, inviting their approval and criticism. From the favorable answers received we believe it will be adopted by them.

"Considerable quantities of Canadian roofing felt has been exported, also large quantities of prepared roofing manufactured from Canadian roofing felt have been shipped by the various Canadian prepared roofing manufacturers to our Allies in Europe."

The Importance of the Sulphite Business

Carl Riordon, of the Riordon Pulp & Paper Company, reporting for the Sulphite Division, said:

"The great importance of chemical pulp manufacture in Canada is becoming manifest rapidly; 35 mills are now listed, making a total of 724,500 tons yearly in sulphite, 176,100 tons yearly in sulphate; that is 800,600 tons yearly, or 2,415 tons per day of sulphite and 587 tons per day of sulphate. While 40,500 tons yearly, or 135 tons daily, is made in Newfoundland. These figures include new sulphite construction of 1917 of 350 tons per day in the East; 150 tons capacity will be ready this winter and spring. Details are attached.

"The new construction is the largest in the history of the trade. It is largely brought about by the great demand through the war during 1916. Distribution of the increased production in a satisfactory way will be a serious problem, and should have the closest consideration of every member. One thing is certain, that we must look for a wider market than Canada and the United States by shipping abroad to Great Britain, France, Italy, South America and Japan. To do this, a suitable export quality should be made, the pulp dried to 100 per cent. and put up in sheets hydraulically banded. A considerable portion of the new production was intended for use in new newspaper production. This production did not come because of the difficulty of procuring news machines during war time and the high cost of plant, while capital has been discouraged through Government price-fixing inquiries from extending news print mills.

"United States imports 218,361 from Europe to United States in 1916, and 205,259 from Europe to United States in 1917. Canada exports from this Association to United States in sulphite about 102,000 tons, overseas 14,000 tons.

"Export shipments would have been much greater but for the difficulty in ocean space and high cost.

"Sulphite pulp in Great Britain is now about \$200 per ton, c. i. f. British ports.

"Prices.—Prices January 1 ranged from \$90 to \$110 at the mill for Canadian sulphite and gradually dropped to \$60 to \$80 at the mill by the end of the year.

"It now seems clear that the rise was due to speculative buying and the drop in prices due to a decrease in demand partly as a reaction from this.

"At the time prices rose imports from Europe were fairly heavy. Imports from Europe have practically come to an end now, but this has had no effect upon prices in the United States.

"Predictions are dangerous at all times and particularly under existing circumstances, so that the course of prices cannot be forecasted, but the rapidly increasing cost of pulpwood, labor, coal and all other raw stocks, point to a maintenance at least of today's prices.

"The reporting members of the Sulphite Division now number 16, their capacity production about 424,000 tons per year, of which about 206,000 tons is for sale, and the balance, 218,000, used in their own mills.

"With normal times, more paper machines will be installed and more sulphite consumed.

"It is believed the new tonnage which came in during the past two years with some of it still to be marketed, has not caused the anticipated glut in the market, and with the anticipated export to Great Britain four or five times greater in 1918, a good year is anticipated, providing railway service and fuel problems become better.

"Stocks on hand have increased at the end of the year about 100 per cent, due largely to the freight car famine for shipments to the United States, and while 80 per cent of the pulp on hand is sold, it remains at the mill because of this.

"It is hoped that the worst in the car situation is over and that the United States, which has commenced to return the 19,000-odd box cars due us, will now send us over sufficient to fill United States orders. For four weeks storms have held up the arrival of these cars in sufficient number to be of much help.

"European sulphite stocks at Atlantic ports in the United States at the end of the year consisted of:

	Tons
Bleached Sulphite	None
Unbleached Sulphite	28,412
Kraft Pulp	9,325
Bleached Soda Pulp	75
Total	37,012

Reports Adopted

The various reports were adopted, as was the statement of accounts, showing receipts amounting to \$21,553.49, and disbursements of \$18,778, leaving a cash balance on hand of \$2,775.17. The assets were reported to be \$6,240.51, with no liabilities, and the surplus account, \$3,033.30.

The Banquet

At the annual banquet in the Ritz-Carlton Hotel, presided over by F. J. Campbell, the new president, the toast list was a short one, comprising, "Our Country," proposed by the president and responded to by J. N. Greenshields, K. C.; "The Boys Overseas," proposed by C. Howard Smith and replied to by Capt. R. T. MacKeen; "Our Guests," proposed by George Carruthers and replied to by several of the guests, and "The Pulp and Paper Industry," proposed by G. H. Montgomery, K. C., and replied to by G. H. Mead.

Captain MacKeen, who recently returned from active service in France, dealt with the great importance of a sympathetic attitude on the part of manufacturers in the matter of absorbing returned soldiers into productive occupations, and asked the co-operation of the members of the industry, a sentiment that was warmly applauded. He made a special plea for men who had been wounded, but who were still capable of good work in light occupations.

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Pyrites in the Sulphite Mill

Technical Requirements to Which Pyrites Ores Suitable for Use in the Sulphite Industry Should Conform—Cost of Mining the Ore Is Likely to Vary with the Locality—Is Valuable Only for the Available Sulphur Which it Contains—Estimating the Comparative Values of Different Ores—Types of Furnaces for Roasting Pyrites—The Sulphur Contents of Pyrites Ores.

Read before the Canadian Pulp and Paper Association by A. W. G. Wilson, of the Department of Mines, Canada.

Sulphur is probably the most important chemical substance utilized in the manufacturing industries. There is scarcely a product into whose preparation or fabrication sulphur does not enter at some stage in the process of manufacture, directly or indirectly. Adequate supplies of this basic material are therefore, in the long run, absolutely essential to the successful establishment of varied manufacturing industries in any country, and to the maintenance of commercial independence.

Sulphur occurs in nature either as the element, or in association with certain metals in the form of sulphides—the most important of which are the sulphide of copper—chalcopyrite, the sulphide of iron—pyrite, the sulphide of zinc—sphalerite, and the sulphide of lead—galena. Native sulphur has been found in Canada in a number of localities, but, at present, these occurrences can be regarded only as mineral curiosities. Supplies of native sulphur in commercial quantities have not, as yet, been discovered in Canada.

Numerous Occurrences Reported

Numerous occurrences of the sulphides of the metals, iron, copper, zinc, and lead, have been reported from many provinces of the Dominion. In a few localities existing circumstances have permitted the development of mines which could be operated at a profit, and a considerable production of these ores is recorded annually. In Canada it has not yet proven feasible to utilize the sulphur content of the ores of copper, zinc, and lead, although this is done in the United States and Europe. Pyrites has, however, been utilized as a source of sulphur by the makers of sulphuric acid. The first acid plant was established in Canada at Brockville, Ontario, in 1869. This plant was operated on Canadian pyrites for about ten years, and for some four years longer on pyrites imported from New York State.

Imported from Sicily

Prior to 1915 supplies of elemental sulphur for Canadian consumption were imported from Sicily for use on the Atlantic coast, and, occasionally, for use at points easily accessible from the St. Lawrence river. Central Canada was supplied from deposits of native sulphur in the state of Louisiana, and later also from Texas. Western Canada imported sulphur from Japan. During the last two years Canada has been dependent practically on one source of supply—the Louisiana deposits. It is to be noted that about 98 per cent of the entire United States production is controlled by one company.

During the last two years a small amount of pyrites ore has also been imported into British Columbia from the State of California. These importations are due to certain economic conditions, not to the fact that pyrites ores could not be obtained in that province.

The total annual importations of sulphur are shown in the following table—compiled from the monthly returns of the Department of Customs:

Imports of Sulphur

	Pounds	Value	Value per 2,000 lbs.
1910.....	45,669,739	\$ 474,619	\$20.80
1911.....	43,862,954	446,491	20.35
1912.....	77,294,039	806,690	20.85
1913.....	60,865,975	633,114	20.80
1914.....	83,907,805	870,868	20.75
1915.....	60,364,184	480,317	15.90
1916.....	146,934,925	1,186,618	16.15
1917.....	164,890,150	1,515,309	18.35

It will be noted that the average valuation per ton, based on the total valuations given in these reports, indicates a considerable discrepancy somewhere. The quoted price for sulphur f. o. b. Galveston was formerly \$20.00 per long ton, equivalent to \$17.85 per ton of 2,000 lbs., while to-day that quotation is higher. Recent New York quotations for crude sulphur are \$45.00—\$46.00 per long ton. Small lots of spot sulphur, not under contract, have been sold to Canadian importers at higher rates.

Exports of Pyrites*

Year.	Tons.	Value.
1910.....	30,434	\$110,071
1911.....	32,102	120,585
1912.....	5,938	11,935
1913.....	46,066	211,640
1914.....	89,999	377,985
1915.....	137,598	527,318
1916.....	156,722	557,024
1917.....	279,646	974,200

*Compiled from information supplied by the Department of Customs. It is to be noted that the Statistics Office of the Mines Branch, on the basis of direct returns, from the shippers, estimates the exports for 1917 at 341,676 tons, being 62,030 tons in excess of the amount given above. The actual exports for 1916 are also probably in excess of the figures given by the Department of Customs. These differences, in part at least, appear to be due to the entry of certain exported ores, which contain both copper and sulphur, as copper ores only.

A recent investigation places our requirements for 1918 at 110,000 tons (2,000 lbs.) exclusive of the sulphur to be obtained from native pyrites—which, it is estimated, will be required to supply 24,000 tons of sulphur.

The sulphite pulp mills state that their requirements will be 73,500 tons of sulphur. Analyzing these figures we find that the average estimated consumption of sulphur per ton of sulphite pulp produced for the whole of Canada is 310 pounds. By provinces, the average consumption is as follows:

New Brunswick.....	530	pounds per ton of sulphite
Quebec	273	" " " " "
Ontario	312	" " " " "
British Columbia.....	370	" " " " "

I understand that, in the best practice, not more than 250 pounds per ton is necessary, and it may be assumed that 270 pounds is ample. It therefore appears incumbent on many of

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our mills to improve their practice and thereby help to reduce our importations of this commodity.

Pyrites in Canada

The mineral pyrite, when pure, contains 54.34 per cent. sulphur, and 46.66 per cent. iron. Commercial pyrites ore consists of the mineral pyrite in association with other minerals, containing less sulphur, or none at all.

The sulphur content of Canadian pyrites, as it comes on the market, varies from time to time, according to the condition of the market. Before the war market demands were such that ores containing less than 38 per cent. were practically unsalable. At present large tonnages of ores containing as low as 35 per cent. are being mined, and ore containing as low as 30 per cent. of sulphur has been accepted by some buyers. The total production in 1916 was 309,251 tons, and the average sulphur content was 37.8 per cent. sulphur.

The following table shows our total annual production of pyrites ore since 1910¹:

Calendar Year.	Tons.	Value.
1910.....	53,870	187,062
1911.....	82,666	365,820
1912.....	81,526	314,081
1913.....	158,566	521,181
1914.....	228,314	744,508
1915.....	286,038	985,190
1916.....	309,251	1,084,095
1917.....	413,511 ²	.....

¹ Statistics supplied by Division of Mineral Resources and Statistics Mines Branch, Ottawa.
² Estimated.

Pyrites ores, suitable for use in the sulphite pulp industry, should conform to the following technical requirements:

1. The ore should be practically free from gangue material,

since the presence of foreign substances lowers the percentage of sulphur in the ore and necessitates the handling of worthless material. For the same reasons the presence of any other sulphides than the bisulphide of iron, which forms the ore proper, is disadvantageous because no other compound, which occurs as a natural mineral, contains so high a percentage of sulphur, or parts with it so freely. Even copper pyrites, which in some of our ores forms the principal valuable constituent of the ore, is detrimental to the manufacture of sulphuric acid, and would be equally detrimental in the making of sulphite liquor. Copper sulphide is detrimental not only because it contains less sulphur than pyrite, but because its greater degree of fusibility makes it more difficult to regulate the temperature of roasting. Pyrites carrying more than 8 per cent. copper can be profitably employed for making sulphur dioxide only under very exceptional circumstances.

2. Pyrites must be nearly free from such elements as lead, zinc, arsenic, antimony or selenium. The presence of arsenic or antimony has a deleterious effect on the quality of the sulphuric acid produced, but in making sulphite liquors small quantities of these metals would have no very serious effect. The presence of galena, or lead sulphide, increases the fusibility of the charge, and wastes sulphur by forming lead sulphate. Impure ores, because of the sulphur losses which the impurities cause, are heavily penalized when required for making sulphuric acid. They can, however, be utilized for making sulphite liquors, provided the amount of impurity present is not too great.

3. The sulphur content of the ore should be as high as possible. Good lump ore will contain as much as 50 per cent. sulphur. Ore containing 40 per cent. sulphur, not otherwise undesirable, would be considered a good ore. Pyrites fines when in the form of screenings, will usually contain less than

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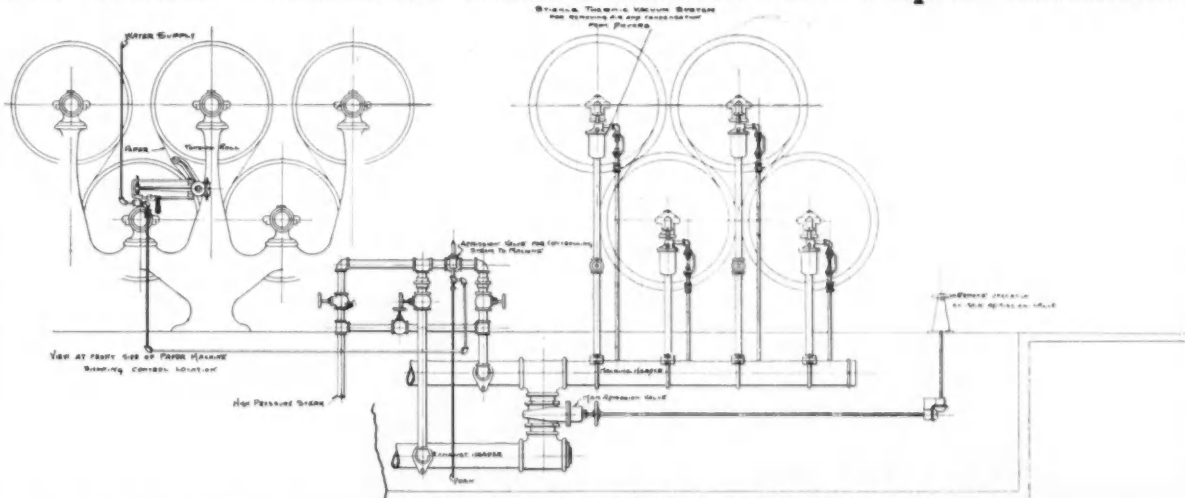


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40 per cent. sulphur. Pyrites concentrates may contain as much as 48 per cent. sulphur. Owing to present conditions in the sulphur market even a 35 per cent. ore, otherwise desirable, is salable. The value of low grade ores is much less than that of the richer ores because of the larger amount of waste material which must be handled.

4. The ore should be of good roasting quality. Cinder from a good free burning ore will not contain more than 1 per cent. of sulphur. If the associated minerals are easily fusible, or if the ore contains elements which unite with the sulphur to form sulphates, there will be difficulty in roasting, and sulphur losses will ensue.

The pyrites produced by the two mines in Quebec contains from 1 per cent. to more than 5 per cent. copper. The sulphur content is high, injurious constituents are practically absent, and the ore commands a ready market. Other Quebec mines have, from time to time, produced pyrites free from copper, but containing higher percentages of gangue minerals and therefore less sulphur per ton.

The pyrites produced from the mines in Ontario is free from copper, practically free from arsenic, lead, or selenium, rather high in silica and correspondingly lower in sulphur, is free burning, the sulphur losses in the cinder being remarkably low in some cases.

The pyrites produced in British Columbia appears always to contain some copper. Information as to its arsenic and lead content is not available. The sulphur content is high.

The following table shows typical analyses of pyrites, ores and cinder:

Analyses of Pyrites Ores*

Locality.	Sulphur.
Rio Tinto, Spain.....	48.50
Tharsis, Spain.....	49.90
Arminius Mine, Virginia.....	46.00
Arminius Mine, Virginia.....	43.00
Virginia pyrrhotite.....	34.06
S. Lawrence Mine, New York.....	38.00
Elizabeth Mine, Vermont.....	33.00
Wisconsin ore.....	45.03
Missouri ore.....	40.52
Capelton, Quebec.....	40.21
Eustis, Quebec.....	42.48
Weedon, Quebec.....	40.74
Queensboro, Ontario.....	40.00
Goudreau, Ontario.....	31.00
North Pines, Ontario.....	41.62
North Pines, Ontario.....	35.00
Anyox, British Columbia.....	43.00
North Pines cinder.....	0.25

* Contents given in parts per hundred.

Cost of Pyrites

It is not possible to make any general statement with respect to the costs of mining pyrites. The elements which enter into these costs vary greatly and are so different in different localities, and under different conditions, that costs in one locality do not necessarily represent those in another. Prior to the war pyrites was being mined in Canada at less than \$1.50 per ton in one locality, while in another the cost exceeded \$2 per ton. Probably a fair average cost may be taken at \$2 per ton, but it is obvious that a large mine, properly equipped, with large output, can operate at much lower costs. A property producing 100,000 tons per annum should be able to operate at a mining cost not exceeding \$1.50 per ton under present conditions.

Some idea of the value put upon pyrites ore in the ground may be gathered from the fact that a number of properties are being operated temporarily upon a royalty basis. These royal-

ties vary from 10 cents per ton in the case of one very large low grade ore body to 25 cents per ton in the case of certain ore bodies, located close to railroad transportation and close to an accessible market. In these cases the operating company guarantees a certain minimum output per year, and pays all development and operating expenses.

Certain low grade pyrites ores, with suitable gangue, can be improved by concentrating. Here again the cost of concentrating depends upon the ore treated, upon the quantity treated, upon the efficiency of the process used and upon many other factors. The cost of concentrating would certainly not be less than 60 cents per ton of ore treated, and might be as much as \$1.20.

Another factor which influences the value of pyrites is the cost of transportation to market. Freight rates are not based wholly on the ton-mile haul, and, in the absence of traffic, rates on this commodity between certain specified points are not available. Where the point of origin and the destination are both accessible to the same line of railroad these rates will be low. Where one line has to transfer to another, switching and other charges have to be added. Approximate estimates as to the probable cost of railway transportation may be made from the data given in the following table. Where transfers from one line to another are necessary, a switching charge, which may be placed at \$2 per car, can be allowed.

Such costs concern the producer, rather than the purchaser of ore, since pyrites is usually sold at a price per unit, delivered f. o. b. cars at destination. In estimating the probable cost of the sulphur in pyrites, for comparison with the cost of an

	Iron.	Copper.	Zinc.	Lead.	Arsenic.	Insoluble SiO ₂ & Al ₂ O ₃
	40.92	4.21	0.22	1.52	0.33	3.46
	42.55	3.10	0.35	0.93	0.47	2.20
	44.50	2.10	...	...	...	7.40
	40.00	...	2.50	...	...	...
	53.15	0.87	...	...	...	2.99
	34.00	3.00	...	...	...	25.00
	50.00	3.50	...	...	...	13.50
	...	...	0.90	0.26	...	...
	37.88	...	...	...	...	5.16
	35.20	5.10	...	...	tr.	12.00
	36.44	2.5-4	...	...	tr.	4-18.5
	35.86	3.62	0.77	tr.	...	12.20
	35.00	...	...	...	...	25.00
	27.00	...	...	...	...	41.00
	36.43	...	...	...	...	21.45
	31.00	...	...	...	...	34.00
	39.50	1.8	...	...	...	15.7
	53.69	...	...	...	...	22.00

equivalent amount of elemental sulphur, the mill operator can more conveniently base his estimates upon prevailing market quotations, making additional allowances only when his location is such that the cost of delivery at his plant would exceed the cost of delivery from the mine to the New York or Boston markets.

Approximate Railway Freight Rates on Iron Pyrites Ore. Minimum car loads, tons of 2,240 pounds.*

Mileage haul.	Rate per gross ton.	Mileage haul.	Rate per gross ton.
5—50 miles	0.800	225—250 miles	1.610
50—100 "	0.920	250—275 "	1.725
100—125 "	1.035	275—300 "	1.840
125—150 "	1.150	300—325 "	1.955
150—175 "	1.265	325—350 "	2.070
175—200 "	1.380	350—375 "	2.185
200—225 "	1.495	375—400 "	2.300

*Includes 15% increase.

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Purchasing Pyrites

Quotations on pyrites ores are usually given at so much per unit, a unit being one per cent of a long ton, or 22.4 pounds. A 40 per cent ore contains 40 units; at a quotation of 20 cents f. o. b. Atlantic coast points, the market price would be \$8.00 per long ton. The quotations for arsenical pyrites are usually from one to two cents lower than for non-arsenical.

Quotations for domestic pyrites on the United States market are variable and hard to obtain at the present time. Spanish pyrites has been quoted at 15 cents per unit on the basis of 10 shillings ocean freights, purchaser to pay excess freight, and war risks with a concession of 2 per cent. Ocean freights range from 35s 6d for northern ports to 40s for southern, and 42s 6d for Gulf ports. Actual quotations for Spanish ore are thus at least 33 cents per unit.

Domestic ores vary greatly in sulphur content, and as a consequence there are corresponding variations in contract prices. One recent sale was made at 19 cents per unit—grade of ore not stated, but presumably around 37 per cent sulphur. Another sale at 30 cents per unit was for pyrites fines containing about 42 per cent sulphur.

Available Sulphur

The purchaser of pyrites must remember that the ore is valuable only for the available sulphur which it contains, and the value of the ore will be determined solely by the ease with which that sulphur may be recovered. The presence of deleterious elements necessitates the use of special apparatus for their elimination and increases manufacturing costs. The amount of sulphur that can be recovered from an ore depends firstly upon the chemical composition of the ore, and secondly upon the care and skill of the burner operator. It is possible to produce a cinder from pure ores that will contain less than one half per cent of sulphur. In practice, the sulphur loss in this way is not often less than one per cent.

When the analysis of the ore is available, it is possible to determine very closely the amount of available sulphur by calculation.* The same result can also be obtained experimentally.

In estimating the comparative values of several different ores, the cost per unit (pound or ton) of the recoverable sulphur, laid down at the works, should be ascertained by the most convenient method. Where quotations are given for ore at other points than f. o. b. works it is obvious that the freight charges from the point at which the quotation is offered to the point of delivery, and all other extra handling, storage, and insurance charges must be included.

The following table gives the sulphur contents of pyrites ores in pounds per ton, both long and short, for percentages between 30 and the maximum.

Sulphur Contents of Pyrites Ores

Percent sulphur content.	Sulphur in lbs. per ton of 2,000 lbs.		Percent Sulphur content.	Sulphur in lbs. per ton of 2,000 lbs.	
53.34%	1,066.80	1,194.81	41%	280.	918.40
52.	1,040.	1,164.80	40.	800.	896.00
51.	1,020.	1,142.40	39.	780.	873.60
50.	1,000.	1,120.00	38.	760.	851.20
49.	980.	1,097.60	37.	740.	828.80
48.	960.	1,075.20	36.	720.	806.40
47.	940.	1,052.80	35.	700.	784.00
46.	920.	1,030.40	34.	680.	761.60
45.	900.	1,008.00	33.	660.	739.20
44.	880.	985.60	32.	640.	716.80
43.	860.	963.20	31.	620.	694.40
42.	840.	940.80	30.	600.	672.00

* These methods are discussed by F. J. Falding in *Mineral Industry*, Vol. VII, 1898, pp. 653-4. See also "Pyrites in Canada," *Mines Branch Report*, No. 167, Ottawa, 1912, page 30.

Production of Sulphuric Dioxide

Pyrites ores are subjected to a roasting process in specially designed furnaces for the purpose of burning as much of the sulphur contents as possible, with oxygen obtained from air, to produce sulphur dioxide gas.

Pyrites ores, as they come from the mine, are not usually suitable for charging into furnaces immediately. It is almost always necessary to break up the larger lumps in order to burn the sulphur completely. This is sometimes done at the mine, but more frequently at the works. At the mines the ore is usually passed directly over a grizzly (coarse screen) from the skip or hoisting bucket. The oversize passes through some form of rock crusher, the large lumps being spalled. Gangue and rock matter are picked out by hand on the crusher floor. The crushed ore and the undersize pass through trommels or screens to separate the lump from the fines. In some mills, where finer crushing is required, a second set of jaw crushers may be employed, or rolls, or both. At many chemical works run of mine ore is purchased. At these works the ore is often broken by hand and then screened to separate the fines from the lump.

The sulphite mill will probably utilize only the smaller sizes of ore, known as fines—ore that will pass a 3/8-inch screen. It would probably be more advantageous to purchase this ore already crushed at the mine. When run of mine ore is purchased, it will be necessary to install a crushing and screening equipment. The cost of crushing at a mill requiring less than one hundred tons of ore per day will be between 15 and 20 cents per ton under present conditions. Under certain conditions as to labor, continuity of operation, and type of equipment installed, the ore for a large plant could be crushed at a much lower cost.

The small sizes of pyrites ore are roasted in furnaces of a special type—usually arranged so that the burning ore may be stirred intermittently, either by hand or by mechanical means, to promote combustion and to prevent undue heating and slagging. The gas obtained from these burners, especially some of the more improved forms, is richer in sulphur than the gas from lump burners, and can be made practically free from sulphur trioxide. Fines burners are largely used in acid works in conjunction with lump burners, and, in Europe, they have been installed in a great many paper mills.

Types of Furnaces

Since lump burners are not especially adapted to sulphite mill practice they are not discussed here. Fines burners may be classified according to the method of operation as **Hand Fired**, and **Mechanically operated**. Each of these types can again be sub-divided into the single hearth and multiple hearth types, according as they are comprised of a single hearth, or of several superposed hearths. In some few plants in Europe hand-fired furnaces have been used in sulphite mill practice. Their operation is not so satisfactory as that of the mechanically operated types and they need not be considered here.

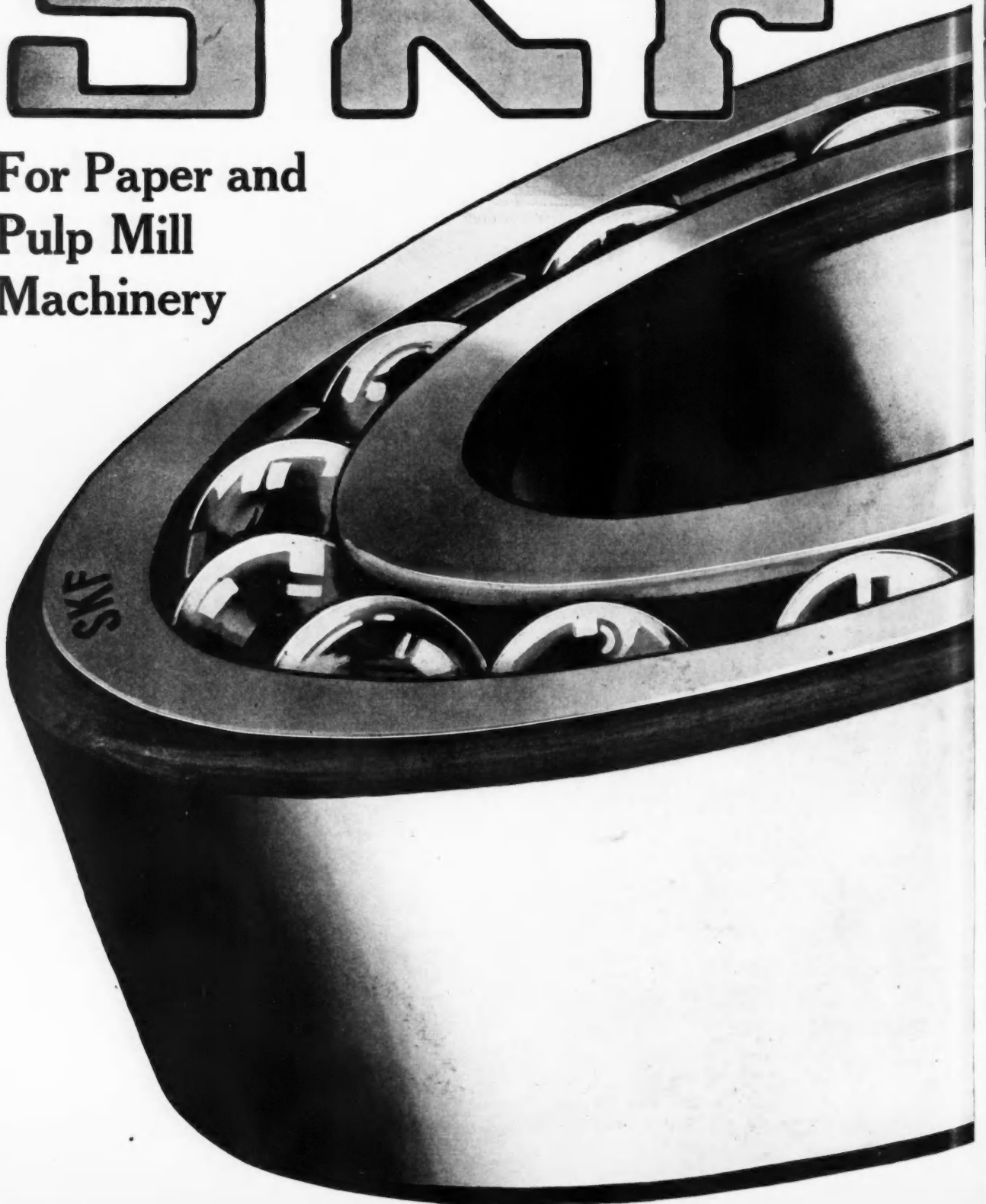
Mechanically Operated Furnaces

Two types may be recognized—those in which the hearth is stationary and the roasting ore is stirred by rotating arms, and the type in which the hearth itself is movable. Single hearth furnaces of the movable arm type need not be considered.

Multiple hearth furnaces may have rectangular or circular hearths. The group of furnaces with circular hearths and movable stirring arms are sometimes referred to as the MacDougall type of furnace, named from the original inventors, MacDougall Brothers, who introduced it in the early seventies of the last century for roasting pyrites in a sulphuric acid plant. It will be sufficient for our present purpose to describe three

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types of multiple hearth furnaces:—the Merton with rectangular hearths, and the Herreshoff and Wedge furnaces with circular hearths. The only furnace with movable hearth that needs to be considered is the Jones type.

Merton Roasting Furnace

This furnace, which is now coming into use in acid works in Great Britain, differs from the ordinary mechanical roasters in a number of important particulars. The accompanying figures 1 and 2 show a cross and longitudinal section respectively of the furnace for roasting pyrites ore. The furnace is constructed of brick with concrete blocks for the shaft pedestals. It is provided with three (several) hearths, rectangular in plan. As shown in the cross section, these hearths are arched to span the narrower dimension of the furnace. Two vertical shafts, carrying rabble arms, are provided, the distance from centre to centre of the shafts being slightly less than the transverse dimension of the hearth. The shafts are rotated by means of machine cut worm gearing running in oil, and, wherever practicable, ball bearings are used to minimize friction. Both shafts are water cooled throughout. The rables are movable on the rabble arms, and can easily be renewed, being simply slipped on and off. They are arranged in two rows, on each arm, one being slightly in advance of, the other just behind, the rabble arm, so that the whole of the hearth is efficiently stirred.

The ore is fed through a hopper to the top floor of the furnace. It is worked along this floor by the rables, and on

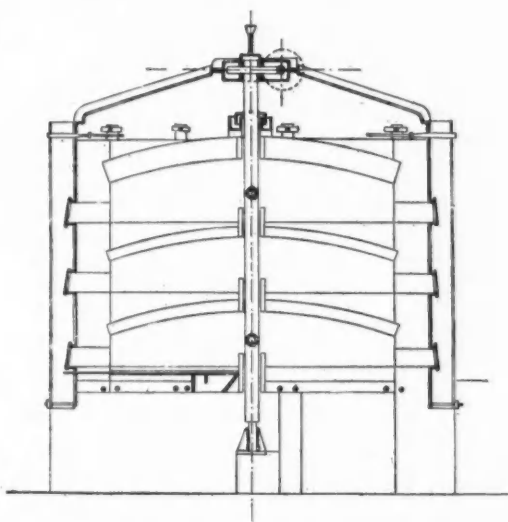


FIG. 1. MERTON ROASTING FURNACE, VERTICAL CROSS SECTION.

reaching the end, it drops through the ports to the floor beneath. Here it is worked along in a similar way, but in the opposite direction, until it reaches the ports at the other end of this second hearth, when it falls to the third hearth. It thus travels from hearth to hearth, and finally the desulphurized and oxidized cinder is withdrawn from the bottom floor. The air for combustion is admitted in the reversed direction to the progress of the ore, and the products of combustion pass out by the furnace flue from the top floor close to the feed hopper. Working doors are provided to each floor, but they are only used for inspection purposes, or when the furnace is in need of repairs.

An auxiliary fire box is supplied to these furnaces, where an outside source of heat is required for oxidizing certain ores, or for starting the roasting of very low grade pyrites.

A standard furnace of this type will treat 5.5-6 tons of pyrites per day with a power consumption of 1.5 H.P.

It is claimed that a furnace of this type produces a minimum of dust, because the ore travels over the hearth area covered by the two rabble arms between each drop. Any dust produced has an opportunity of settling before passing from the furnace.

The repair bill is extremely small, renewals being practically confined to the rables.

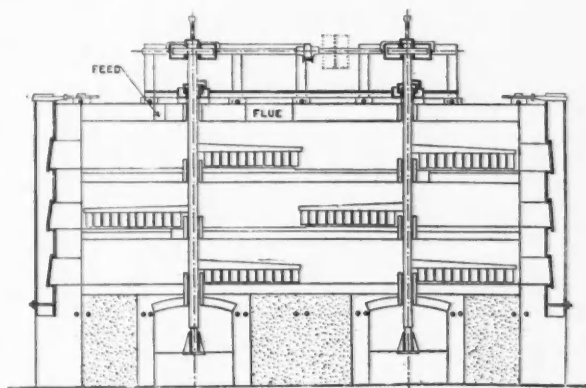


FIG. 2. MERTON ROASTING FURNACE, VERTICAL LONGITUDINAL SECTION.

The cost of this furnace was £480, or \$2,335.00, in 1912.

Herreshoff Roasting Furnace*

This well known furnace is widely used in acid works throughout both America and Europe for the manufacture of sulphur dioxide; furnaces of this type have also been installed in a number of European sulphite mills. They are employed in some metallurgical works for preliminary roasting of sulphide ores, and have been used with success in the roasting of ore containing pyrites and sphalerite, in preparation for magnetic separation. Pyrrhotite has also been successfully roasted in furnaces of this type. (See Figure 3.)

The entire furnace is mounted on six cast iron columns, each five feet in height. The central shaft rests in oil thrust-bearings at the base, where power is applied by means of gears. A shear pin is provided in the driving mechanism which acts as a safety device in case of undue strain.

Several different types of feed are adopted in different installations, dependent on the nature of the operation. One method of feeding is by spreading the ore on top of the roaster with rables similar to those in the furnace, the ore being dried in this way and at the same time fed gradually to the hearth below. Screw feeds and reciprocating plunger feeds are also employed.

In colder districts, it has been found an advantage to substitute an extra course of brick, bound with iron bands, for the steel sheathing which surrounds the furnace, thus further reducing the heat losses.

Operation

When in operation, the floors of each hearth, which follow the curve of the arch, are leveled by introducing a sufficient quantity of cinders or other similar material. Where the top of the furnace is not used as a dryer, the arch above the highest hearth is also covered to a depth of several inches with cinder or sand to retain the heat.

Ore is brought to the feed hopper at the top of the furnace either in barrows or by elevators or conveyors. From the

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hopper it is fed automatically into the furnace, and is then stirred and distributed by the rabblers on the revolving rabble arms—the feed being driven by gears attached to the central shaft.

The angles at which the rabble teeth are set are so calculated that the ore is propelled in the direction of the radius as well as in a circle, one rabble acting in the above manner while the next following rabble takes the same ore and simply turns it over. This causes each individual piece of ore to travel on a path which might be termed a zigzag spiral, and is a most

on the third and fourth, while on the fifth it is nearly complete. On the sixth the ore appears dark, and the roasting is complete.

For dead roasting, under ordinary circumstances, the shaft makes one revolution in 150 seconds; for metallurgical work, one revolution in 70 seconds.

In acid plants, an old style, 5 hearth furnace treats 3–4 tons of pyrites, 44 per cent sulphur, or 0.0098 tons per square foot of hearth area, reducing the sulphur to 2.5–3.5 per cent; the shaft makes 30 revolutions per hour. The larger (15' 9 $\frac{3}{4}$ ") furnace will roast about 18,000 pounds per 24 hours. The capacity of the furnaces will vary with the chemical composition and physical character of the ore used, together with the kind of roast required (dead, magnetic, or metallurgical), and would have to be determined for each particular case before definite capacities can be estimated. In general it can be assumed that capacities are lowest for dead roasting and greatest in metallurgical work.

The operation of the furnace can be regulated by any of the following methods, so as to produce the result desired:

- 1.—Changing speed of rotation of central shaft and rabblers.
- 2.—Changing rate of feed.
- 3.—Changing draft.
- 4.—Changing amount of cooling air by which the temperature inside the furnace is controlled.

In practice it is found that the principal cost for repairs to the small type of furnace is due to the burning out of the rabble arms. According to the makers, about 6 arms per year have to be renewed at a cost of between \$20 and \$30.* With the furnace of new design, which has a more efficient system of cooling the movable arms, and in which individual rabblers or rabble teeth can be readily replaced, the life of the arms will be much greater. On the smaller and medium sized furnaces, the arms, which fit into sockets, can be easily renewed in a few minutes with very little disturbance of the furnace operations. The breaking down of a bolted arm in the newer large furnaces, although it may not occur frequently, will put the furnace out of commission for about one week, as the furnace will have first to be cooled sufficiently to enable the workmen to replace the arm, and will then have to be heated up again.

The most distinctive feature of the new type of this furnace is the effective control of temperature within the furnace, that is, by the mechanical circulation of more or less of the cooling air through the hollow shaft and arms a correspondingly greater or less amount of heat is withdrawn. This control of the temperatures within the furnace will tend to prevent scarring by enabling the operator to maintain the temperature of the ore below the sintering point in the zone of maximum heat generation.

A study of the accompanying drawing (figure 3) will give the reader a very good idea of the general construction of the latest design of the Herreshoff furnaces.

Wedge Mechanical Roaster†

This furnace is built with one, three, five, or seven hearths, the different styles of furnaces being adapted to different problems. (See figure 4.)

Construction

This furnace consists of a cylindrical riveted steel shell encasing walls of hard burned, red brick. The hearths are constructed of special shaped fire brick, and are made horizontal, each hearth, however, forming an arch above the one below.

The most characteristic feature of the Wedge furnace is the central shaft, 5' in diameter. This shaft is made of riveted steel plate. The outside of the shaft is protected by fire brick,

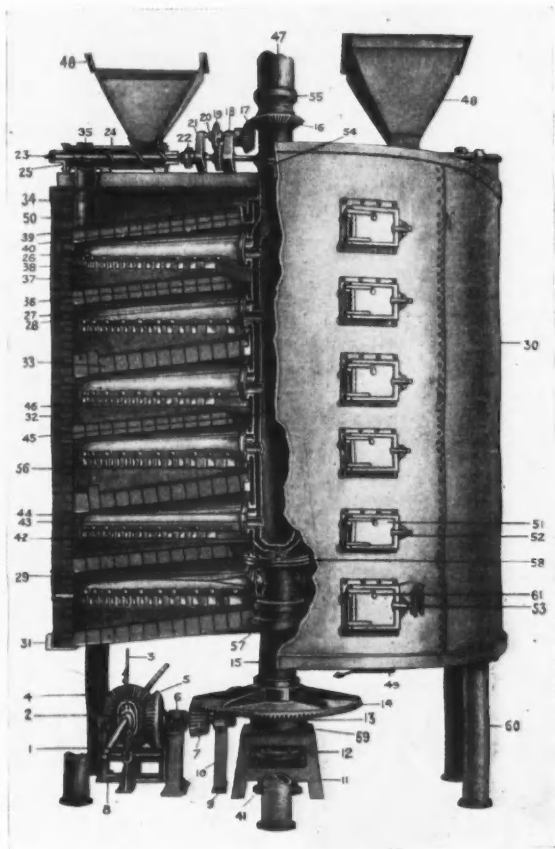


FIG. 3. HERRESHOFF MECHANICAL ROASTING FURNACE.

perfect method to insure the exposure of a large quantity of ore surface to the oxidizing action of the air.

In the 15' 9 $\frac{3}{4}$ " furnace, the ore drops from the top shelf of the furnace to the outer edge of the hearth below; it is then rabbled inward and drops to the inner edge (centre of furnace) of the second hearth; from there it is rabbled onward and drops on the outer edge of the third hearth, and so on alternately to the two cinder-discharge ports on the periphery of the bottom hearth.

The air for oxidizing is admitted through ports around the sides of the furnace over the bottom hearth. It circulates through the furnace by the openings on the inner and outer edges respectively of each hearth, these openings being made large enough to give a free passage to the upward current of gases as well as to the downward moving stream of ore. The space above the topmost shelf acts as a gas chamber.

When this furnace is in operation, and when the top of the furnace is not used as a dryer, the drying is done on the first hearth. Roasting starts on the second hearth, continues freely

*In 1912. At present add 50 per cent.

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made in special shapes, which are attached to and revolve with it. This hollow shaft is open at both top and bottom, and the natural draft of air through it keeps it sufficiently cool for a workman to enter at any time. The large shaft is employed to give access to the arms from the inside.

Each rabble arm is cast in one piece, and made hollow, with a web down the centre. The rear end is machined and fitted with a plate bored for two water-pipes—one leading to each side of the median web, these two spaces being jointed at the tip of the arm. When in operation, the water-pipes are con-

held rigid. The cutting blade may also be slid into position in the same manner as the rabble blade, and the holders can be pushed from the outer end of the arm towards the centre. As the arm revolves, the hearth will be mechanically plowed up or milled. These blades will be employed only where there is a tendency for the roasting ore to bake or cake on the hearth.

Rabbles and rabble blade holders are simple castings, are not machined, and can be cast in a local foundry.

The furnace is mounted on a structural steel frame carried on steel columns. Power is applied by gears to the central shaft from a main shaft below. A shear pin is employed in the driving mechanism for safety.

Operation

Ore is brought to the feeding hopper above the furnace either in barrows or automatically by conveyors, the latter being preferable on account of the capacity of the furnaces. Ore falls from the hopper upon the top of the furnace, where it is spread out and stirred by special rabbles. The heat received by the arch above the upper hearth is utilized in drying the ore before it is fed to the hearths. Ore containing 6%—8% moisture can be efficiently dried in this way.

The dried ore falls upon the first hearth near its centre; here the rabbles work it gradually outward in a spiral path to the periphery, where it falls upon the second hearth. On the first, third, fifth, and seventh hearths, the ore travels radially outward, and on the second, fourth and sixth it travels in the opposite direction. The cinder is discharged through ports on the periphery of the lowest hearth, either into barrows, or to some form of conveyor.

The air for oxidizing is admitted through ports on the sides, usually on the lowest hearth.

These furnaces are built in a number of sizes, three of which are of interest to the sulphite mill operator. The sizes and capacity are shown in the following table:—

Wedge Furnaces. Size and Capacity

Diameter Outside.	Diameter of Shaft.	Number of Hearths.	Hearth Area. Sq. Feet.	Weight of Metal Parts	Maximum Capacity in 24 Hours. Tons of 2,000 Pounds*
21' 6"	5'	7	2,007	130,000 lbs.	23.0
22' 6"	5'	7	2,230		26.0
25' 0"	5'	7	2,835		33.0

*In the capacity column these figures are based on roasting pyrites containing 50 per cent. sulphur, and reducing the sulphur to 2 per cent. in the cinder.

Jones Cylindrical Roasting Furnace

(Description based on Canadian Patent Number 141,243).— This burner is designed to produce sulphur dioxide gas by roasting pyrites in a rotary kiln in an atmosphere containing air and sulphur dioxide gas made by burning commercial sulphur in an auxiliary sulphur burner. The earlier type of Jones burner (United States Patent No. 872,822) consisted of a rotary cylindrical kiln lined with fire brick; three rows of brick at equal distances apart, projecting beyond the others and forming three ridges running the length of the cylinder, acted as agitators as the kiln revolved. The more recent type of kiln (Canadian Patent No. 141,243) is divided into a number of compartments by a fire brick lining as described below. In this type of kiln a central cylindrical passageway or tube is provided for the purpose of conducting vaporized sulphur or any other heat producing material to the combustion zone of the kiln. In practice the sulphur contained in the ore is ignited by the combustion of this vapor; afterward the heat developed may be sufficient to maintain the combustion of the ore with-

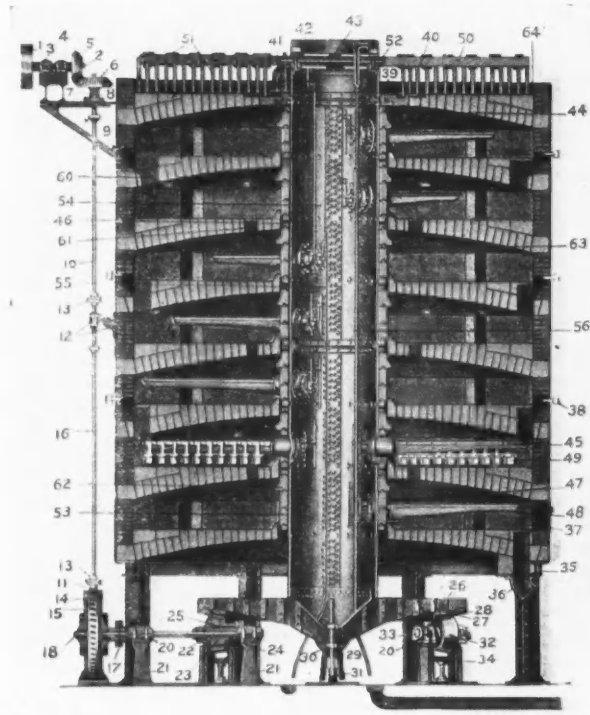


FIG. 4. WEDGE MECHANICAL ROASTING FURNACE.

nected with a water supply, and the shaft and arms are kept cool by the circulating water.

The butts of the rabble arms pass through the sides of the shaft, two for each hearth, and each is held in place by a special locking device without loose parts. When it becomes necessary to change an arm, the power is shut off, a workman enters the shaft and releases the arm. It is then withdrawn by other workmen, operating from the outside, the rabbles having previously been removed, and the new arm is inserted. The workman in the shaft refastens it in place, and the arm is ready to receive the rabbles. An arm can be changed in about 40 minutes, providing everything is made ready before stopping the furnace.

Several varieties of rabble blade holders and rabble blades are used in the Wedge furnaces, according to the purpose for which they are required. The rabble blade holders are not bound to the arm at the heel, and if they stick or bind on the arm and will not slide off easily, though they can be tipped off easily if necessary.

A special dryer-plow, holder, and rabble are used on the top of the furnace. The wear is on the bottom of the rabble blade, hence this is made with a series of staggered bolt holes that it may be lowered, when worn—to secure economy in castings. The rabble blade is made to slide on the arm so that it may be

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out supplying additional fuel. Another feature of the process is the pre-heating of the ore to such a degree that the moment it enters the burning zone the sulphur of the ore will ignite and burn. A dust separator of special design is also employed with the Jones equipment.

The kiln is a rotary cylinder mounted upon anti-friction rollers at a slight inclination (Figure 5.) A sulphur burning furnace or vaporizer is placed adjacent to the exit end of the

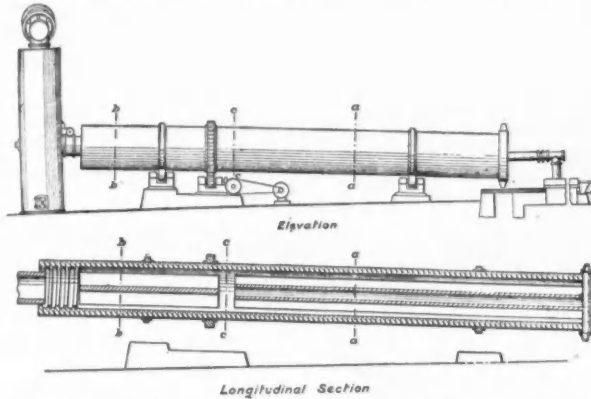


FIGURE 5. JONES ROTARY KILN FOR ROASTING PYRITES. ELEVATION AND LONGITUDINAL SECTION

kiln and starting the combustion of the sulphur in the ore. Sulphur can be vaporized by burning, to be used for heating up the kiln and starting the combustion of the sulphur in the ore. Sulphur is fed into this oven through a suitable feed hopper. A pipe to conduct the vaporized sulphur to the kiln communicates between the oven and the discharge hood of the kiln, into

which latter the cinder from the burnt ore falls in making exit from the furnace.

In operating a plant of this type, combustion is started by burning a sufficient quantity of commercial sulphur or other heat producing agent within the sulphur furnace. The vaporized sulphur is conveyed through the central duct in the kiln to the combustion chamber, where it ignites and heats the partitions within the kiln to incandescence. When the partitions are heated to the proper temperature, the kiln is ready to receive ore from the hopper. Pyrites ore, crushed preferably to about $\frac{3}{4}$ " size, is fed through a chute into the drying cylinder. Under the influence of heat from the gas conduit which forms the core of this cylinder and because of the agitation produced by the wings of the slowly revolving dryer, the moisture in the ore is driven off. This moisture may be conducted from the cylinder by any suitable stack. The ore passes forward in the dryer to the discharge opening and falls into the feed hopper in the stack. Drying has been found essential to prevent the formation of sulphuric acid when the sulphur dioxide gas is required for the manufacture of sulphite pulp. After the ore has been discharged into the hopper it again receives the heat of the gases from the kiln as these gases surround the ore hopper in the stack. The highly heated ore is fed into the kiln by a worm feed, and is pushed forward by the worm threads built on the inner walls of the kiln at the inlet end.

The gas formed by the oxidation of the pyrite ores in the kiln is conducted by means of suction draught, into the dust trap, after passing about the hopper in the stack. The gas, containing a certain amount of dust, passes through the piano wire screens, which are suspended from the roof of the dust trap. These cause the dust to settle. Tests have shown that the current of dust-laden gases causes the fine wires to vibrate

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and intercept the dust particles. From the dust chamber the gases are conducted into the cooler pipe where they circulate through pipes submerged in a cooling medium, usually water. From the cooler the gases pass into the expansion chamber, where any further particles of dust are precipitated. The cool

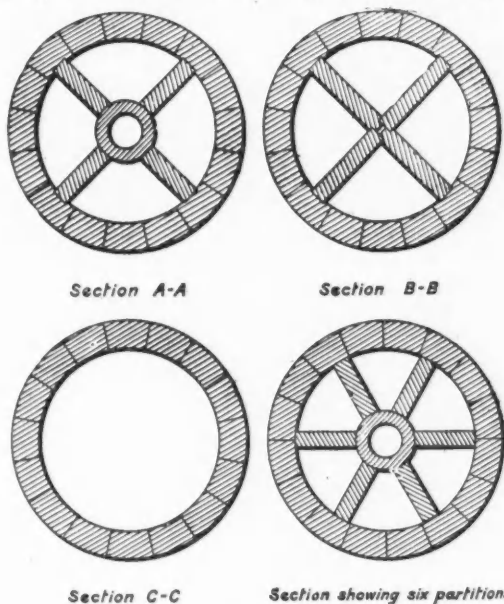


FIG. 6. CROSS SECTIONS OF JONES ROTARY KILN SHOWING LINING AND PARTITIONS.

and purified sulphur dioxide gas is now ready for use in making sulphurous or sulphuric acid.

A furnace of this type 8' in diameter and 80' in length is capable of burning about 15,000 pounds of sulphur per day, provided a suitable ore is used. The inventor recommends a unit 100' in length, with the lining divided into 6 compartments. Such a furnace should be capable of burning 18,000 pounds of sulphur per day, with suitable ore, producing a gas averaging about 10 per cent sulphur dioxide.

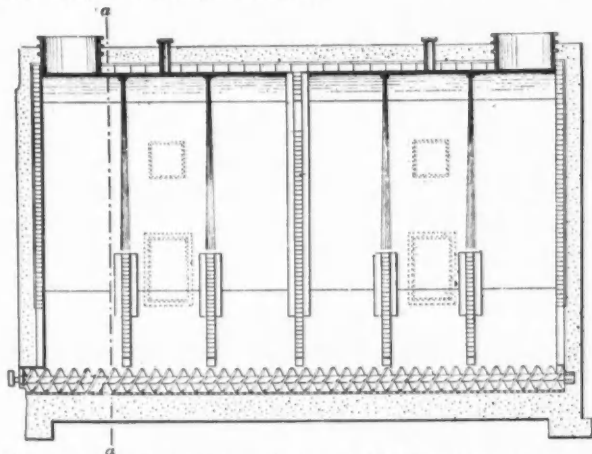


FIG. 8. JONES DUST TRAP. LONGITUDINAL SECTION ON LINE B-B, FIGURE 9.

With high grade ores a furnace of this type would require very careful handling to prevent slagging, particularly if the ore was very fine. This burner operates best on ores containing less than 40 per cent sulphur and relatively coarse in texture.

Furnaces for Sulphite Practice

European mills, during the period of the development of sulphite practice, have, in one place or another, used nearly every type of pyrites burner employed by the sulphuric acid maker. In America pyrites burning appliances have been em-

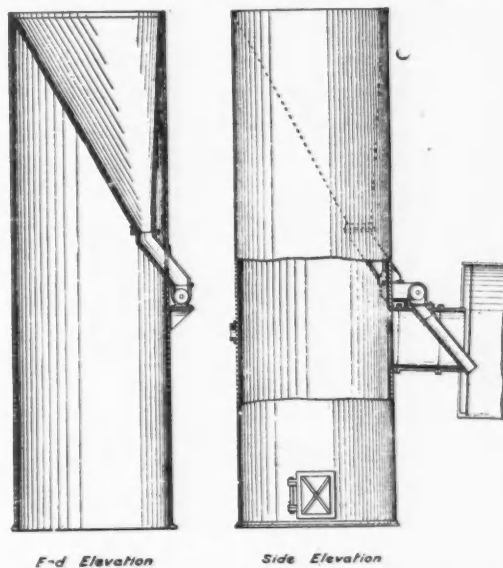


FIG. 7. JONES KILN. STACK SHOWING ORE HOPPER AND FEED.

ployed in only four sulphite mills. Two of these are equipped with Wedge burners; one used Sjöstedt's modification of the

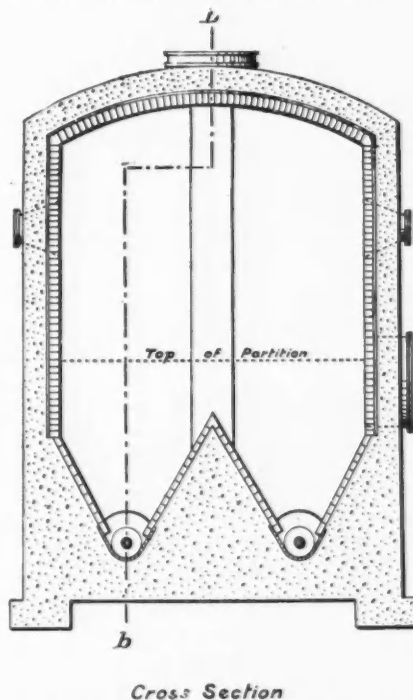


FIG. 9. JONES DUST TRAP. LONGITUDINAL SECTION ON LINE A-A, FIGURE 8.

MacDougall type of burner, in batteries of four units; and the fourth used a Jones rotary kiln. Sjöstedt's experiments at Sault Ste. Marie were made in 1902-04, and he himself consid-

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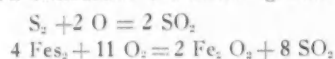
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Chicago, Ill.

ered the results as satisfactory.* The plant using the Jones rotary kiln was burned, and the two other installations are still available, but not actually in operation to-day.

Any one of the four types of mechanical furnaces described in the foregoing paragraphs could be operated commercially in a sulphite mill. There are also several furnaces of the Mac-Dougall type, with multiple hearths, differing in details of construction from the two mentioned above, which would prove efficient. Satisfactory data as to the comparative cost of installation and cost of operation of these different types of furnaces are not available. As a rule it may be stated that the furnace with the least number of moving parts, with fewest vents to be regulated, and requiring least attention and supervision will be the best to employ. Furnaces of standard design, interchangeable and easily replaceable parts, will ordinarily give the best service.

Character of the Gases Produced

The relative value of the gas as prepared from sulphur and from pyrites may be inferred from the following comparison, assuming that air contains 20.5 per cent oxygen by volume. On combustion the following reactions take place:—



Hence when sulphur is burned in air the theoretical maximum volume of sulphur dioxide present in the gas resulting from the combustion will be the same as that of the original oxygen, namely 20.5 per cent. When pyrites is burned a portion of the oxygen of the air unites with the iron to form ferric oxide; if the combustion is complete eight-elevenths of the oxygen will unite with the sulphur of the pyrites to form sulphur dioxide, and the volume of the dioxide produced will be $\frac{8}{11}$ of $20.5 = 14.9$ per cent of the volume of the air consumed.

The gas produced by a modern multiple hearth mechanical roaster will contain from 8 to 12 per cent sulphur dioxide. Sulphur burners produce a gas ranging from 12 to 16 per cent sulphur dioxide. If a gas richer than 16 per cent is made great care is necessary to prevent loss of sulphur by sublimation, owing to imperfect combustion.

If we consider the relative values of the gases made by each of the two methods, we will find, on the one hand, that the gas made by burning sulphur contains from two to three times as much free oxygen as that made from pyrites. The presence of free oxygen is objectionable, because it may lead to the oxidation of the sulphurous acid in the towers and to the formation of insoluble sulphates in the liquors. On the other hand, an objection arises from the supposed difficulty of making a satisfactory liquor from the weaker gas produced by pyrite burning. In answer to this it may be stated that it is only necessary to pass about thirty per cent more gas through the absorption towers to produce the same results. If the gas is properly and adequately cooled the absorption will be better than in ordinary sulphur burning equipments. Moreover, sulphuric acid makers have been using gas made from pyrites for more than a century and they experience no serious difficulty in making much stronger liquors (of a different composition, it is true) for the manufacture of sulphuric acid.

In the experiments at Sault Ste. Marie, it was found that with a tower system, and with cold water from Lake Superior, a 12-14 per cent gas was more economical for the production of liquor than a richer gas. A gas of this strength, made in the roasting and gas cleaning plants, gave better and more economical results than that made from sulphur in the sulphur burners.

The question of the utilization of pyrites as a substitute for sulphur in a sulphite mill is no longer dependent on technical

difficulties of manufacture. A gas free from dust and of suitable strength can be produced, and this gas can be used to prepare a suitable liquor. The crux of the matter is the **relative cost of the gas**. Where mills are so situated that sulphur can be obtained easily and cheaply, while pyrites is not so cheaply available, they should use the cheaper material. On the other hand, there are many mills so located that they could substitute pyrites for sulphur, and at the present relative market prices they would make a notable saving in their annual costs.

Utilization of Pyrites Cinders

The residue left, after roasting pyrites, consists of ferric oxide, silica, alumina, and other impurities of the original ore, together with a small portion of unaltered sulphides, and oxides or sulphates of other metals than iron which were present in the original ore and were not volatilized. The sulphur content will vary from less than one to more than five per cent, rarely less than two per cent. Where the cinder contains copper and the precious metals these are recovered by a leaching process, or by ordinary smelter treatment. Where the leaching process is used, the cinder is roasted with common salt in a suitable furnace; the copper and gold are thus converted into soluble chlorides and are removed by leaching with water. The residues after leaching form a nearly pure iron ore, which is sintered in a cylindrical rotary kiln, fired with coal dust, such as is used in cement plants. The ore becomes nodulized and is subsequently utilized in a blast furnace. Cinders which do not contain valuable constituents other than iron, can be nodulized in a cement kiln in the same way, the sulphur will be burned off, and the residue, if free from phosphorus, will constitute a high grade iron ore.

Pyrites cinders are suitable for the manufacture of certain ferro-alloys, especially ferro-silicon.

Attempts have been made to grind them, screen, and wash the product, to produce a pigment for mortar color, bridge paint, and other similar uses.

Cinders are only valuable under exceptional circumstances, as to a nearby market. In the majority of cases sulphite mills in Canada would probably find that the amount of cinder produced per day would be too small to market. Those mills close to one or the other of our iron or steel plants might be able to market their residues, if properly prepared, but the majority of plants would be compelled to utilize them for road making, filling, or for other similar uses.

Pyrites Burning Equipment for a Sulphite Mill

There is one point that should be kept in mind in designing a pyrites burning equipment for a sulphite mill,—as far as possible all units which are apt to get out of order, or to need repairs, should be in duplicate, or at least one reserve unit should be provided.

An efficient plant will be designed to reduce labor charges to a minimum by the introduction of mechanical handling of ore and cinder. In determining the location of the plant and in making the design, as full advantage of the location as possible should be taken in providing for convenient and cheap methods of moving ore and cinder. Nearly all furnaces are provided with hoppers that hold about a ton of ore. In a few modern plants cylindrical hoppers with conical bottoms are employed, being made large enough to hold ore for eight or twelve hours' run. Where the conditions will allow it, ore should be delivered to storage bins above the level of the tops of the feed hoppers of the furnaces. Where a number of feed furnaces are operated as a battery, the ore can be distributed to the feed hoppers of the several furnaces by belt or bucket conveyors. In smaller plants it is still customary to use barrows and hand labor to fill the hoppers. Unless labor is very

*Pyrites in Canada, p. 159; Eng. & Min. Jour., Vol. 81, 1906, p. 803.

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cheap this cannot be considered an economical method of moving either ore or cinder.

Many plants provided with elevators, conveyors, and mechanical feeders, still employ iron barrows and hand labor for removing the cinder. In small plants using high grade pyrites, this may be economical under local labor conditions. A plant operating on low grade ores, where the cinder forms from 50 to 65 per cent or more of the original ore, should be provided with belt and bucket conveyors to remove the cinders to a special discharge bin. The contents of the cinder bin can then be removed intermittently through chutes to cars or to cars for final disposal.

The equipment required for a sulphite mill will consist of the following units: Roasting furnaces, flue, dust catcher, scrubber, cooler, fans and pumps, absorption system.

1. Roasting Furnaces

The number of furnaces and the size of the unit selected will depend upon the required daily output of sulphite, and upon the quality and quantity of ore to be handled. It is desirable to assume that the equipment may be called upon to utilize low-grade ores, at least occasionally, and it is well to provide sufficient roasting capacity at the start. For example, a mill producing 100 tons of sulphite per day requires the combustion of about 27,000 pounds of sulphur. Assuming that a 35 per cent. ore with 33 per cent. recoverable sulphur is available, the yield per long ton of ore will be 739 pounds of sulphur, and therefore 36.5 tons of this ore per day must be handled and roasted. A reference to a table of furnace capacities will show that this amount could best be treated by two units of rated capacity in excess of 20 tons per day, say about 25 tons each. In all but the smallest plants a certain amount of capacity should be held in reserve, in case it should become necessary to shut down any one furnace for repairs. Modern mechanical roasters are so constructed, however, that lengthy shutdowns are rare; minor repairs, such as replacing rabblers or arms can usually be made in at most a few hours.

The auxiliary equipment for moving ore to the furnaces, and for removing cinder should be designed to suit local conditions, and to operate with the minimum of attention.

2. Flue

The flues, leading from the top hearth of each furnace will discharge into a common main flue. If the cross section of this flue is made large enough, so that the lineal velocity of the stream of gas is materially checked, the coarser particles of dust will be deposited in its bottom. It is therefore advisable to make the bottom hopper or cone shaped, and to provide doors through which accumulations of dust can be removed. The height of these doors above the floor should be such that a discharge car or wheelbarrow can be placed beneath to catch the dust drawn from the hoppers.

3. Dust Catcher

A properly designed main flue can be made to act as dust catcher. The finer particles of dust will not be deposited in the main flue unless it is very large, and it becomes necessary to provide a special chamber for this purpose.

Flue dust can be made to deposit by cooling, by retarding the velocity of the current of gas, by the introduction of surfaces against which the gas will impinge and to which the dust particles will cling, or by electrifying the particles of dust with static electricity, and collecting them by attraction on suitable surfaces provided for the purpose.

One of the simplest modifications of the ordinary flue is the introduction of baffle walls whereby the gas current is made to take a zig-zag course. The baffles may be in the form of partitions reaching nearly across the flue, from each side alternately, so that the gas must flow in a zig-zag course in a horizontal plane. Again, the baffles may take the form of partitions

which reach completely across the flue, openings being left at top and bottom alternately; the path of the gas will be a zig-zag course in a vertical plane. Screens formed by bundles of wires hanging from the top, with the lower ends free, can be used in place of vertical walls inside the chamber, and they form a very efficient screen.

The introduction of baffle walls lying across the path of the current tends to interfere seriously with the draft. This interference is partially obviated in another type of dust chamber where baffles are placed horizontally, parallel to the direction in which the current is traveling. In the Howard dust chamber these plates are placed only two inches apart. Their operation is said to be very effective.

The most recent and most effective process for cleaning gases is the Cottrell process. In this process all the gas is passed through specially designed conduits in which the dust particles are electrified by a high potential static discharge, and are attracted to and deposited upon suitable collecting surfaces. The accumulations of dust, when too heavy to cling to the surfaces, drop to a discharge hopper in the base of the cleaner.

An efficient dust collector must be provided with a suitable means for removing the accumulated dust from time to time, without disturbing the current of gas, and without even temporarily increasing the amount of dust carried forward into the scrubbers.

4. Scrubbers

Before passing to the absorption system the gas should be given a final washing in some kind of scrubber. The simplest washer is the vertical type, which consists of a steel cylinder about three times as high as it is wide, in which an ascending current of gas meets a descending shower of spray from a rose jet or jets in the top of the machine.

In another form a small tower is filled with coke, broken quartz rock, brick or special porcelain cylinders. The washing is accomplished by spraying water over the top of the packing and gas is admitted from below.

Another type, in use in sulphite mills in Europe, and used in a few plants in America, is a rotary washer, such as the Feld or the Petersen, in which the passing stream of gas is washed and purified by a horizontal spray delivered from a rotating discharging cylinder.

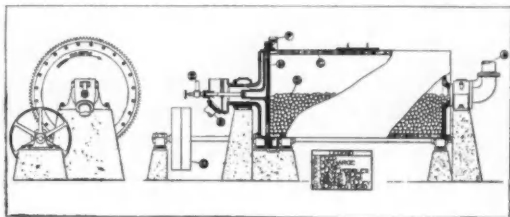
Details of the construction of the several types of scrubbers will be found in the technical works on the manufacture of sulphuric acid. Some very effective forms of scrubbers are protected by patents, but these can usually be supplied complete by the manufacturers of mechanical rotary furnaces.

The water used for the spray can be circulated by a centrifugal pump and used over and over again. It will practically become a mixture of sulphurous and sulphuric acids. Where acid is required around the works it can from time to time be drawn off and fresh water added. Otherwise, when it becomes too strong and overloaded with dust it may be discharged and fresh water added.

In installing the scrubbers for a sulphite plant it will probably be found advantageous not to throw the whole burden of cleaning the gases on a single scrubber. Where scrubbers of the spray type are used, any unusual disturbance of the dust chambers may suddenly precipitate a large amount of dust into the scrubber, choke it, send unclean gas into the coolers, and necessitate a shutdown. Danger of this kind can be guarded against by introducing scrubbers in series. For example, a set consisting of a heavy water spray scrubber, followed by a brick (quartz or coke) scrubber, would be found both effective and easy to operate.

5. Cooler

The maximum absorption of sulphur dioxide in water takes place at freezing temperature, 32 degrees Fahrenheit. At this temperature and at standard (sea level) atmospheric pressure one volume of water will absorb 70.8 volumes of sulphur dioxide gas. This



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saturated solution will contain about 18.58 parts by weight of sulphur dioxide. At 20 degrees C or 68 degrees F. the absorption is 39.4 per cent., or 10.12 parts by weight. It is therefore obvious that the gases should be at least cooled to the temperature of the water in the absorption system and lower if possible, and that the water in the absorption system should be kept as cool as possible. The ordinary process of cooling consists of sending the gases through a series of large pipes immersed in a bath of circulating water, means being provided for flushing out the cooling pipes occasionally to remove dust accumulations.

It is suggested that in a sulphite mill equipment it might be advantageous to introduce one or more units of auxiliary coolers placed in the open air outside the dust chamber. These coolers would consist of two vertical pipes, standing side by side, connected at the top by an inverted U. The base of one pipe would be directly connected with the exit from the dust chamber, the base of the other would lead to the fan and thence to the scrubber.

6. Fans and Pumps

In a sulphite pulp mill equipment it is necessary to introduce a fan somewhere in the circulatory gas system to regulate the flow. The natural draft of the towers is not sufficient to produce the best results, and it will vary from day to day, according to the weather conditions. The gas current suffers retardation in the dust chambers, in the scrubbers, and in the coolers, and it is necessary to have some means of controlling the circulation. Some form of centrifugal fan is generally used for this purpose. The most convenient location in the system is probably just in front of the scrubbers. It then would act as a suction fan on the furnaces, and on the dust chambers and as a compression fan on the scrubbers, coolers and absorption system.

Auxiliary pumping equipment will be needed to keep the spray water of the scrubbers in circulation.

7. Absorption System

It is not necessary to discuss this equipment in detail. It will be sufficient to state that either the tower system or the tank system can be operated with pyrites burning equipment.

Operation of a Pyrites Burning Installation

A pyrites burning equipment for a hundred-ton mill will consist of the following units:

Two mechanical roasters, provided with hopper feeds, belt conveyors for charging ore to the hoppers and for removing cinders to the cinder bin.

Main flue—with dust discharge hoppers.

Dust chamber—with dust discharge hoppers.

Auxiliary cooler—with dust discharge hoppers.

Fan—driven by variable speed motor.

Scrubbers—with liquor tank and centrifugal circulating pump and driving motor.

Assuming three shifts per day, three furnace men and three laborers will be required in constant attendance. In addition, the mechanical equipment will require daily inspection by a machinist, and occasional repairs and adjustments.

It is obvious that the cost of operating will depend not only upon the quality of the pyrites ore used, but also upon the efficiency of the equipment installed and the efficiency with which it is operated. General estimates, not based on specific cases, are apt to be misleading, and their application to individual cases must be made with care and judgment.

The initial cost of installing a pyrites burning equipment is much greater than the cost of installing the best of the modern sulphur burners. This expenditure is justified, however, when elemental sulphur is not available, when the cost of raw sulphur is in excess of the equivalent amount of sulphur when obtained from pyrites, making due allowance for the additional capital required, or when, for business reasons, it is undesirable to be dependent on foreign interests for an essential commodity.

In estimating costs it may be assumed that run-of-mine pyrites ore is worth 10 cents per unit at the mine. Assuming a loss of 2 per cent. of the sulphur content, three long tons of 35 per cent. ore will be needed to produce a long ton of sulphur, 2.8 long tons of 37.5 per cent. ore, or 2.6 tons of 40 per cent. ore. Considering only the lower grade ore, the cost of one long ton of sulphur at the mine at 10 cents per unit will amount to \$10.50.

The cost of burning this ton of sulphur at the works may be estimated as follows:

Three tons ore.....	\$10.50
Freight, 200 miles, on 3 tons.....	4.50
Crushing and screening at mill.....	.48
Removing 2 tons cinders.....	.50
Labor, six men at \$3.00.....	1.50
Power, 10 horse power at \$2.00 per annum.....	.07
Excess supplies, oil, waste, etc.....	.05
	\$17.60

The cost per ton of sulphite would be..... \$2.13

The difference between this cost and the cost of one long ton of sulphur laid down at the mill, less the cost of burning the ton of elemental sulphur in standard equipment, represents a balance available to pay interest and depreciation charges on the more expensive equipment.

There are many Canadian mills, within less than 200 miles of suitable supplies of ore, where the sulphur costs \$30 or more per ton. Assuming a 100-ton mill using 270 pounds of sulphur per 2,000 pounds of sulphite and burning \$30 sulphur—the daily difference in cost would amount to about \$163. With a working year of 300 days, this difference amounts to \$48,900. This sum would represent the interest and depreciation charge on an investment of \$326,000 for the equipment, allowing for depreciation at 15 per cent annually. Since the pyrites burning equipment would only cost between one-fifth and one-quarter of this amount, it is evident that, in the operation of a hundred-ton mill, a considerable annual saving would be effected by installing these appliances.

If sulphur in pyrites is estimated at 15 cents per unit at the mine the sulphur costs per short ton of sulphite become \$2.76 for 35 per cent ore. Needless to say no ore of this grade could command this price at the mine.

GOVERNMENT BIDS AND AWARDS

The following awards have been announced by the purchasing office of the Panama Canal office at Washington, D. C., bids for which were opened on January 24:

The Esleek Manufacturing Company will furnish 6,000 pounds of unglazed white onionskin paper in 17-in. rolls, basis of 17 x 22 in., 7¾ lbs., at \$1,440.

600 reams of 17 x 22 in., No. 13 white bond paper will be furnished by the Smith-Dixon Company, at \$1,158. The same firm will also furnish 2,000 sheets of 22½ x 28½ in., 70 lbs., colonial buff cover paper at \$48.

Bids will be opened at the Government Printing Office on February 11 for furnishing 40,000 pounds of green bristol board in 20¾-in. rolls, basis of 22½ x 28½ in., 100 lbs.

Bids are to be opened on February 15 by the Bureau of Supplies and Accounts, Navy Department, for furnishing the naval torpedo station at Newport, R. I., with 3,000 pounds of typewriter paper.

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Minerals Used in Making Pulp and Paper

Great War Has Demonstrated the Pressing Need of More Vigorous Investigation and Exploitation of the Natural Resources with a View of Supplying the Growing Industries with Raw Materials—This Applies Particularly to the Pulp and Paper Industries, Since Certain Non-Metallic Minerals Enter So Largely in the Preparation of Pulp and Paper—A Schedule of the More Important Minerals.

Read Before the Canadian Pulp and Paper Association by L. Heber Cole, of the Department of Mines, Canada

The Great War has demonstrated to Canadians the pressing need of a more vigorous investigation and exploitation of the natural resources of their country, with a view of supplying the growing industries with raw materials and the factories with tools, machinery, etc.—commodities, much of which have hitherto been imported. The need is all the greater, since it will probably be a number of years before goods can be imported from Europe or even from the United States at anything like the freight rates and prices which prevailed prior to the war. In many instances it has already been found that Canada possesses materials within her borders which have been proved by examination and test to be equal to the imported product in quality and adaptability; and which, in many cases, can be produced at a considerably less cost than the original pre-war cost of the imported article.

Among the industries of the country there are few, if any, to which these remarks apply more forcibly than to the pulp and paper industry; and since certain non-metallic minerals and products enter largely into the equipment and processes employed in the preparation of pulp, as well as into the finished products, the remarks with regard to the investigation and exploitation of the mineral resources of the country are all the more pertinent.

The mines branch of the Department of Mines, under the direction of Dr. Eugene Haanel, is constantly carrying on investigations of the mineral resources of the country, and the results of at least two of these investigations having direct interest to the pulp and paper industry have already been published, namely, reports on the pyrite and the pulpstone industries.

With a view of suggesting to the members of the Pulp and Paper Association, a few of the possibilities of Canadian mineral resources as a means of supplying some of the raw materials they require, I have gathered together some data, and now submit the same in the hope that it may be both interesting and profitable.

It will not be necessary to describe to you the manner of using the different minerals employed in the pulp and paper industry, but after tabulating the minerals employed I purpose endeavoring to indicate where they are being obtained and the process of their manufacture, concluding with the possibilities of their being procured in commercial quantities in Canada.

The following schedule indicates, in general, all the more important mineral products employed in the pulp and paper industry.

A. Minerals Employed in Equipment

1. Pulpstones.
2. Clays.
 - (a) Crude clays.
 - (b) Clay products.
3. Soapstone.
4. Silica sand.
5. Sodium silicate.
6. Rolls (sandstone, basalt lava).
7. Coal.

B. Process Minerals

1. Sulphur and sulphur compounds.
2. Limestone—dolomite and magnesia.
3. Sodium salts.
 - (a) Sodium chloride.
 - (b) Caustic soda.
 - (c) Sodium carbonate.
 - (d) Sodium sulphate.
4. Mineral bleachers.
 - (a) Chloride of lime.
 - (b) Chlorine gas.
 - (c) Sulphuric acid.

C. Product Minerals

1. Fillers, loaders, sizing, fixing, coloring, binding and surface minerals.
 - (a) China clay—kaolin.
 - (b) Talc.
 - (c) Barytes—natural and artificial.
 - (d) Calcium sulphate—natural and artificial.
 - (e) Satin white.
 - (f) Alum and aluminium salts.
 - (g) Sodium carbonate.
 - (h) Silicate of soda.
 - (i) Natural earth colors.
 - (j) Artificial pigments—aniline dyes, chrome colors, ultramarine, prussian blue, etc.

Pulpstones

The majority of stones used for the grinding of pulpwood are prepared from blocks of sandstone, quarried from the upper, middle and lower carboniferous formations of England, Scotland, Ohio, Michigan, Nova Scotia and New Brunswick. A few are or have been made from stone from Missouri and Kentucky.

The Canadian consumption of these stones for the year 1916 was, roughly, 500 stones. In that year less than 3 per cent. of the stones used were quarried in Canada. On account of the increasing difficulty in obtaining these stones from either England or the United States, some of the pulp and paper interests of the country requested that the Department of Mines investigate the possibilities of Canadian sandstones, to determine their suitability for wood pulp grinders. The results obtained from this investigation, which were published in the form of a bulletin early last fall (1917),* although far from being conclusive, gave sufficient evidence to warrant the statement that some of the Canadian sandstones should prove to be every bit as suitable for pulpstones as the imported material. As evidence of this I wish to mention that since this report on pulpstones was published, a stone procured from one of the Nova Scotian quarries has been in use, and seen by the writer, in one of the Canadian mills, and is giving every satisfaction. There are now two firms, at least, in Canada prepared to take or-

*Bulletin No. 19 (466). Tests of Canadian Sandstones to Determine Their Suitability as Pulpstones.—L. H. Cole, Mines Branch, Dept. of Mines, Ottawa.

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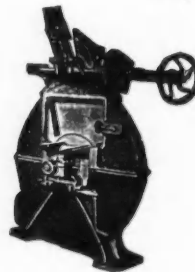
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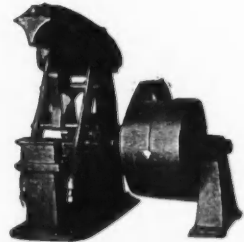
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ders for the manufacture of pulpstones from Canadian sandstones for delivery during this coming summer.

Crude Clays

The crude clays used in the pulp and paper industry are fire clays, and china clay or kaolin. By far the greater part of the fire clay used in the past in Canada came either from Great Britain or the United States. That supplied from the latter country was obtained mainly from Pennsylvania and Ohio. The item of transportation, when this clay is shipped to distant points, such as British Columbia, for example, is of considerable importance.

During the last eight or ten years the Department of Mines has been investigating the clay deposits of Canada, special attention being directed to refractory clays. The results obtained from this investigation have not been very encouraging. The department has examined beds of refractory clays at the following localities: Inverness, Shubenacadie and Sydney, Nova Scotia; St. Remi, d'Amherst, Quebec; Matagami River, Ontario; Dirt Hills and Cypress Hills, Saskatchewan; Sumas Mountain, near Clayburn, B. C.; and Kyuquot, on northwestern Vancouver Island. Thus it will be seen that there are only a few known sources of supply of refractory clays which are sufficiently extensive to support a profitable industry. Although the refractory clays found in Canada are of good quality, the deposits are not favorably situated as regards the markets. In western Ontario, or on the shores of the Great Lakes, where a fire clay deposit would be extremely valuable, none have been found.

The fluxing impurities in a fire clay, which tend to lessen its refractoriness, are ferric oxide, lime, soda and potash; and since these negative properties determine, very largely, the value of the Canadian fire clays, and in order that you may gain some idea of the relative values, a few representative analyses are given, shown comparatively with an average fire clay from the Pennsylvania region.

As a rule the refractoriness of a fire clay decreases as the fluxing impurities increase.

	1	2	3	4	5
Silica	50.37	55.14	54.24	51.94	58.80
Alumina	32.89	28.84	34.24	33.62	30.55
Ferric oxide	1.64	1.91	2.04	1.50	0.65
Titanic oxide	1.03	2.37	.....	.....	.....
Magnesia .....	.35	0.25	0.46	trace	0.50
Lime .....	.31	0.38	2.54	0.23	none
Soda	0.29	0.48	.....	0.22	.....
Potash	"	1.88	.....	0.82	.....
Loss on ignition	13.76	9.24	5.87	11.44	9.50
Totals	100.64	100.49	99.39	99.77	100.00

Fuses at 3038°F 3074°F 3218°F 3146°F

1. Pennsylvania fire clay.
2. Grey clay from Murphy's Brook, Musquodoboit Valley, N. S.
3. Yellow clay, St. Remi d'Amherst, Que. (A. Gordon Spencer, analyst).
4. Washed Dirt Hill clay, Saskatchewan.
5. Clayburn Clay Co., British Columbia.

Kaolin (China Clay)

Kaolin or china clay is the clay used most extensively in the pulp and paper industry. It is essentially a hydrous silicate of alumina. The composition will usually vary owing to the presence of impurities, but a good average sample should run from 47 to 50 per cent SiO₂; 34 to 40 per cent Al₂O₃; and 12 to 15 per cent chemically combined water. The usual impurities are iron, calcium, and the alkalis. The iron which imparts color to the kaolin should never run above 1 per cent. For the white paper trade the kaolin should be dead white in color and free from grit. The fineness of the material is also of importance

Kaolin is generally a residual clay, formed by the decomposition of feldspar, and, as a rule, contains considerable free silica. In order to prepare the material for the market, the crude product of the mine is thoroughly washed, and the gritty impurities allowed to settle, after which the fine suspended clay is allowed to settle in large tanks. When the water is clear it is decanted or siphoned off, the creamy kaolin is compacted by filter presses, and the cakes dried for shipment.

Until the last few years the bulk of this material used in the paper industry has been imported from either Great Britain or the United States. A body of kaolin of a good grade, and of considerable extent has, however, been opened up at St. Remi d'Amherst, Que. The Canadian paper trade has already used a quantity of this material with good results.

Analyses of Washed Clay by G. E. F. Lundell

Silica	46.13
Alumina	39.45
Iron oxide	0.72
Lime	none
Magnesia	none
Potash	0.20
Soda	0.09
Loss on ignition	13.81
	100.40

This is the only locality, unfortunately, where material of this degree of purity has so far been found in Canada.

Clay Products

Canada produces in nearly all parts of the country good grades of ordinary building bricks; but when it comes to the specialized types of bricks, such as fire bricks for furnace linings, digester linings, etc., the consumers have had until lately to depend on imports from Great Britain, United States, and other countries, to supply their needs. I am glad to be able to say that there are now one or two brands of these higher class bricks on the Canadian market, made from Canadian material, which are in every way equal to the imported material.

Soapstone

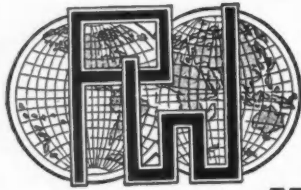
This name is given to a class of dark grey to greenish magnesium rocks which possess a decided soapy feel and which are capable of being readily cut with a knife. Such rocks are composed largely of steatite or talc, but they rarely approach the composition of the pure mineral, since they contain varying proportions of impurities, such as iron pyrites, chlorite, mica, quartz, etc. The principal properties of these rocks, which make them useful to the pulp and paper industry are softness, refractoriness, relative non-conductivity of heat and electricity, and resistance to the action of most chemicals. The soapstone blocks being used at the present time in the pulp industry, for lining causticizing chambers in sulphate pulp mills, are all imported from the United States. Deposits of this material, however, have been found at many places in the Dominion, but in recent years they have not been mined to any extent. In Hastings, Frontenac, Leeds, and other counties in eastern Ontario, a number of such deposits have been discovered; and in the eastern townships, Quebec, and in the maritime provinces, deposits of possible economic importance are known.

The quarrying of soapstone is carried out by open quarry methods, solid blocks being excavated, which are later sawed into blocks of required dimensions.

Silica Sand

Clean silica sand, such as is used in the pulp and paper industry, is prepared either from vein quartz, quartzite, or white sandstone, by crushing, washing and sizing. When used in setting the linings of digesters, it should be fairly angular, uniformly graded, and free from dust and dirt. The following granulometric analyses show comparatively two silica sands; the first being a sample ob-

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tained from one of the Canadian pulp companies and imported from Wausau, Madison county, Wis., U. S. A., the other being Canadian sand.

	No. 1, per cent.	No. 2, per cent.
Retained on 6 mesh.....	..	..
Retained on 8 mesh.....	..	..
Retained on 10 mesh.....	.05	..
Retained on 14 mesh.....	.75	..
Retained on 20 mesh.....	33.65	26.45
Retained on 28 mesh.....	59.47	28.55
Retained on 35 mesh.....	4.45	14.95
Retained on 48 mesh.....	.65	11.50
Retained on 65 mesh.....	.15	7.50
Retained on 100 mesh.....	.05	6.20
Retained on 150 mesh.....	..	3.15
Retained on 200 mesh.....	..	.80
Pass through 200 mesh.....	..	.55
Total	59.22	99.65

From what I can learn, the greater part of this material, as used by the pulp and paper industry in Canada, has heretofore been imported, and at a high cost. The firm that kindly furnished me with the above mentioned sample, said that this sand delivered at their plant, cost them \$16.70 per ton. It should be possible to deliver the Canadian material to any plant in eastern Canada for \$6 per ton, at the outside. Although the quantity of this material used by the industry is comparatively small, a saving of even \$5 per ton should be worthy of consideration. The Canadian sample above mentioned runs over 99 per cent SiO₂.

Silicate of Soda (Water Glass)

Commercial sodium silicate, also called soluble glass or water glass, approximates to the composition Na₂O.4 (SiO₂) containing about 79 per cent silica. It is prepared, commercially, in either of two ways, by what is known as the dry and wet methods, respectively. In the former method, a mixture of powdered quartz or silica sand and either sodium carbonate or sodium sulphate is fused in a regenerative furnace for eight hours, at a temperature of 1,100°C. A small quantity of coal is added to aid in the reduction of the carbonate. The product is run out in a fused condition into a receptacle, and allowed to cool.

It is crushed and subjected to long boiling with water, under pressure. The resulting solution is allowed to stand, and is then evaporated to the required consistency.

In many cases the wet method is preferred, on account of the greater uniformity of the product, and the fact that it is obtained at once in the form of a solution. The method consists of digesting under pressure silica—in the form of either infusorial earth, powdered flint, quartz, etc.—with a solution of caustic soda having a specific gravity not above 1.24. The liquid is heated by blowing in steam, and is constantly stirred by machinery. The clarified liquid is drawn off and concentrated to the required strength.

This material is also obtainable in solid form, having a glassy appearance. It is sometimes colorless, but, usually, has a brownish or greenish color. It is nearly insoluble in cold water, but dissolves completely, although slowly, in boiling water. The solubility decreases as the percentage of silica increases.

In 1916 there was approximately \$125,000,000 worth of silicate of soda imported, yet there is none being manufactured in Canada. By far the larger part of this import was utilized by the pulp and paper industry. There appears to be a good opportunity to establish a plant in Canada for the manufacture of this material. Silica sand of good quality is available, and it will shortly be possible to obtain both sodium carbonate and sodium sulphate from Canadian producers, so that with the market available in Canada, success in such an industry would be reasonably sure.

Sandstone

The question of stone for various rolls used in the pulp and paper industry may be briefly referred to. In the beaters, sandstone rolls are sometimes employed. In many mills the pulpstones—after they are so worn as to be unsuitable for grinding pulpwood—are dressed and fitted up as beater rolls, hence the remarks previously made regarding Canadian sandstones will equally refer to this use.

Basalt Lava

In one special type of stone beater roll a highly vesicular basalt lava is employed. Presumably this material has, hitherto, been obtained from the Rhine valley, near Coblenz, Germany. A short time ago the Mines Branch at Ottawa was furnished with small samples of this lava in order to ascertain whether similar material could be obtained in Canada. Nothing suitable has so far been located, but it is possible that some of the lavas from central British Columbia may yield a material which will compare favorably with the sample submitted.

Sulphur and Sulphur Compounds*

The condition of the sulphur market at the present time is one of great interest to the pulp and paper industry. There are no deposits of native sulphur in Canada, so that consumers of this material are entirely dependent on imported supplies. The question of substitute materials, therefore, naturally appears to offer the readiest solution of the difficulty. There are considerable bodies of good grade pyrites in Canada, and the problem of using this mineral for the production of sulphurous acid is worthy of consideration. This subject may be passed over as it is being considered in a special paper to be presented to you by Dr. A. W. G. Wilson.

Sulphuric Acid

The small amount of sulphuric acid used in pulp and paper mills is already being supplied by the Canadian producers; the main plants being at Capelton, Que.; Sulphide, Ont.; Hamilton, Ont.; and Barnett Bay, B. C.

Limestone—Dolomite and Magnesia

The carbonates of lime and magnesia which occur in nature as limestone, dolomite and magnesite are employed in the various processes of manufacturing chemical pulp.

These three rocks form a transition series with limestones at one extreme and magnesite at the other. Thus the type of limestone consists essentially of carbonate of lime, while magnesite consists of carbonate of magnesia. About midway in composition is dolomite in which the carbonates of lime and magnesia are in the ratio of 54.35 to 45.65. These theoretical compositions are but rarely met with in nature. We find the limestones with increasing percentages of magnesium carbonate finally merging into dolomites, and magnesites with so much calcium carbonate that we have to ask ourselves whether they should not be called dolomites.

In some processes the lime content of the stone is the active agent and as pure a limestone as possible is called for. For others where magnesia plays a part, dolomites are specified and, again, for others, magnesite.

Limestones and dolomites are very common rocks and are widely distributed throughout Canada. In some sections the high calcium limestones predominate as in the Province of Quebec and eastern Ontario, while in others dolomite is more prevalent. An investigation by the Mines Branch of the Department of Mines, of the limestone group of rocks is at present under way. Ontario and Quebec have been pretty fully examined and the work is to be extended to the other provinces. Reports covering Quebec, and containing many analyses have been published. The report on the work in Ontario will be published shortly.

*See Pyrites in Canada by Dr. A. W. G. Wilson—Report No. 167, Mines Branch, Dept. of Mines, 1912.

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Those pulp manufacturers of Quebec who require dolomite are unfortunate, for there are few occurrences of pure dolomite known within the province. These are in the crystalline series of the pre-Cambrian. The purest and at the same time the most accessible deposit is in the neighborhood of Portage du Fort, where large outcrops are to be seen on the Quebec mainland and on the adjacent islands in the Ottawa River.

In Ontario the dolomites of the Guelph formation are highly suitable for the pulp industry. In the neighborhood of Sulphite there are numerous quarries and lime kilns and a number of plants producing hydrate.

High grade, high calcium limestones are procurable in many sections of both provinces.†

Magnesite and hydromagnesite occur in but few localities in Canada. The known deposits of hydromagnesite are practically limited to British Columbia. Aside from a small shipment made from a deposit near Atlin recently, these are not being exploited.

In Quebec we have the only regularly operated deposits of magnesite—those to the north of the Ottawa River in the County of Argenteuil. It has been stated that this stone and the calcined magnesite from it, when used to produce the bisulphite of magnesia in the pulp mill, failed to give thorough satisfaction. The somewhat high lime content was blamed for the trouble but I fail to see why the blame should be attached to the lime. I am of the opinion that the trouble should be attributed to the difficulty with which the crystalline magnesite granules are soluble. Some slight modification of the treatment to which it is subjected might result in complete solution and much increased efficiency.

Sodium Chloride

Common salt, or sodium chloride, is composed of chlorine and sodium in the proportions of 39.4 to 60.6 and is represented by the formula NaCl. It is seldom found pure in nature, commonly having associated with it small quantities of calcium sulphate, calcium chloride, magnesium chloride, and occasionally sodium sulphate, magnesium bromide, or iodide, and magnesium sulphate.

Canada is fortunate in having within her boundaries a number of localities where salt is known to occur.* By far the best known of these areas, and the only one at present being exploited, is the one in southwestern Canada, with Windsor as the center. The salt is obtained by the evaporization of saturated brine which originate in the beds of rock salt of the Salina formation.

Drill holes are sunk, and water pumped down to the salt. The resultant brine which is brought to the surface through the inner casing of the double cased borehole, is then evaporated to recover the salt. The following analyses of brines show the purity of the Canadian product:

One thousand parts by weight contain:

	1	2	3
Na	101.738	102.543	100.997
Ca	1.630	1.356	1.531
Mg .....	.257	.075	.118
SO ₄	2.634	3.160	2.803
Cl	158.742	158.562	156.884
	265.001	256.696	262.333

Hypothetical combination: 1,000 parts by weight contain:

NaCl	258.770	260.812	256.891
CaCl ₂	1.484	.111	1.007
MgCl ₂	1.017	.297	.467
CaSO ₄	3.730	4.476	3.971
	265.001	265.696	262.336

† For analyses of Quebec limestones see Summary Reports of the Mines Branch, 1914 and 1915, pp. 35 and 40, respectively, and also the Transactions Canadian Mining Institute, 1916.—Canadian Magnesite by Howells Frechette.

* See report on the Salt Deposits of Canada and the Salt Industry, by L. H. Cole—Bulletin No. 325, Mines Branch, Dept. of Mines, 1915.

One imperial gallon measured at 15.5°C, contains — lbs. avoird.

NaCl	3.105	3.156	3.083
CaCl ₂ .....	.018	.001	.012
MgCl ₂ .....	.012	.004	.006
CaSO ₄ .....	.045	.054	.048
	3.180	3.215	3.149
			Sampled

- No. 1. Ontario Peoples Salt & Soda Co., Kincardine, Ont. July 8, 1911
- No. 2. Western Salt Co., Mooretown, Ont. July 14, 1911
- No. 3. Dominion Salt Co., Sarnia, Ont. (new well) . July 12, 1911

When it is understood that the brine is treated before evaporation in order to remove the calcium sulphate, and that the greater part of the other impurities are retained in the "bittern," it can readily be seen that the salt produced in this district is of a high degree of purity.

At the present time the operating companies can easily increase their output considerably, without having to extend their plants.

Caustic Soda (Sodium Hydrate)

Until the last 50 years, the manufacture of caustic soda was not extensive. The most common process in preparing this material was the one in which advantage was taken of the reaction of sodium carbonate and slaked lime. This process at first entailed the production of soda ash. Of late years, however, caustic soda has been prepared by the direct decomposition of sodium chloride in an electrolytic cell; producing chlorine gas and metallic sodium, which latter at once unites with water present in the cell to form caustic soda. The weak solution of caustic soda thus produced is concentrated in vacuum pan evaporators. From these evaporators the solution passes to storage tanks after passing through separators—to eliminate the sodium chloride. The final concentration is then carried out in finishing pots of about 18 tons capacity and the pure caustic soda is run from the final pot into iron drums (700 lbs. capacity) and allowed to solidify. The product is then ready for the market. One firm is already making caustic soda in Canada by this process.

Sodium Carbonate (Soda Ash)

Although sodium carbonate is often found in extensive deposits in nature, it is generally very impure. Owing to the cost of dissolving, evaporating and purifying, it rarely pays to operate a deposit of this nature except at actual points of consumption, as commercial sodium carbonate can be prepared artificially from sodium chloride at less cost.

In the artificial preparation of sodium carbonate there are three processes of importance which use sodium chloride as a raw material. These three processes are (1) the Solvay, or ammonia-soda process; (2) the electrolytic process; (3) the Le Blanc process.

(1) The Solvay Process

This process is based on the well known reaction of ammonium bicarbonate on sodium chloride, with the separation of part of the sodium as sodium bicarbonate. The raw materials required for this process are limestone, sodium chloride (either as brine as it comes from the wells or rock salt dissolved) ammonia (either in the form of an ammonium hydrate solution or ammonium sulphate) and fuel.

In brief, the essential operations in this process are to manufacture carbon dioxide from limestone; to pass this gas into the ammoniacal brine which has previously been prepared by saturating the brine with ammonia gas; the separation of sodium bicarbonate which forms as a precipitate from the solution; and the calcining of this precipitate to form sodium carbonate or soda ash. The product of this method is remarkably pure and will average over 98.5 per cent sodium carbonate, the principal impurity being sodium chloride.

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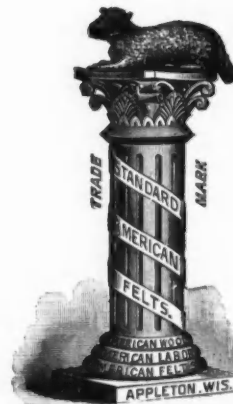
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(2) Electrolytic Process

An electrolytic process for the manufacture of sodium carbonate crystals by the electrolysis of brine has been operated commercially on a small scale in England. This process, known as the "Hargreave and Bird process," employs a diaphragm cell of unique arrangements. The diaphragm is impervious to the salt solution, but permits the sodium ions to pass to the cathode. As the sodium ions are set free they are converted into soda crystals by the blowing in of steam and carbon dioxide. The sodium carbonate made by this process is very pure and will average when dehydrated 97.5 to 98 per cent. Na_2CO_3 .

(3) The Le Blanc Process

This process for making sodium carbonate from salt consists of first making sodium sulphate—to be later described—and then fusing this with a mixture of limestone and carbon. The raw materials required are sodium sulphate (salt cake), pure limestone and a good grade of coking coal. The reactions are involved, but the process in brief is as follows: The salt cake, limestone and coal in predetermined proportions, are fused in a furnace and the fused mixture, called black ash, which is produced is allowed to cool. The black ash is then lixiviated with water and the resultant lye is purified, giving commercial sodium carbonate which will vary in composition from 75 to 98 per cent Na_2CO_3 . The finished product from this process should be white or nearly so.

Both the crystal form and the soda ash are met with in commerce. The crystal form known as soda crystals or washing soda has the formula $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$. These crystals readily dehydrate and effloresce when exposed to the air.

Sodium Sulphate (Salt Cake)

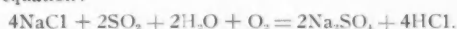
Like sodium carbonate, sodium sulphate occurs naturally, but owing to the artificially manufactured substances being so cheap, it seldom pays to use the natural deposits.

The commonest process for producing sodium sulphate is by the action of sulphuric acid on sodium chloride. The salt for this process is preferably rock salt, or the coarsest salt produced from evaporation.

The process may be carried out in two ways (1) sulphuric acid, as such, may be added directly to the salt or (2) sulphur dioxide, oxygen and steam may be added to the sodium chloride.

By the first method the acid sodium sulphate is formed, and this reacts again with salt to form sodium sulphate.

In the second method, known as the Hargreave process, steam and oxygen are caused to combine with sulphur dioxide to form sulphuric acid which simultaneously attacks the salt forming sodium sulphate and hydrochloric acid, as represented by the following equation:

**(4) Mineral Bleachers****Chloride of Lime (bleaching powder).**

When dry chlorine gas is passed over a thin layer of slaked lime a compound is formed which has the power to readily give up its chlorine, when acted upon by an acid.

In brief, the process generally employed in the manufacture of bleaching powder is to utilize the chlorine gas produced by the electrolytic decomposition of sodium chloride and pass it through a series of lead-lined chambers in which slaked lime is spread on the floor to a depth of about two inches. Generally, a number of these chambers are operated in series. The bleaching powder is discharged through openings in the chamber floor to the shipping room beneath. It is then packed in drums of 700 pounds capacity.

The percentage of bleach in the chloride of lime thus produced will vary from 37 to 39 per cent. chlorine, *i. e.*, the bleach contains from 37 to 39 per cent. chlorine that is available for bleaching purposes.

I have devoted considerable space to the sodium salts, as these are of great importance to the pulp and paper industry, and it is

only within the last 10 years that any of them—with the exception of sodium chloride—have been manufactured in Canada. The rapid growth and commercial progress made by the Dominion during the last few years has greatly increased the demand for those chemicals into the manufacture of which sodium chloride enters either directly or indirectly as one of the principal raw materials. The increasing demand for these chemicals—as evidenced by the figures of imports shown in the following table, has naturally evoked the question whether they cannot be manufactured in Canada. This question has been partially answered by the fact that one company is already successfully producing caustic soda and bleaching powder from sodium chloride in the form of brine, and another company has a plant nearing completion for the production of soda ash by the Solvay process. There are several other chemicals in the manufacture of which sodium chloride is used and there is no reason why use should not be made of the extensive salt deposits of western Ontario for their production. In view of the rapidly increasing market—not only with the pulp and paper industry—there should be no difficulty in the disposal of the products of such undertakings.

Imports of Caustic Soda and Chloride of Lime

	Caustic Soda.		Chloride of Lime.	
	Pounds.	Value.	Pounds.	Value.
1910.....	13,974,444	\$267,338	10,386,519	\$116,923
1911.....	13,812,053	259,982	11,725,167	118,501
1912.....	14,544,545	278,579	12,183,765	113,346
1913.....	15,983,298	291,008	12,761,153	115,614
1914.....	18,436,827	314,278	15,147,645	138,619
1915.....	7,737,149	184,468	12,015,999	112,142
1916.....	12,502,758	508,860	7,892,923	158,546

NOTE.—For correct purposes of comparison the pre-war years, 1912-13-14, should be examined.

Another point in this connection which may be of interest: With the extensive deposits of salt in western Ontario, producing sodium chloride at a reasonable price, and with the fact that water power is generally available near pulp mills, thus furnishing cheap electric power, it should be both feasible and economical for many of the larger mills to install electrolytic cells and produce their own caustic soda and bleaching powder. This would enable them always to have fresh material and eliminate the excessive freight rates and the possibility of the materials deteriorating in transit.

Talc

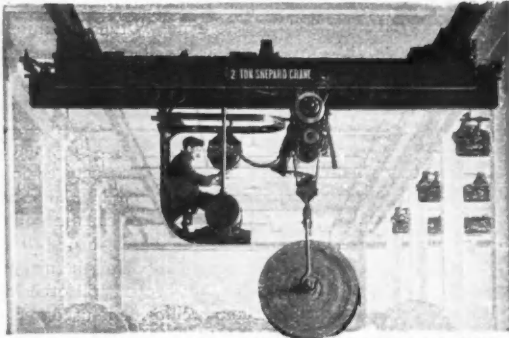
This is a very soft micaceous mineral, the chemical composition of which is represented by the formula $\text{H}_2\text{O} \cdot 3\text{MgO} \cdot 4\text{SiO}_2$. The white variety is the most used in the paper industry. It is known to the trade under various other names such as asbestine, French chalk, mineral pulp, etc. Its most striking qualities are its softness, being readily cut with a knife, its soapy feel, and the entire absence of grit.

The mineral occurs in deposits in nearly every State in the United States and is also extensively distributed throughout Canada, and is mined either in open cuts or by underground methods. Naturally the underground method is preferable, as the product can more readily be kept clean. The broken material from the mine is taken to the mill, sorted and crushed to about $\frac{1}{4}$ -inch size. It is then pulverized in some standard type of pulverizer till the bulk of it passes a 200 mesh screen and is graded either by bolting or air floating or by a combination of the two methods.

In the province of Ontario, near the village of Madoc in Hastings county, a large body of talc has been worked for several years. There are now two mills in this district in active operation engaged in grinding the crude talc and preparing it for the trade.

Natural Barytes

The barytes with the formula of BaSO_4 is found widely distributed in a great variety of forms, the most common being the white opaque to translucent massive variety. It is generally somewhat stained and contains small quantities of impurities which have to



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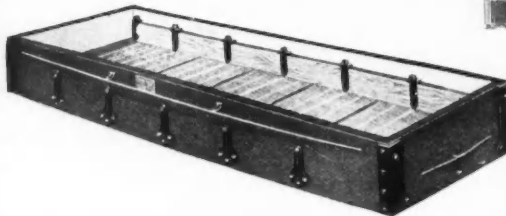
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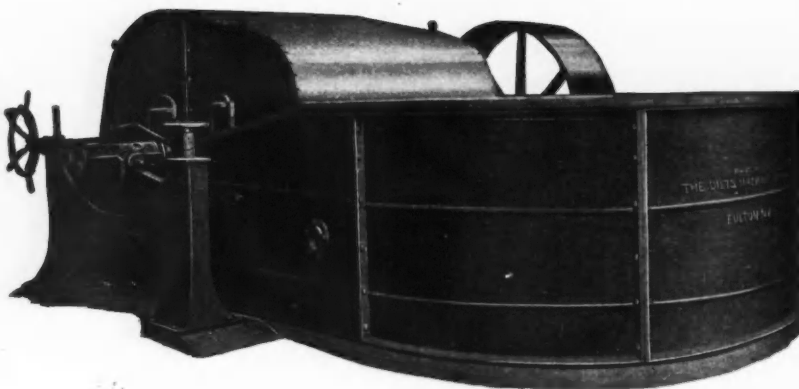
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be removed before it is ready for the market. It is known also under the name of "heavy spar" on account of its high specific gravity.

In preparing this material for the trade the crude mineral is first hand-sorted, after which it is crushed to marble size. It is then levigated with a dilute solution of sulphuric acid until all the impurities are dissolved, when it is washed by boiling in distilled water to remove all traces of acid, and dried by steam. This material is fed to buhr mills and ground to the fineness of flour, after which it is graded either by water or air separation or a combination of both. The final product is again dried and packed in barrels ready for the market.

This mineral is found in Canada in a number of localities, such as at Lake Ainslie and North Cheticamp, Inverness county; Five Islands and Stewiacke, Colchester county, and near River John, Pictou county, all in Nova Scotia; in the township of Hull, province of Quebec; in the province of Ontario in the townships of Bathurst and North Burgess (Lanark county); McNab (Renfrew county); Drummer and Galway (Peterborough county); and Summerville (Victoria county). Large veins also occur on Jarvis, McKellars and Pic Islands in Lake Superior, and also in northern Ontario near the headwaters of the Wanapitae river, as well as in the Porcupine district. Two firms are already producing ground barytes, one at Lake Ainslie and the other in the Porcupine district.

Artificial Barytes

Prepared barium sulphate, known to the trade as "blanc fixe," is produced by the reaction of sulphuric acid on a soluble barium salt, such as the chloride or nitrate, the barium sulphate being obtained as a fine white precipitate. I am not aware of this being manufactured in Canada. The preparation of blanc fixe on a commercial scale in Canada would only be possible to a large chemical manufacturing company which prepared other materials covering a wide range of chemical compounds, as the market at the present time is not sufficient to warrant a plant for its preparation alone. These remarks will refer equally well to "satin white" and pearl hardening or crown filler.

Calcium Sulphate (Natural)

Gypsum, the hydrous calcium sulphate with the chemical formula of $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, occurs in many countries in the world. As Canada contains some of the best known and most extensive deposits of this mineral, it is not necessary to indicate foreign localities. The pure white variety of this mineral is used extensively in the paper industry as a filler. For this purpose it is hand-picked as it comes from the quarry, crushed and ground to the fineness of flour and bolted or else sized by air flotation. In this form it is known to the trade as "terra alba." Gypsum of a high grade of purity is found in Canada in Nova Scotia, New Brunswick, Ontario, Manitoba, Alberta and British Columbia.*

Calcium Sulphate (Artificial)

"Crown filler" or "pearl hardening," as the artificially prepared calcium sulphate is known to the trade, is prepared in a similar manner to the artificial barium sulphate, namely by treating a solution of a soluble calcium salt with sulphuric acid. By some, this article is preferred to the natural variety, as its particles are somewhat needlelike in structure and whiter in color.

Satin White

Satin white, an artificially prepared product, is composed of calcium sulphate and alumina, and is made by boiling a solution of alum or aluminium sulphate with lime. It is generally sold to the trade in the form of a paste. It should be feasible for the paper makers to prepare this material at their mills, as required, from home products.

Alum and Aluminium Salts

True alum, the double sulphate of alumina and either potash or

ammonia, and aluminium sulphate (alum cake) are among the important mineral products used in the pulp and paper industry. Alum cake is prepared by digesting bauxite or high grade, iron-free clay, with sulphuric acid, treating the mass with water and for the potash alum adding to the solution potassium sulphate, after which the alum is allowed to crystallize out. Unfortunately for Canada, no deposits of bauxite have been discovered within her borders, and she is dependent on the material produced in the United States. The deposits in that country are also of limited extent, and when I say that the production of this mineral in the United States was not equal last year to their own consumption, one can readily see that a shortage of alum for Canadian consumption is not an impossibility. The possibility of producing alum cake from Canadian china clay should not be overlooked as one possible remedy for any shortage that may occur.

Ochres

These consist of the hydrated oxides of iron or highly ferruginous clays and are found in deposits in nature as the result of disintegration of certain iron-bearing minerals. The color will vary from yellow to reddish brown and red, according to the proportion of iron present, and whether the iron is in the ferrous or ferric condition. The material, as found, is generally yellow and the darker brands are prepared by calcination, which drives off a portion of the combined water and changes the ferrous into ferric oxide.

Umber

True umber is a natural earth pigment resembling ochres in composition, but containing as well a considerable percentage of oxide of manganese. There are two varieties to be obtained on the market—raw umber, which is the pigment as it is found, and burnt umber, which is the crude pigment calcined, whereby the color or tint is rendered darker and warmer.

Ochres, wad and ferruginous clays suitable for pigments are found in many parts of Canada. These, when raw or burnt, give a varied range of shades, and are of good coloring power. Though they have been employed in small quantities for local use in many parts of the country, their commercial exploitation is limited at present almost entirely to the provinces of Quebec and Ontario.

In Quebec there are numerous deposits of ochre in the counties to the north of the St. Lawrence River, resulting from the decomposition of iron pyrites contained in the rocks of the Laurentian hills. In the neighborhood of Three Rivers much ochre of good quality is obtained each year. Deposits are also being worked in Nicolet county on the opposite side of the St. Lawrence.

In Ontario, deposits of some importance are found in various sections of the province, including Algoma district and Norfolk, Leeds and Halton counties. In Nassagaweya township, Halton county, there is a deposit from which ochre is being produced in small quantities.

In Nova Scotia and New Brunswick deposits of ferruginous clays, as well as the ochre deposits of Colchester county, have been worked on a small scale from time to time. In the western provinces deposits of workable size and grade are said to exist.

Artificial Pigments

The question of the preparation of artificial pigments is of considerable extent and is too complicated to be dealt with in a paper of this nature. It is sufficient to say that none are at the present time being manufactured in Canada, and owing to the present limited market for the same it is not probable that an industry of this nature will be started in Canada for many years to come.

In briefly reviewing the possibilities of Canadian mineral resources it will be seen that Canada is already producing many of the minerals and mineral products used in the pulp and paper industry, and with proper encouragement is capable of adding to its list as well as increasing the production of those minerals already being exploited.

*See "Gypsum in Canada."—I. H. Cole, being report No. 245, Mines Branch, Dept. of Mines, Ottawa, 1915.

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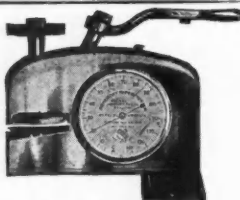
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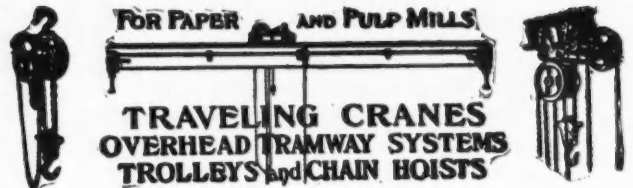
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Practical Paper Making

Four Factors Enter Into This, Namely, Formula, Equipment, Manipulation and Attention—Although Formulas Are Definitely Established, It Does Not Mean That They Will Always Work Out the Same Under All Conditions in Every Mill—Manipulation Is Really the Practical Part of the Art of Paper Making—The Matters of Equipment and Attention.

Read Before the Technical Section of the Canadian Paper and Pulp Association by J. J. Sullivan, of the Rolland Paper Co.

It has been my fortune, or my misfortune, to be connected with the manufacture of paper for 42 years and during that period, both as workman and latterly as supervisor, I have had the privilege of observing all of the practical points connected with the manufacture of paper.

In my early days I was very ambitious and consequently I made a complete study of the different operations, which I found to be of great assistance to me in later years. During my connection as superintendent I still continued to be a student and studied all the problems which came up, and if there is one art in the world that has problems, paper making, I believe, leads them all. You gentlemen, appreciate that a condition which exists today will not produce a standard paper even when the standard formula is used if tried a month later. Of course, we understand that the standard formula is only used as a basis to work on, and your connection with the manufacture of paper starts there. When the practical superintendent is up against atmospheric and chemical conditions due to water and other things he has some problem on his hands and this is where the chemist and technical man comes in to assist him.

Climatic and Atmospheric Conditions

You are all aware that the climatic and atmospheric conditions have a great deal to do in keeping up paper standards and the mills of today that are able to support a laboratory and a chemist to work in conjunction with the superintendent can work out these problems very much easier than if the practical man had to fight them alone.

To maintain standards means eternal vigilance on the part of the practical man. If he is practical he must understand every phase and every condition of his mill from source to finish and when matters come up he should be qualified to give advice at once to remedy whatever may have happened.

To be successful all mills should have on their staffs a practical man to insure successful production and maintain uniform conditions and also a technical man to work in conjunction with him and take care of the technical problem of the art.

I will now take up and talk to you relative to four factors which are the basis of practical paper making. The four factors are as follows: First, formula; second, equipment; third, manipulation; fourth, attention.

Formula

The first factor mentioned, formula, is more or less the basis established by every mill, but does not mean, however, that formulas, after they are established, will always work out the same, and this is the reason why a mill should have a practical paper maker connected with it. There are matters connected with that to which I will refer in my talks on the other factors.

Equipment

The very essential and important matter in a paper mill is proper equipment. I mean by this equipment which will produce paper to the best advantage. The reason equipment will produce

one kind of paper better than another is because it is especially adapted to that particular grade of paper. Yet a great many mills are obliged to use equipment for general work. The practical paper maker, who is careful and wishes to produce a uniform paper, is very particular about the condition of his beater rolls, bars, and bed plates. The same applies to the washers and also to the close attention, to the proper operating of the Jordan or refining engines, which should be properly ground after new filling has been inserted, as in a great many cases an inexperienced man will force the grinding of the Jordans and grind out all one-sided.

The equipment of the paper machine should be very carefully considered. Every roll and bolt on the machine should be in its place and properly cared for all the time. Keeping the equipment on the machine in good condition will insure safe running. It is often found that a paper machine is running with half the tube rolls out, the deckle straps running badly, giving bad edges; something the matter with the flow box, or the apron in bad shape. These all ought to be kept in first class condition as well as the presses and the dryer rolls. Too much care cannot be given to keeping the machine up to highest standard at all times. It means dividends for the company.

The factor of equipment applies to every department of the paper mill. If there is any one department in a mill that is working wrong it has a tendency to upset the other departments, which is bound to be injurious.

Manipulation

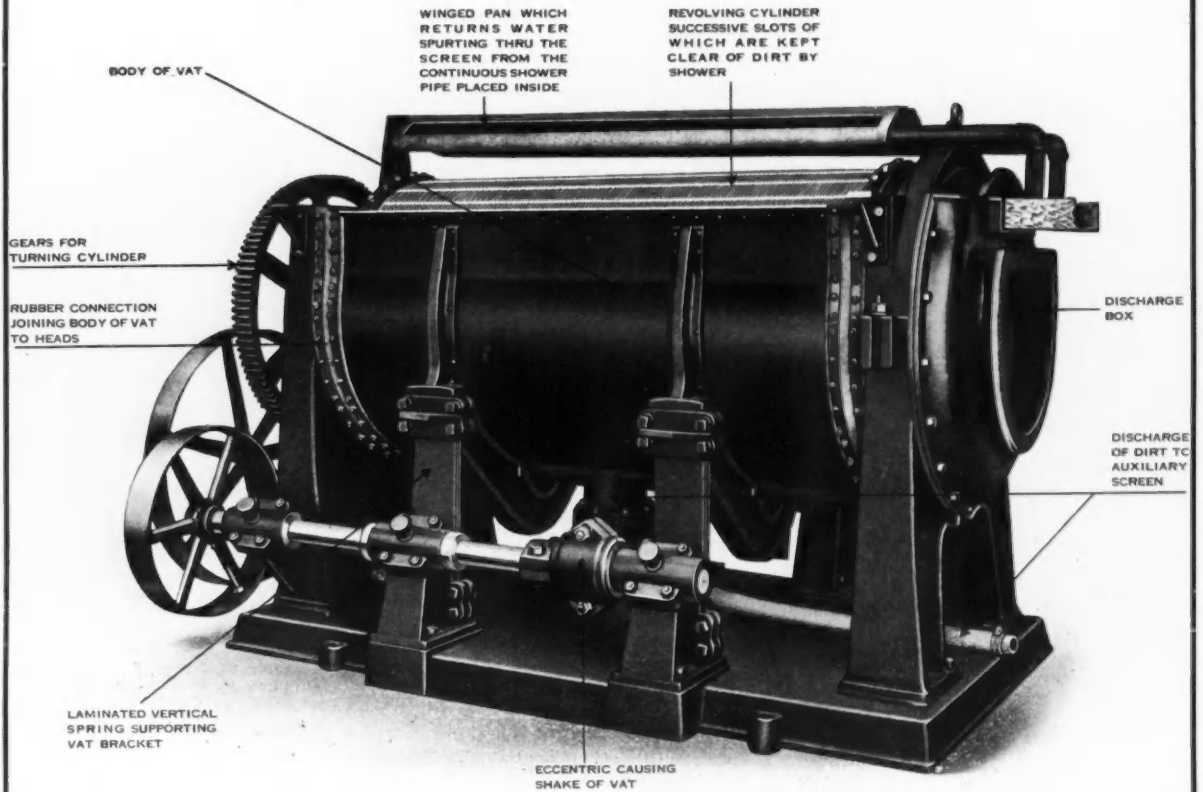
Manipulation, outside of the formula, is really the practical part of the productive qualities. Imperfect manipulation will ruin the most costly stock and give very poor results. Where the operator understands his business and handles his equipment properly the greatest efficiency is secured and the maximum results obtained.

I will first take up the matter of rag washing. Attention should be given to the proper washing of all classes of rags and reducing them to half stock. Sufficient time should be taken to get the very best results in the thorough washing and then reducing to the pulp. The washing time varies a great deal in different mills, but my experience has taught me that very close attention given to the rag washing to get the proper half stock is one of the fundamental principles of making good paper. Many mills will tell you that they cannot afford the time, that they have not washers enough, and must reduce the rag to a pulp in a period of from five to six hours, or thereabouts, when a longer time would give more strength and cleaner stock.

I heard a statement made one time by a man very well known in paper making, that power was one of the best hard stocks that could be had and I believe from observation, that the statement is correct, and I believe it is very much cheaper than having a high grade stock and reducing in a short time, thereby making it no better than a second or third grade stock.

The question of beating, with which you gentlemen are familiar,

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is one of the essential things in the production of paper. The man handling the beaters should be thoroughly experienced, and if he is and is careful he can give wonderful results by manipulating his beater rolls consistent with the stock being beaten. The experienced beater man can also feel his stock during the process of beating and note by the feel whether he is forcing it along faster than he ought to or whether he is not getting it as fast as possible. Of course, the question of beating hinges entirely on the quality of paper. Some papers require a very slow, long stock, which means very much care and attention by the beater man. The shorter fibers which make up Bristol boards, flats, etc., are beaten up very quickly and fast, thus reducing them very much freer.

The evolution of the process of paper making in the last 15 or 20 years has caused beaters to be built very large and very high. This is a feature that should be considered by all paper makers. The beaters should be paddled to dislodge any stock which might hang around the backfall or before the roll. This does not apply so much in sulphite papers as it does in rag. Rag should be thoroughly stirred and padded at intervals during the process of beating.

There is quite a difference of opinion among paper makers regarding the proper manipulation of stock. Some are of the opinion that a very slight beating is sufficient and that the Jordans engines can reduce the stock to the proper consistency. This is not all in accordance with my ideas. Stock should be thoroughly prepared and beaten in the beaters and only refined in the Jordans engines. From my observations and experience the very best results are obtained along these lines.

There should be very close association between the beater and the machine tender, and both should be able to discern when the stock is running on the wire, whether it is too slow or too free, too short or too long, for the sheet required. The superintendent leaves his instructions, a sample of the paper, and after the standard is once established, it is up to the operator to watch very closely. By observations of the conditions at the wire by both the machine tender and the beater man the sheet can be kept uniform.

There is considerable to be observed by the machine tender in manipulation of the paper machine. Different kinds of stock should be handled differently and no set rule can be made as to the amount of watershake, pressure, etc. Care should be exercised at the screen to prevent blue spots from forming, this being the result of keeping the plates thoroughly covered at all times. The first thing a practical paper maker will do on reaching his machine room is to inspect the screen-head boxes of the machine presses, and see whether the machine tender is carrying proper head or not, and next glance over the wire to find out if there is sufficient water in the sheet to give it formation.

The Importance of Water

Water is one of the greatest factors in the making of paper and there are very few machine tenders today that are well versed in this. They work rather by rule in using water whether the paper is thin or heavy and thereby get irregular formation in the making.

The pressing at the couch roll, where the suction roll is not used, is very important and the jackets, guard boards and things of this kind should be kept in prime shape. The introduction of the suction roll in the last six or seven years has eliminated a great deal of the trouble which came from the old slow couching. When the paper is properly couched next to the press rolls, if these are in good condition as they ought to be on every machine, the paper goes to the dryers of uniform thickness, uniformly dried and comes out at the end of the machine in perfect shape.

There is very little manipulation of the machine from the couch roll to the calenders. Of course the calendering on machine-dried papers is more or less a matter of manipulation and is controlled to a certain extent by the drying to the calenders to get the finish desired. But loft dried papers should be thoroughly dried before entering the size bath, otherwise you are sure to have cockle in the left and then again, if the paper should be very damp it is quite likely to lose its color. It is the work of the chemist and technical man to ascertain the causes of paper losing its color.

During my experience I have had a great deal of trouble during certain periods of the year and have called in the best chemical experts obtainable and they were unable to give me any definite assistance or information. Quite likely you men have been up against matters of this kind and it would seem that this should be given very careful thought and investigation.

Attention

A mill might comprise the best equipment possible and establish the best formulas for making certain kinds of paper, but if the operator does not give it attention and becomes careless and does not give his papers and machine proper attention, very poor results will be obtained. I also have learned from observation that paper should be made under one direction and not by the judgment of three or four or more men. It is quite true that it is hard to get all the beater men to beat the stock exactly the same and the men, therefore, should be instructed by the superintendent as to what is desired in the sheet of paper and be furnished with a sample, and instructions that can be adhered to in all cases. It sometimes happens that one man coming on tour thinks he can improve the sheet of paper when it is not desired, thereby making one part of the run cloudy and the other part clear. I heard a statement made at one time that it would be better to make the paper uniformly bad at all times rather than good and bad because uniform paper will sell better than a variation of good and bad.

There is more broke made in a paper mill by the inattention of the employees than anything else. If the employee is giving careful attention to his work at all times he is bound to keep his equipment and conditions right, which must necessarily result in satisfaction to himself and great benefit to the company.

The many elements entering into the make-up of paper make it necessary for the practical man to work in conjunction with the chemist and the technical man in the mill. Of course there are mills that are not large enough to employ such men, but a practical man should have knowledge enough of these matters to control his product and if he is in trouble he should immediately get in communication with the laboratories and locate the trouble.

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First: Use leather belting—the material that guarantees least power leakage; that is standard for main drives; that stands the mauling of shifters; that can be easily spliced and repaired; that when partly worn can be cut down for narrower pulleys; that has greatest elasticity and pulley-grip.

Second: Don't select belting on specification. Select it on scientific adaptation to the work to be

done. Right here is the reason for the superiority of Graton & Knight Standardized Series Leather Belting.

Twenty mills with practically identical needs often specify twenty varied types of belting. And yet the requirements of power transmission fall into a relatively small number of classifications. For each of those classes there is a Graton & Knight Standardized Belt. Long study and experience fixed that standard and we keep it there—rigidly.

It will work an economy for you if you will let us specify the grade of belt for each pulley in your plant. Then, when you buy belting, call for "Graton & Knight—Brand or equal." This doesn't commit you to buying our belting. It puts your buying squarely and permanently on the only sound basis—the work to be done.

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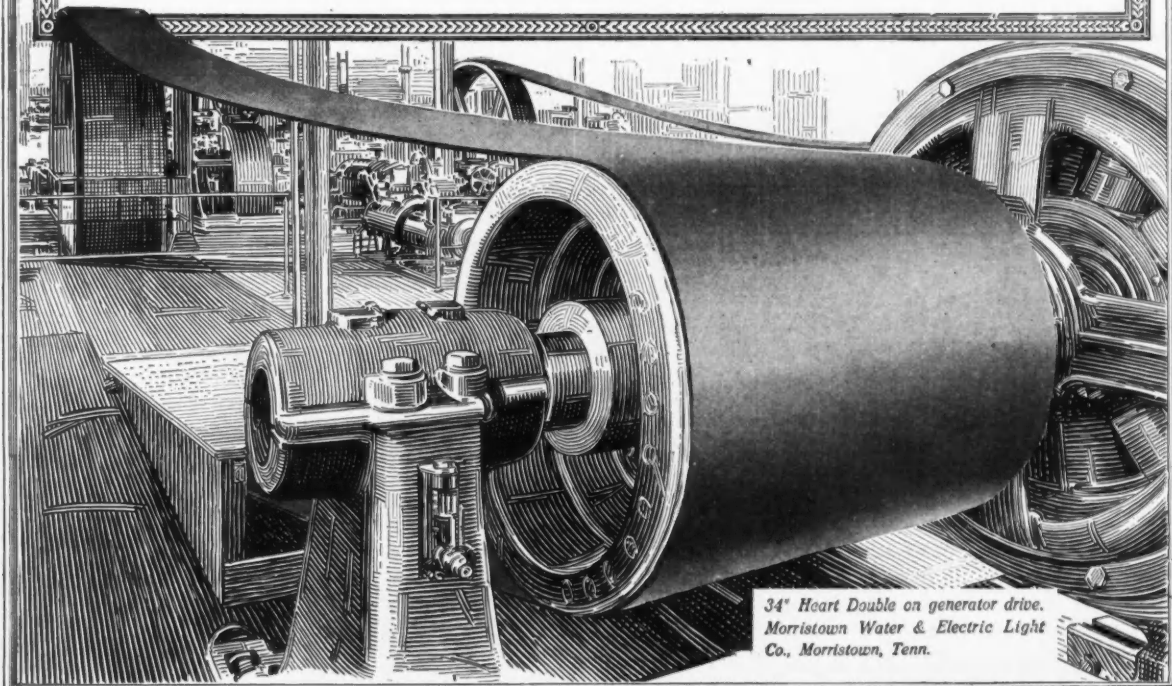
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34" Hart Double on generator drive.
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Co., Morristown, Tenn.

Water Power Situation in Canada

Although Vast, the Supply of Coal Is Nevertheless Limited, and Under Present Rate of Increase There Is a Possibility That It May Be Exhausted Eventually—Therefore Wherever Feasible Water Powers Should Be Developed So as to Diminish the Drain on Exhaustible Resources—Canada Stands Second Only to the United States in the Total Amount of Power Developed.

Read Before the Technical Section of the Canadian Pulp and Paper Association of Canada by A. M. Beale, of the Dominion Water Power Branch

So much has been published regarding various sources of power and their conservation that it is somewhat difficult to know where to begin and within what limits to confine this discussion.

The present serious situation in regard to the coal supply will give a tremendous impetus to water power development for a community served by hydro-electricity is to a large extent industrially independent of coal.

Fuel Supply Limited

The supply of coal and other fuels, vast as it is, is nevertheless limited and there is the possibility that at the present rapid rate of increase in use the supply will eventually be exhausted. On the other hand, there is a limit to the power capacity of any river, but once this is reached the same capacity can be indefinitely maintained.

Thus true power conservation consists in eliminating all waste and wherever economically feasible water powers, large or small, should be developed so as to diminish the drain on exhaustible resources.

The whole problem is one of great magnitude and the water power end of it requires a thorough investigation of its resources and their wise administration. I propose, therefore, to divide my subject under the two main headings of Investigation and Administration.

Statistics

It is interesting to know how Canada's water power resources compare with those of other countries. Diagram No. 1 graphically represents the relative status of the water power industry at home and abroad. (This diagram was compiled in the Dominion Water Power Branch from data contained in a paper by Arthur Surveyer, consulting engineer of Montreal, United States Consular Reports, evidence before the United States Senate Committee on the Water Power Bill, Commission of Conservation and from our own records and researches.) The data concerning Canada has been treated under two heads, the first, "A," dealing with the area, 2,000,000 square miles in extent, which is within reasonable distance of civilization, the other, "B," referring only to the area which is actually settled. The remaining vast area is at present outside the limits of practical politics.

You will notice that Canada stands second only to the United States in the total amount of power developed, while in power developed per capita yields only to Norway.

How Water Power Is Distributed

Table No. 2 indicates the manner in which our water power resources, both developed and undeveloped, are distributed throughout the Dominion, and conveys some idea of how the developed power is utilized. The figures shown cannot be considered final and will be revised from time to time as industrial census figures become available and as the investigation of power sites and stream flow progresses. You will note, however, that almost ex-

actly one-seventh of our developed water power is now used for pulp and paper.

Table II
Water Powers of Canada

Province	Power Developed				
	Power Available	Electrical Energy	Paper Pulp	Other Industries	Total
Ontario	5,800,000	632,083	83,375	74,008	789,466
Quebec	6,000,000	370,000	100,000	50,000	520,000
Nova Scotia	100,000	3,062	12,650	5,700	21,412
New Brunswick...	300,000	5,890	3,050	4,450	13,390
P. E. I.	3,000	50	.....	450	500
Manitoba .....	.....	76,200	.....	50	76,250
Saskatchewan	3,500,000	.....	.....	100	100
Alberta .....	.....	32,860	.....	.....	32,860
B. Columbia	3,000,000	216,345	49,000	4,275	269,620
Yukon	100,000	12,000	.....	.....	12,000
Total	18,803,000	1,348,490	248,075	139,033	1,735,598

Investigation of Natural Conditions

It would take more time than I care to devote to this section of my paper to outline the information concerning natural phenomena and physical conditions which must be gathered before reliable estimates concerning the power available and the cost of developing the same can be made. You will appreciate, however, that no little labor is involved when I state that it entails in every locality a study of rainfall, snowfall, temperature, ice conditions, general topography of drainage basins, surveys of power sites and storage reservoirs and finally most exacting of all a complete daily record of the stream flow covering a period of several years, ten years being the minimum desirable in the case of any important development.

Progress of Investigations

The systematic study of our water resources has only been undertaken comparatively recently. The Department of the Interior has organized hydrometric surveys and during the past six or seven years these have been in operation in the Railway Belt of British Columbia, Alberta, Saskatchewan and Manitoba. In British Columbia, outside the Railway Belt, and in Nova Scotia the department is co-operating with the provincial authorities in the same work.

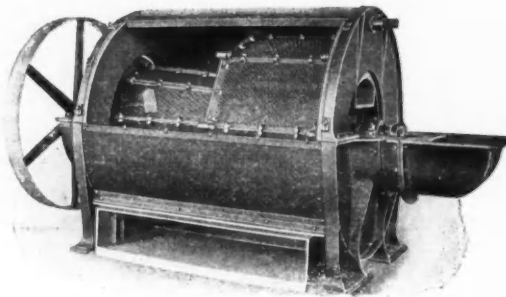
Beside stream measurement work, experienced engineers have investigated many rivers for power sites and storage, with a thoroughness commensurate with their importance, and reports embodying the results have been published and can be obtained on application.

Ontario and Quebec, except in so far as the Federal Government retains a measure of control on international and navigable streams, control their own resources. These are being investigated most thoroughly by the hydraulic divisions of the Ontario

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for the first screening of sulphite, sulphate or ground wood pulp

We shall be glad to furnish data and samples of the work this machine will do in actual use.



The cost of power and upkeep is extremely small and the results are very satisfactory.

Knotter Design No. 2

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PAPER

News
Book
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TISSUES

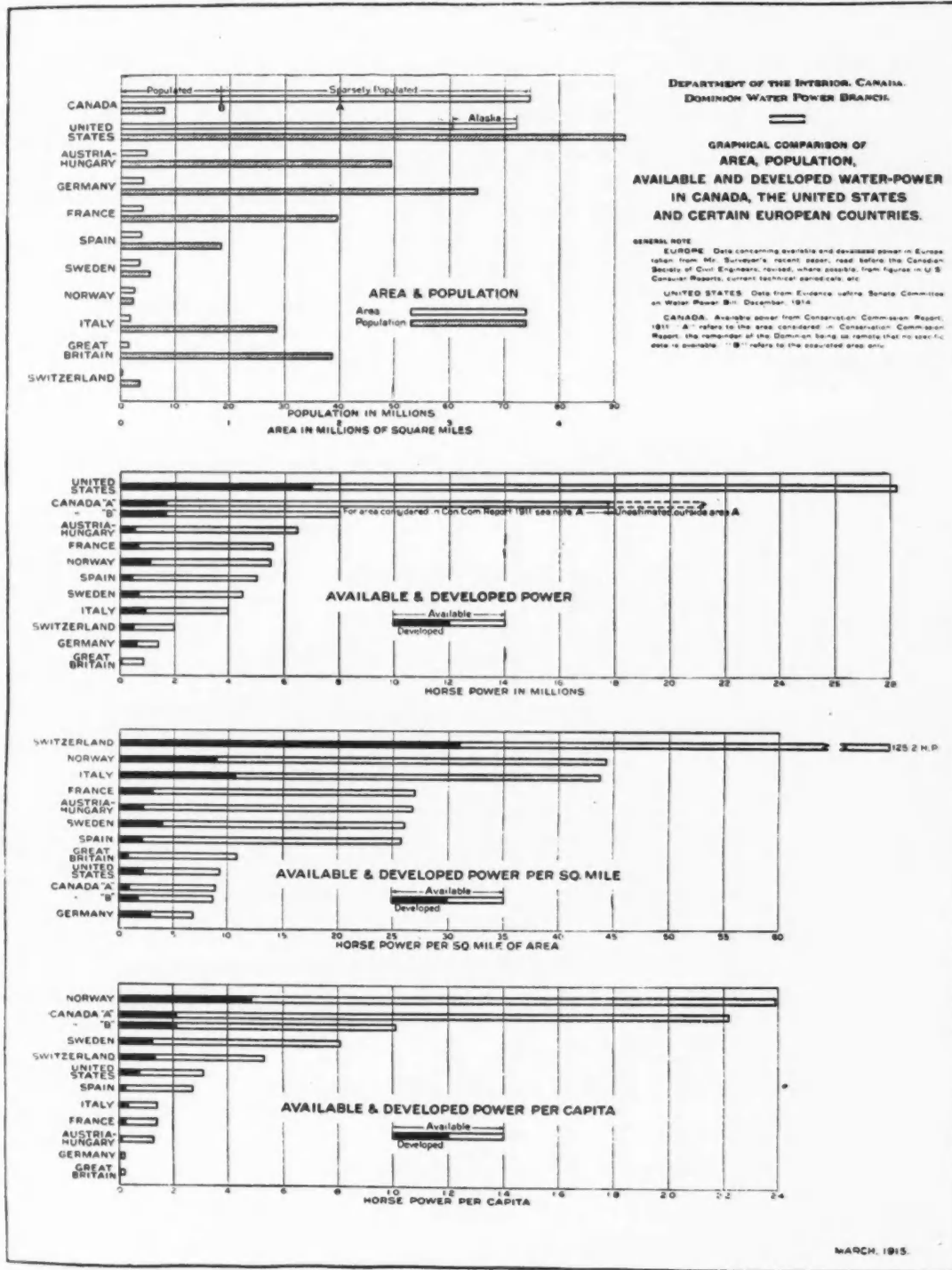
Interleaving
Carbon
Pattern
White
Manila
Colors, and
Specialties

**SPECIAL-
TIES**

in Embossing
and Hanging
Stocks for
Wall Paper
Mfrs.

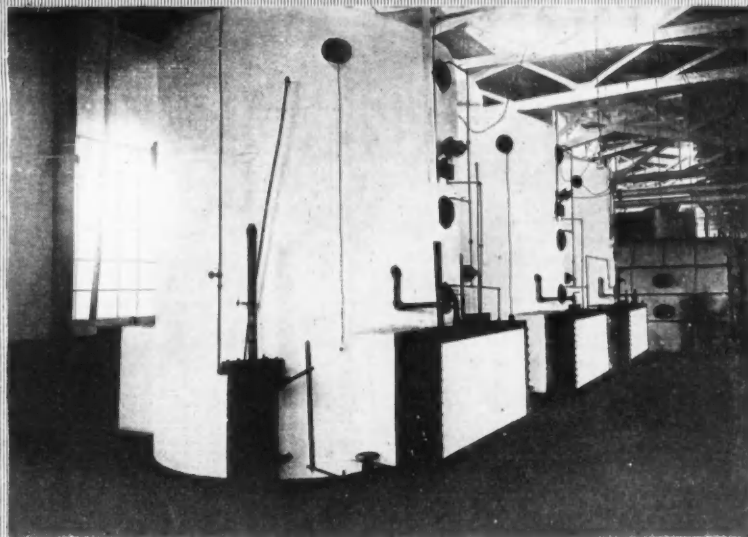
**MILL
SUPPLIES**

Foreign and
Domestic
New Cuttings
Old Rags
Wood Pulp
Jute Waste
Flax Waste
Old Rope
Bagging
Cotton Waste
Paper Stock
Animal Sizing
Gunny
Bagging





ZAREMBA
PATENT
EVAPORATOR



10 Zarembo Installations in Mills of West Virginia Pulp & Paper Company—Two More on the Way

The cut illustrates one of the Zarembo Patent Evaporators in the Tyrone Mill of the West Virginia Pulp & Paper Co. A total of 10 Zarembo Evaporators now in operation in the various mills of the "West Virginia" Company, and two more being built for them, is good evidence of the success of Zarembo Evaporators in the pulp and paper field.

The Zarembo story in the paper industry is one of money saved through the stoppage of "entrainment loss," and production efficiency, made possible by providing proper design for the work to be done.

ZAREMBA COMPANY,

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EVAPORATOR
— OF —
ZAREMBA
A TYPE FOR



INSTALLATIONS
MERIT —
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EVERY PURPOSE

Hydro-Electric Power Commission and the Quebec Streams Commission.

Power Costs

I have been asked to say a few words about power costs, but it is difficult to lay down precise limits as to what is a fair price to build water power plants. In any industry the question of power is only one of the many which must be studied in deciding upon the location of a manufacturing plant, and in any case, water power will only be adopted if it offers greater economic advantages than power from other sources. I have no access to data dealing with the costs of typical pulp mills. I might, therefore, either make a general statement regarding the costs of developing water power and maintaining it, a rather useless proceeding, or I might read you a long list of figures which would bore you exceedingly. Consequently I will do neither, but refer you to the various governmental reports and technical papers which contain these figures.

Regarding other countries, I have no precise figures concerning the cost of power. Scandinavia has some extraordinarily cheap high head powers; these are large installations supplying power to artificial nitrate plants; these are probably cheaper than anything we can expect in this country, but, in general, I think it can be said that in spite of the high cost of labor and material in this country we can compete advantageously with any other country in the world in cost of power.

Uses for Power

Everything considered, Canada is extremely fortunate in its power resources, both from fuel and water. If these resources, including coal and peat, are properly developed under a co-ordinated policy covering the whole country, we should ultimately become independent of outside supplies. It is possible that a portion of the Province of Ontario and even of Quebec will be dependent upon imported anthracite for domestic use, but even this possibility may eventually vanish. We may note with satisfaction that with the possible exception of a few in the middle prairie Provinces every commercial center in Canada is within transmission range of water power capable of economic development and sufficient for all anticipated municipal domestic and industrial needs. While as a result of recent experiments we are advised that power can be made available for local use, at a cost far less than that being paid at present, by using the lignite which is so abundant in the middle prairies.

At present the principal use of water power is for electric service, that is to say, for light, heat and power, and for street railways. The next in order of importance is for pulp and paper, which industry uses one-seventh of all the developed power and uses nearly double the amount consumed by all other industries combined (of course, these do not include those smaller industries taking power from public utility water power developments).

As a result of a careful analysis of the power situation in the various populated centers of the Dominion, it is safe to state that for some time to come the demand for municipal and ordinary commercial or domestic use can be met from existing developments, or additions thereto. It thus appears that any new demands for power which will involve the development of water powers must come from three possible directions: Railways, electro-chemical industries and pulp and paper.

In the case of railways the replacing of steam by electricity would involve heavy capital expenditure and the scrapping of much valuable plant. In any case, the change can only be very gradual. Even if this change does come it is not absolutely dependent on water power, for fuel economy when it becomes necessary, may be accomplished by the establishment of large central fuel-power stations. Therefore, for the present the water power situation throughout the Dominion must be considered very largely

from the standpoint of the industrial chemist and the pulp and paper man.

So far as the electro-chemical industry is concerned the problem is complicated and owing to considerations of labor, raw material, transportation and markets, may be considered to be confined to the industrial centers of Ontario and Quebec. The pulp and paper industry, however, has a freer field and there can be no doubt that there are a large number of new water powers which, owing to their location in relation to pulp timber, will be developed to cope with the rapidly increasing demand for paper.

I shall refer to this again presently but with your permission will make a few remarks regarding administration.

Administration

This opens up a vast subject to the consideration of which many volumes have been devoted. I shall merely indicate here a few of the principles which it is now generally conceded should govern administration:

1. Reasonable uniformity of regulations governing the development of water power for the whole of the Dominion is desirable.
2. Development of powers should be encouraged where general conditions are favorable.
3. Development should be discouraged when conditions are manifestly unfavorable.
4. The public should be assured continuous and efficient service at reasonable rates.
5. The lessee of a site should be protected from undue interference and assured that capital invested will not be liable to confiscation or hindered from earning a fair return. This is essential if the water power field is to be an attractive one to investors.
6. Rate regulation should be provided for but should only be imposed by a single, central impartial body.
7. Water power is a national asset and as such should not be allowed to pass absolutely from government control, it should also make an equitable contribution to the national exchequer.
8. Absolute fairness and good faith must characterize all relations between governments and power developing interests.

Rapid Evolution in Recent Times

Water power administration by the government in Canada has been a rapid evolution within recent times, and dates from the perfection of long distance transmission. Today the absolute necessity of considering water powers as one of the most important dominating natural resources of the country is admitted and realized. Provincial governments have endeavored to perfect water power regulations which will provide for development to meet all demands, protect the interested public and give the power companies reasonable returns. During the last year or so, and probably as a direct result of the fuel shortage, government water power authorities have been asking themselves whether it would not be wise to earmark water power developments for specific purposes. For instance, we find at Niagara very large blocks of power being used for electro-chemical purposes, which are urgently required for general domestic and municipal use. Had it been possible for government authorities 15 years ago to have foreseen the present situation, these electro-chemical industries might have been located at another power site, say, for instance, on the St. Lawrence River, where they could expand to practically unlimited extent, and Niagara power would now be released for more urgent and immediately pressing requirements. This question of priority of use is one of the most complicated and important problems that government power authorities must face. Realizing this the government water power engineer must be alive not only to the water power itself, but to the purpose for which it can be most advantageously employed and contribute freely whatever information he has, or can acquire to facilitate the consideration of all questions that will arise in establishing new industries. You will be inter-

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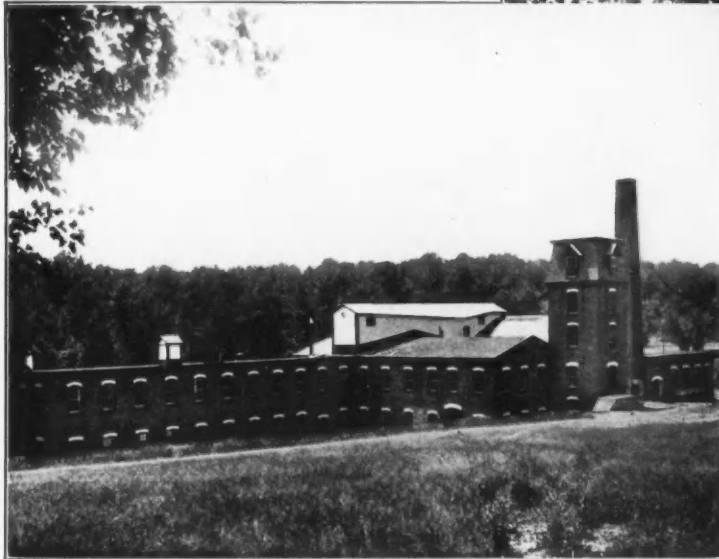
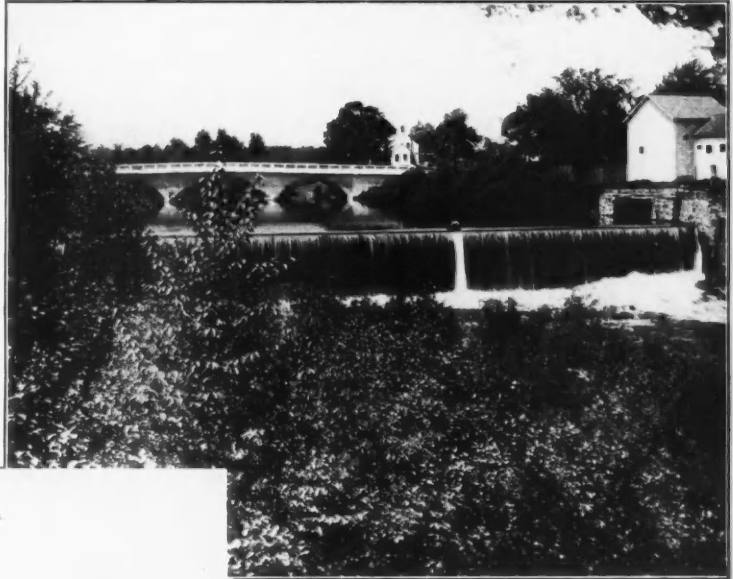
**THE ELECTRIC CONTROLLER
& MFG. CO. CLEVELAND, OHIO**

ested to know that the situation in western Canada has been carefully considered, and in view of information gathered in recent years by the Dominion Forestry Branch, relating more particularly to the location of pulp timber in the West and to the probable demand for pulp and paper products, two power sites have been considered to be particularly suited for pulp and paper purposes. These two sites, as a result of the co-operative work of the Dominion Forestry Branch, and the Dominion Water Power Branch, have been reserved for this industry, and all the information necessary to properly study their engineering and economic features, has already been gathered and is freely made available to anyone interested in the matter.

One of these, the Pine Falls site on the Winnipeg River, will yield 37,900 h. p. without, and 63,100 h. p. with river regulation. Careful estimates give the capital cost of development as \$80.66 and \$69.84, respectively, with corresponding annual costs of \$8 and \$7.08 per h. p. at the low tension switchboard at the powerhouse. It is interesting to note that the Department of the Interior expended \$100,000 in purchasing privately owned lands necessary to the complete realization of the power possibilities at this site.

The other is at Grand Rapids at the mouth of the Saskatchewan, where a concession was granted

mentioned how the Forestry and Water Power engineers have and paper industry. This is merely a beginning. You must come into the ring. If that word has an offensive tang, let us say the brotherhood. Study your own requirements, and see that those charged with water power administration and investigation include in their programme such research as you need. The chief exhortation of the day is "get together," which having heard, let us heed.



MILL AT WESTFIELD, MASS., RECENTLY BOUGHT BY MARS PAPER CORP.

about a year ago for a power development for pulp and paper purposes. Estimates by an independent hydraulic engineer show this to be a most attractive site. Another point of interest in this connection is that the department, noting the excellent results achieved at Grand Mere, has provided for the aesthetic and scientific treatment of the townsite area included in the concession. Such treatment of townsites contiguous so water powers developed for industrial purposes in western Canada is part of the settled policy of the Dominion authorities.

Water power is a comparatively new thing in Canada. The last ten years, however, have seen a great advance in the investigation, administration and development of this resource. Close co-operation will be needed if we are not to falter in our stride. I have

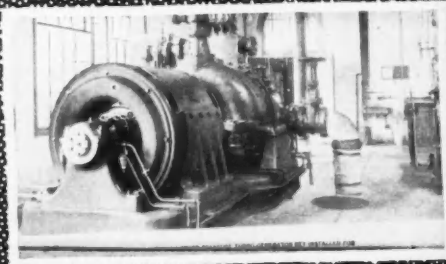
ings will be abandoned after this week, and that thought is borne out by information coming through the State fuel administrator for Pennsylvania. It is understood among business men here that the arbitrary closing down of industry has cut down materially the sales of war savings certificates and thrift stamps and that this provides the best argument so far produced why the plan should be abandoned, from the viewpoint of Government officials.

A cablegram was received late last week by J. F. Auer, head of the firm of Auer & Twitchell, of Philadelphia and New York, notifying him that Mr. Twitchell is seriously ill in France, with pleuro-pneumonia. Mr. Twitchell entered the service some months ago, after the United States got into the war against Germany.

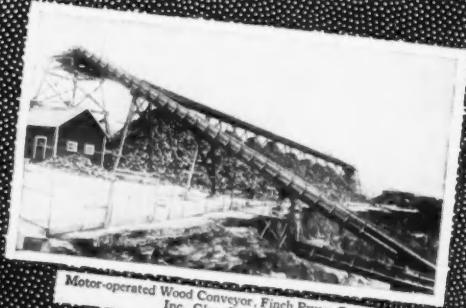
PHILADELPHIA SENDS LARGE NUMBERS

The biggest delegation ever sent from Philadelphia in the history of the national association is attending the convention in New York this week. F. A. O'Neil, president of the Philadelphia Paper Trade Association, announced early in the week that virtually every house in the Philadelphia district will have one or more representatives present at the various sessions of the convention. Mill men from this district also planned to attend in large numbers.

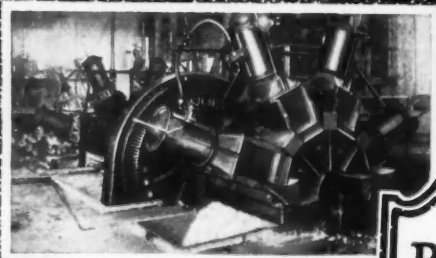
Although paper dealers generally in and around this city have given patriotic obedience to the Garfield Monday closing order, many of them are wondering what sort of a showing business in general is going to make in February, with two regular holidays and the four Mondays taken out. Some dealers here believe that the Monday clos-



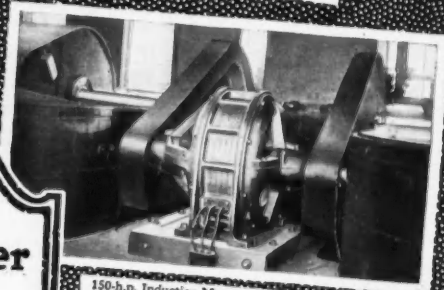
600-kw., 1800-r.p.m., Mixed Pressure Turbo-generator; Parsons Paper Company, Holyoke, Mass.



Motor-operated Wood Conveyor, Finch Fruyn Company, Inc., Glens Falls, N. Y.

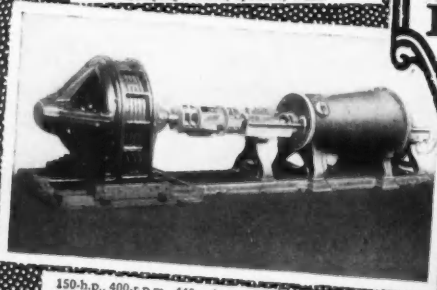


Two 1200-h.p., 240-r.p.m., 440-volt Synchronous Motors, each motor direct connected to two 4-pocket grinders. Inland Empire Paper Company's Plant, Spokane, Wash.

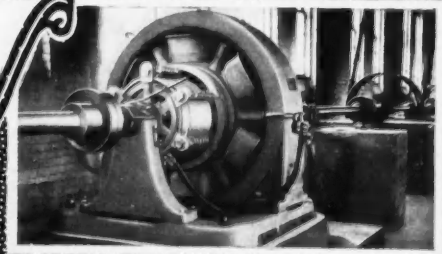


150-h.p. Induction Motor Driving Two Beaters through Chain Belts. Kimberly-Clark Company, Kimberly, Wis.

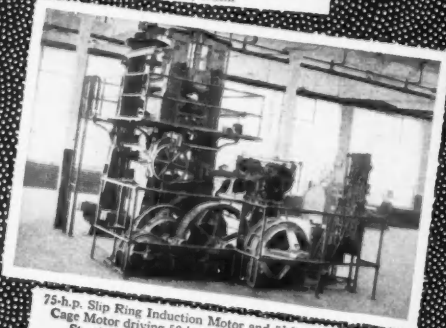
Typical G-E Pulp & Paper Mill Installations



150-h.p., 400-r.p.m., 440-volt Slip Ring Induction Motor driving Mammoth Jordan. Inland Empire Paper Company, Millwood, Wash.



One 100/225-h.p., 275/500-r.p.m., 220-volt Variable Speed Direct Current Motor direct connected at both ends to line shafting driving variable speed end of paper machine. Consolidated Water Power and Paper Company, Grand Rapids, Wis.



75-h.p. Slip Ring Induction Motor and 7 1/2-h.p. Squirrel Cage Motor driving 50-in. 9-roll stack paper calendar. Strathmore Paper Company, Woronoco, Mass.



15-h.p., 600-r.p.m., 550-volt Slip Ring Induction Motor and Panel for Plaster

General Electric Company

General Office: Schenectady, N. Y.

The Manufacture and Use of Coated Paper

Early Cost of Coating Was High and the Result was Not Satisfactory—Since Then, However, Great Improvements in the Processes Have Been Made Diminishing the Cost as the Demand for Paper of This Kind Has Expanded—Important Steps in the Process of Coating Paper Include Preparation of the Emulsion, Coating, Drying and Calendering.

Read before the Canadian Paper & Pulp Association by R. B. Foulis, of the Provincial Paper Mills Co., Ltd.

In dealing with coated papers it is not the intention to relate the process in detail but to give a general outline of their manufacture and use. In the early seventies of the last century there was a lack of sympathy between the printer and the fruits of his labor, owing to the class of paper produced at that period.

It did not show his skill to advantage, as the amount of ink required to fill the pores of the paper made a squash, leaving irregular lines that absorbed the beauty of his work.

The many things that were attempted to fill this uncompromising breach are not recorded, although the crying need of the printer and lithographer was temporarily fulfilled by coating sheets of paper by hand. Women and girls were employed at this work, drying the sheets on racks and finishing with a plate or sheet calender.

This method was not satisfactory and was very slow and the cost was high. It was impossible to smear evenly a sheet of paper by hand, with any composition, which ultimately set the mechanical world thinking until it produced the coating machine.

Since then rapid strides have been made, diminishing the cost as the demand increased. The early machines coated 20-inch rolls at 30 feet a minute; now a few are in operation coating 72-inch at 210 feet a minute, super-calendering in the reel and using mechanical methods in every stage possible to avoid handling, thereby preventing waste and increasing the output.

Of recent years the demand for coated papers has increased very considerably. Lithographers and printers now fully recognize the great advantage in their use. The surface and texture of coated paper enables them to produce their works of art in perfect detail and harmony. Without aid of coating it would be nigh impossible to reproduce the delicate lines defined by the camera and the engraver, which give the most brilliant effects to all illustrative works.

To produce these papers, the sole aim and object of the manufacturer is to furnish an ink resisting paper with a smooth and even surface and a bed for the foundation of the printer's handicraft. He may want a sheet for half-tone plates; three or four color work; heavy lithographing; varnishing or plain black prints, all of which have their own special treatment.

Uncoated paper, whether machine finished or super-calender or plated, does not have the necessary smoothness required for some classes of work. It is impossible to get the perfect flatness with an uncoated paper that is obtained with a coated sheet, and where flatness is approached, the character of the paper surface is not uniform. The only perfectly flat and uniform surface yet attained is possible with coated papers.

Process of Coating

The process of making coated papers may be classified as follows: Preparation of the composition or emulsion, coating, drying and calendering.

The composition consists of a mineral base mixed with an adhesive and coloring matter if necessary. The mineral part is usu-

ally barium and calcium sulphates and by-products, china clay, zinc oxide and silica or silicates. These substances, in various proportions yield a high or low finish as may be desired.

An adhesive agent, such as casein, glue and vegetable compounds, is utilized to attach to the paper the above ingredients, which have been ground extremely fine, and are furnished in powder or pulp form. The adhesive is dissolved, sometimes with the aid of a chemical, and by means of a mechanical agitator is mixed with the mineral compound and water, forming a milky emulsion, at all times representing a given weight.

This emulsion must be entirely free from froth, so as to eliminate the danger of bell-holes, commonly described as pinholes. Milk or soluble oil will free the emulsion from this defect.

In the coating process, the composition in all shades and colors is applied to the paper by passing the continuous web of paper through the coating machine. Here it comes in contact on one or both sides with the emulsion which fills up the pores of the paper and by means of felt rolls and brushes with the finest and softest of bristles is distributed in a smooth, even coat.

As the paper leaves the coating machine with its wet enameled surface, festoons carry it into the drying room, heated with either hot air or steam pipes. For the first 50 feet a temperature of 60° F. allows the adhesive to set, and with the temperature gradually increasing up to 100° F., does not weaken the sticking qualities of the adhesive agent. Drying coated papers in this manner allows the cellulose to retain a certain amount of the natural moisture and it is much more easily handled than if overdried, when it becomes hard and brittle. During the drying process the air in the drying room becomes saturated with moisture, evaporated from the emulsion while the setting is taking place. Fans are used to draw out the damp air and bring in fresh air, so as to accelerate the drying process.

In calendering the coated paper, the bowls must be entirely free from flaws, as blemishes show very readily on the coated surface. Tension is applied to take all stretch from the paper and to insure a perfect register in the hands of the printer. During this operation the heat of the calender removes the last undesired traces of moisture from the cellulose, at the same time allowing the sheet to be well closed, with a high or low finish as desired. The character of the finish is determined by proper control of the calendering.

Characteristics and Uses

It has been admitted that far better printing results are obtained if the coated paper is not used for some time after being newly coated. It loses the latent heat of the calender, lies flat, and becomes mellow and more sensitive to the printer's plate. At all times it is essential that coated papers, before printing, should be stored at a temperature from 50° to 60° F.

The most effective catalogues and pictorials are those which contain illustrations printed on coated paper suitable for half-tone work. This sheet has a high-finished surface of three-quarters



For Small Powers or Large Powers
Morse Silent Chains
 Deliver the Goods

YOU will admit that loss of power means loss of production. You know that belts slip and lose power. Any mechanic will tell you that gearing becomes less efficient as the tooth wear increases.

Therefore speeding up present productive equipment is simply a question of using that transmission system which **CANNOT** slip and lose power, and **DOES NOT** decrease in efficiency as it ages.

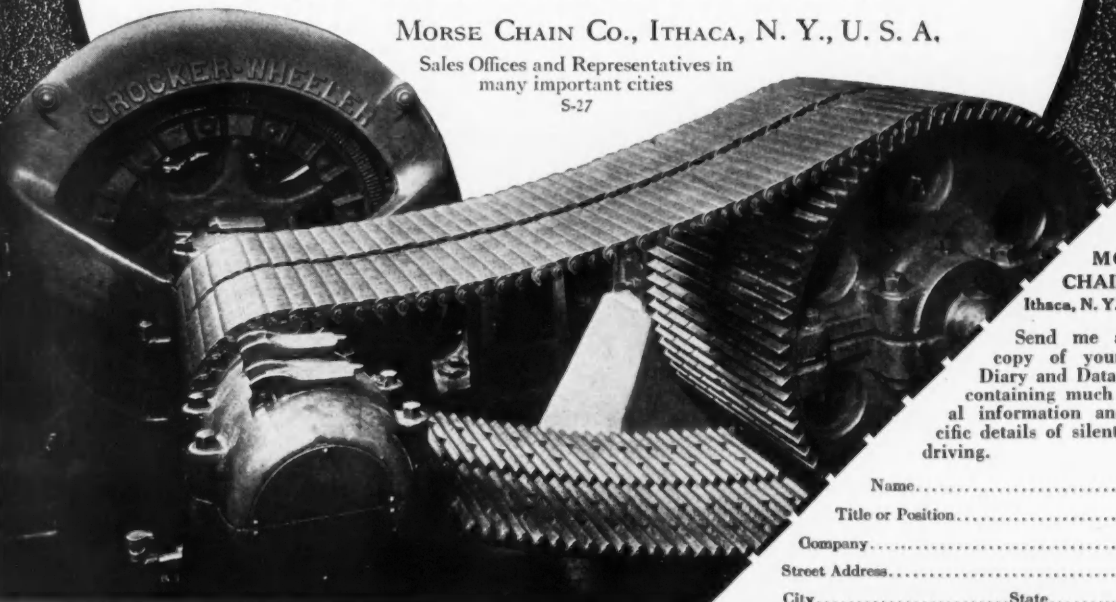
Silent chains as a class combine all of the advantages of belting and gearing without their disadvantages. MORSE Chains are best, yes **BEST**, in the silent class because their exclusive "Rocker-Joint" operates on a "rolling" friction principle, while all other chain joints operate on a "sliding" friction principle.

Take any two objects handy. Roll one and slide the other over your desk and you will see why MORSE Chains last longest and are most economical.

The coupon opposite is a convenient invention for your consideration of this subject.

MORSE CHAIN CO., ITHACA, N. Y., U. S. A.

Sales Offices and Representatives in many important cities
 S-27



MORSE CHAIN CO.
 Ithaca, N. Y. U.S.A.

Send me a free copy of your 1918 Diary and Data Book, containing much general information and specific details of silent chain driving.

Name.....
 Title or Position.....
 Company.....
 Street Address.....
 City..... State.....

satin white and one-quarter blanc fixe with a medium harness or the very opposite, having a dull or suéde finish, both showing off the subject illustrated in a decorative manner.

When three and four color work is contemplated, a sheet is wanted that has a nice, firm surface to reflect the rich tone of the color depicting the subject under consideration. This calls for a formula of two-thirds satin white and one-third blanc fixe. In heavy color work the composition usually applied is four-fifths barium sulphate and one-fifth calcium sulphate, known as "chrome." The paper is coated on one side with a hard-sized surface, enabling the lithographer to reproduce and insure the feeling and individuality of the artist in his subjects.

A litho sheet to stand varnish may have a high burnished surface, obtained by a rotary brushing machine before calendering, or a dull surface, extra hard-sized. To meet this demand a very dilute solution of formaldehyde is added where casein is the adhesive or chrome alum as a mordant with glue, rendering the coated surface practically varnish proof. A sheet of this description, when lithographed in colors, perhaps reviewing historical events and scenes, will last for years without fading and is always a picture of interest.

To obtain these sheets, great care is absolutely necessary in every stage to give perfection to their surfaces.

Coated or enameled papers have given abundant proof to the printer in all his modern methods that their use is a real asset. Without them he loses the enhancing value and potency of lithography, *i. e.*, the artcraft of printerdom.

MR. COMFORT GOES TO CARTHAGE

George O. Comfort, of Kalamazoo, has been elected vice-president and general manager of the Carthage Sulphite Pulp & Paper Company, of Carthage, N. Y., entering on his new duties February 1. He will be located permanently at Carthage, having full charge of the big mills there. He intends to move his family to that city in the near future.

Mr. Comfort is one of the best known paper manufacturers in the Kalamazoo valley district. He got his start in the Bardeen Paper company, of Otsego, and later came to Kalamazoo to be

associated with the Bryant Paper company. He was one of the organizers of the Monarch Paper company, capital \$600,000, that superseded the Gibson Paper Company and took over the property of that concern. He was elected the president of the Monarch Paper Company and supervised the erection of the fine modern three machine mill and coating plant of that concern.

One year ago he resigned to accept the presidency of the Comfort Paper Company, a \$400,000 Ohio corporation formed to erect a mill in the Miami valley. Later it was deemed advisable not to go on with this enterprise and Mr. Comfort was then induced to return to the Monarch Paper Company. Last September the capital stock was increased from \$600,000 to \$750,000, the additional amount to be used in the improvement and extension of the present plant.

It was during December last that Mr. Comfort decided to finally sever his connection with the Monarch Paper Company in an official capacity. He is still a heavy stockholder in the company and will retain his interests, though no longer acting in an official capacity. As previously announced in the *PAPER TRADE JOURNAL*, he was succeeded by C. A. Dewing, as president, while Alexander H. Gilman, came from the Wheat Paper Company, Elkhart, Ind., to act as general manager of the concern.

Early in January, Mr. Comfort went to New York City for conference with J. A. Outterson, president of the Carthage Sulphite Pulp & Paper Company and at that time it was arranged for him to take over the general management of the mill, with a place among the officers and directors and a substantial block of stock in the company.

Mr. Comfort's decision to leave Kalamazoo is generally regretted. The family had a large circle of friends here and will be missed in many circles.

NEBER PAPER SPECIALTY CO. INCORPORATES

The Neber's Paper Specialty Company of New York City has incorporated under New York State laws, with capital stock placed at \$25,000. The incorporators are E. T. and M. G. and F. D. Neber.



PLANT OF THE SUGAR CANE BY-PRODUCTS CO. AT NEW IBERIA, LA., TO MANUFACTURE SULPHITE AND SODA FIBRE FROM BAGASSE AND RICE STRAW ON A LARGE SCALE. HON. WARNER MILLER IS PRESIDENT OF THE COMPANY.

Editorial

Vol. LXVI. New York, Thursday, February 7, 1918 No. 6
FORTY-SIXTH YEAR

The Annual Number

This annual review and convention number of the PAPER TRADE JOURNAL establishes a new record in the size of this publication.

The pages this year number 400, which is 16 more than were printed last year, although last year's annual review number was the largest by a considerable margin, that had ever been printed in the history of the publication. Not only is this year's annual review number the largest that has ever been issued, but it has been necessary to turn down a considerable amount of advertising, which it has not been possible to handle because of insufficient time and other restrictions which naturally are encountered in putting through the press a volume of such size.

This growth in the annual review and convention number of the PAPER TRADE JOURNAL is specially interesting for several reasons. It indicates, of course, that the PAPER TRADE JOURNAL easily continues to maintain the prestige it has always enjoyed as the leading publication in its field, and it indicates, also, a remarkable expansion in recent years in the paper industry.

This issue contains much matter of unusual value for everyone connected with the paper trade. The reviews in the different departments of the trade present a brief history of the purely commercial side of the industry, the illustrations and descriptions of the new mills and mill improvements visualize how the industry has been growing and the numerous technical articles and reports will be certain to prove helpful to the persons who are increasingly turning their attention to the technical side of the industry. Last but not least, by any means, this number cannot fail to prove valuable, because of the large number of interesting advertisements included in its pages. These pages form a directory of the concerns seeking customers in the paper trade, the value of which can hardly be overestimated. In a word, this number of the PAPER TRADE JOURNAL will be preserved for reference purposes because it deserves to be.

The Convention

The convention of the American Paper & Pulp Association which has just been held in New York was undoubtedly the most important in the history of the association.

It was the first national convention of the organization since the United States entered the world war. As several speakers intimated the present is a critical period not only in the affairs of the country but in the paper industry as well. Numerous important problems face the trade already and others are bound to present themselves in the more or less immediate future. The deliberations of the convention cannot fail to be helpful in taking care of all of these.

The fact was referred to that because of the exigencies caused by the war, some members have shown a disposition to take a lesser interest in some divisions and sections of the as-

sociation than they have in the past. This is to be regretted. As already stated association work and trade co-operation has perhaps never been so important as at the present time. Only active service in some branch of the country's war activities ought to be a sufficient cause to excuse any member of the trade from co-operating as actively and as enthusiastically as ever in the work of the association.

Mr. Daniels has served the association well as its head and the members will regret to learn that he could not be prevailed upon to continue in office especially just now. However his several terms of earnest service in the interest of the association entitle him to a rest. The new president has for some time past been actively interested in the association and may be expected to administer his important office with credit to himself and to the satisfaction of the association.

The banquet although conducted with discrimination for the seriousness of the times was enjoyable. Although the souvenir that is usually given out was omitted this year, it was good to appreciate that some important war charity would profit by this denial. The patriotism otherwise expressed also was inspiring. It indicated that every branch of the paper trade, regardless of the cost, is heart and soul for winning the war at the earliest possible moment.

Store Door Delivery

The Directors of The Merchants' Association have approved a plan proposed by the Transportation Committee of the Association, of which W. B. Dudley is Chairman, for relieving the congestion in the Port of New York. The plan was formulated by The Association's Traffic Bureau.

It provides for installation of a "store door delivery" system and a "pick-up service." Everyone who is acquainted with the conditions existing in New York will appreciate that any reasonable plan for solving the inconveniences of the present situation deserves careful consideration.

Under the proposed plan the trucking company could have lined upon the pier batteries of trucks serving particular zones, and as the freight is unloaded from carfloat, which is usually in the early hours of the morning, each truck would be loaded according to the zone which it is to serve with freight for consignees in that zone. The truck would then be ready to proceed with the delivery of freight with the opening of business hours. The same method could be continued as more freight may be floated in during the day. The pier station would thereby be kept free of incoming freight awaiting calls and more adequate facilities would thereby be provided for the handling of outbound business. By this trucking method deliveries would be made earlier than under present methods, and before the consignee under present methods receives notice of arrival.

The same trucks could also be employed in picking up freight for movement from store to pier station for outbound shipment. By this method with proper co-operation on the part of shippers, a more even delivery of freight to the pier stations throughout the day could be accomplished and the frightful line-up and delays to trucks which take place in the late afternoon would be avoided.

By this method trucks would be substantially assured of full loading in one direction and probably in both—instead of as now, being engaged largely in a one-way empty movement or only partly loaded movement.

In order to make such an arrangement effective it would mean the taking over of the trucking to and from railroad stations by the railroads, or an organized trucking concern under the employment of the carriers, or the pooling of trucking under a competent manager. The benefits that are promised from the proposed plan are summed up as follows:

"To shipper:

More prompt delivery of his merchandise.

Avoidance of delays to trucks which has led to increasing cartage charges.

By greater efficiency in trucking and at lesser costs.

"To Carrier:

Enables carrier to relieve itself of freight the day of arrival.

Increases efficiency at stations.

Permits handling of greater volume of business with same facilities.

Avoids holding cars at rail termini."

The plan is being received with much favor by men competent to judge of its merits as it is believed that it will put an end to freight congestion in the city of New York.

WAGE INCREASES IN THE PAPER TRADE

In connection with the monthly figures of employment in certain industries made by experts of the Bureau of Labor Statistics, Department of Labor, they have the following to say about changes in wages in paper mills during the month of October.

Increases in the wages are reported by six plants in the paper-making industry. One plant reports an increase of 25 per cent to 90 per cent of the force; one an increase of 15 per cent to male and 10 per cent to female employees; one reports an increase of 20 per cent, but does not state the part of the force affected, and three report an increase of 10 per cent to all employees.

Replying to inquiries sent out by the bureau, 50 paper mills answered the schedules for November, 1916, as well as November, 1917. In these 50 mills there were 23,724 persons employed in November, 1916, increasing the same month, following year, to 25,955, or an increase of 9 per cent. The payrolls in these mills, however, increased from \$347,320 for November, 1916, to \$450,603, in November, 1917, showing an increase of 29.7 per cent.

Forty-eight paper mills reported for both October and November, 1917. In October, 1917, there were employed in these 48 mills, 25,438 persons, increasing the following month to 25,594, or an increase of .6 per cent. The payrolls in these mills increased from \$408,463 in October, 1917, to \$44,747, in November, or an increase of 8.9 per cent.

PAPER SALESMAN IN FLYING CORPS

Howard Miller, one of the well known salesmen connected with Charles F. Hubbs & Co., 389 Lafayette street, is now in the Naval Reserve Flying Corps and has gone to Boston for an eight weeks' technical course at the Massachusetts Institute of Technology. Mr. Miller enlisted last May in the Naval Reserves. He has been with the firm of Charles F. Hubbs & Co. for the past two years. His course at "Tech" should give him an unusual opportunity of which, judging from his past record, he will undoubtedly take advantage. Mr. Miller has a host of friends in the local trade.

A LETTER FROM THE FRONT

Philip Stone, formerly assistant editor of the PAPER TRADE JOURNAL, who is now in the Aviation Corps of the United States Army, has written the following interesting letter to the editor of this paper:

FRANCE, January 5, 1918.

H. J. BERGER,

Editor PAPER TRADE JOURNAL.

DEAR BERGER:

Am naturally not able to give particulars, but have been in France for the past three months, after an uneventful voyage, and am now located at an aviation training field near a French city. Have been "in the air" for two months nearly, but have not made any remarkable progress, as French winter weather was distinctly not made for flying, however fair it may be upon the ground.

Am not so very far from civilization, as there is plenty of diversion of a sort in the city nearby, and beautiful country with good roads in all directions. I came through with a detachment of cadets, most of whom are now together here. We are having all the pleasures incident to being among the first to be trained at this field by the Americans, but aside from that we are getting along in pretty satisfactory shape. I dare say we are as well off for coal and wine as you are in Manhattan nowadays.

PHILIP STONE.

PRODUCTION OF NEWS-PRINT PAPER

Reports from 34 companies operating 57 news print mills show the following results for the first three weeks of January, 1918:

	First Week.	Second Week.	Third Week.
Production—	Tons.	Tons.	Tons.
Total print.....	23,754	25,078	20,363
Standard news.....	21,887	23,142	18,628
Shipments—			
Total print.....	19,552	25,592	20,949
Standard news.....	17,460	23,929	19,394
Mill stocks—			
Total print.....	36,720	36,404	35,801
Standard news.....	31,534	30,964	30,275

Production for the first week ending January 6, 1918, was curtailed by the New Year's holiday. Production for the third week ending January 20 was curtailed by the Fuel Administration's closing order. During the second and third week shipments exceeded production, so that mill stocks declined.

EDWIN BUTTERWORTH & CO.

MANCHESTER, ENGLAND

Packers of all kinds of

PAPER STOCK, COTTON WASTE AND GUNNY BAGGING, BUFFALO SIZING, Etc.

83 Sole Agents HAFSLUND

BLEACHED SULPHITE PULP — BEAR BRAND

Office in New York

JAMES PIRNIE, Manager, VANDERBILT BUILDING, 132 NASSAU ST.

Branch Offices at Boston: 160 Congress St.—CHARLES H. WOOD, Mgr.

"WATERBURY"

W Felts-Jackets W
ORISKANY, N. Y.

OUR TIGHT FITTING, DIAMOND "W" JACKETS
WILL NOT LICK UP AT ANY SPEED

1869 {MADE ONLY AND} 1918
{GUARANTEED BY}

H. WATERBURY AND SONS COMPANY, ORISKANY, N. Y.

Two Reasons why we guarantee "Test Special" Rubber Belting

BEAVER BOARD
THE BOARD OF MANUFACTURERS OF RUBBER BELTING
 ADMINISTRATIVE OFFICES 4 SOUTH ST. NEW YORK, N. Y.
 CAN. DIVISION OFFICES 4 SOUTH ST. NEW YORK, N. Y.
 ENGLAND - CABLE ADDRESS "BEAVER BOARD"

New York Belting & Packing Co.,
 91 Chambers Street,
 New York, N. Y.

Gentlemen:-

We have your recent letter asking our opinion of the "Test Special" friction surface rubber belting which you have furnished us.

We are glad to tell you that this belting has proven very satisfactory and we consider that we are getting very efficient results by its use. As you know we used the "Test Special" to belt up our new board mill at Thorold, Ontario, in the Fall of 1934. The mill has operated at full capacity from the start and we have not been required to make any changes in this belting to date. The fact that we had very good success with Thorold will lead us to believe that we would receive equal satisfaction with your product at Thorold. We are pleased to tell you that our anticipations in this direction have been fully realized.

We have been agreeably surprised by the fact that we have had no such trouble as is usually caused by the stretching of belting on new equipment. All the belts are in first class condition and from their present appearance are good for a long term of service.

We are glad to recommend "Test Special" belting to anyone who wants efficient belt service!

Yours very truly,
 THE BEAVER BOARD
J. L. ...
 MANUFACTURING

250/4

Petaluma Box Company, Inc.
MANUFACTURERS OF ALL KINDS OF FRAYS, EGG CASES, CHICKEN COOPS, BERRY CHESTS, LUMBER, LATH, SHAKES, SHIMBLES, SANDPAPER, SHAVINGS AND BOX WOOD
 1000 ...
 SAN FRANCISCO, CALIF. 4-8-18

Gentlemen:-

Your last shipment of "Test Special" rubber belting came duly to hand. Please accept our thanks for promptness in filling this order.

We are now using this brand of belting on a good part of our plant and have found it so satisfactory that we are replacing all worn out belts with "Test Special". We have placed this belt on high speed machines and in places where severe strains and overloads are carried and our experience is that it carries the loads and lasts longer than the best grades of leather or Balata belting.

We find that it is not affected by heat or moisture, will not tear out at the lacing and will last for six months on a run that wears out the best grade of leather belt in three months. We do not hesitate to recommend "Test Special" belting for use for any purpose for which a belt is used.

Very truly yours,
 Petaluma Box Co.
 Per *V. L. ...*

17/12

Have You a Belting Problem?



NEW YORK BELTING & PACKING COMPANY

- | | | |
|---|--|---|
| NEW YORK, N. Y. 91-93 Chambers Street | \|\| | SAN FRANCISCO, CAL. 519 Mission Street |
| CHICAGO, ILL. 124-126 West Lake Street | | BOSTON, MASS. 65 Pearl Street |
| ST. LOUIS, MO. 218-220 Chestnut Street | | PITTSBURGH, PA. 420 First Avenue |
| PHILADELPHIA, PA. 821-823 Arch Street | | SPOKANE, WASH. 157 So. Monroe Street |

Laurentide Co.'s Big Power Development

Work Originally Started in 1913, But Was Interrupted by the War—Capacity of the Plant Has Been Increased by Raising Head to 84 Feet—Substructure Reinforced by Mass Additions—Series of Open and Gated Spillways Will Pass Flood of 200,000 Second-Feet—Original Design by George F. Hardy, of New York, and Later Work in Charge of E. B. Vardle, Chief Engineer.

The great hydro-electric station of the Laurentide Company, at Grand Mère, Quebec, is notable for the attention paid to finish on both outside and inside. Some interesting features of the development here are due to a change in the hydraulic conditions made after the work was well under way. The present development shows a record figure of masonry placed per horse-power of capacity created for medium-head plants of this type—having concrete penstocks molded in the substructure. The cost per horse-power of turbines installed, including riparian rights, is notably low (under \$50) and will be reduced to less than \$40 when the projected installation is complete. There are now in service six (out of nine eventually) 25,000 horse-power single-runner units that were the highest in capacity when set and have since been exceeded only by the higher-head machines at Yadkin Narrows, North Carolina.

Work on the Laurentide development was started early in 1913, but was shut down in October, 1914, owing to the war. However, the demands for power in the province grew rapidly and the initial construction was resumed in May, 1915, and completed by the beginning of 1917.

The St. Maurice River at Grand Mère was split by a large rock island into two streams—the east channel, 300 ft. wide, and the west, 350 ft. As the streams came together they tumbled through a rocky gorge with a natural fall of about 45 ft. For about 20 years prior to the present development there were wooden dams

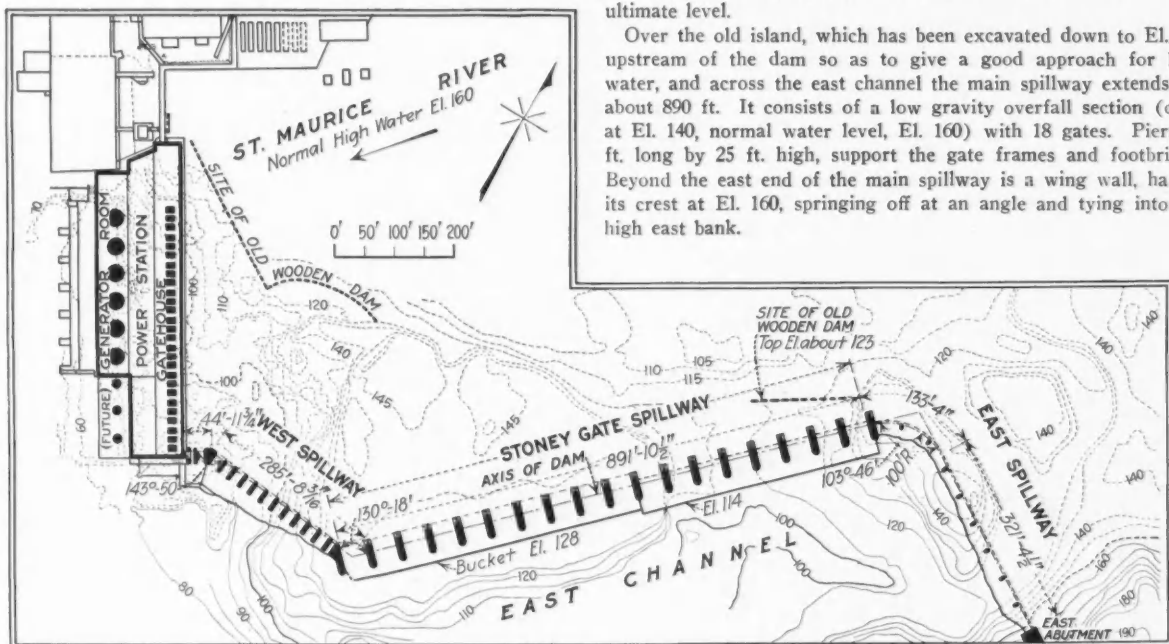
across each channel, creating a pond about 4 miles long above the falls and increasing the fall to 50 ft., at which head about 20,000 horse-power was developed in 17 various turbines used for driving pulp and paper-mill machinery.

The old intake was at what is now the north end of the new station, and the largest turbines were in the old grinder house immediately downstream. Penstocks ran out to the other scattered units. The old intake had to be left in service until two units of the new station were running and electric drives substituted for the old direct-connected mill turbines. This was done by extending the grinder house northward and shifting a unit at a time, without decreasing the production output of the mills. When the shift was completed the old intake was closed by a retaining wall mentioned later.

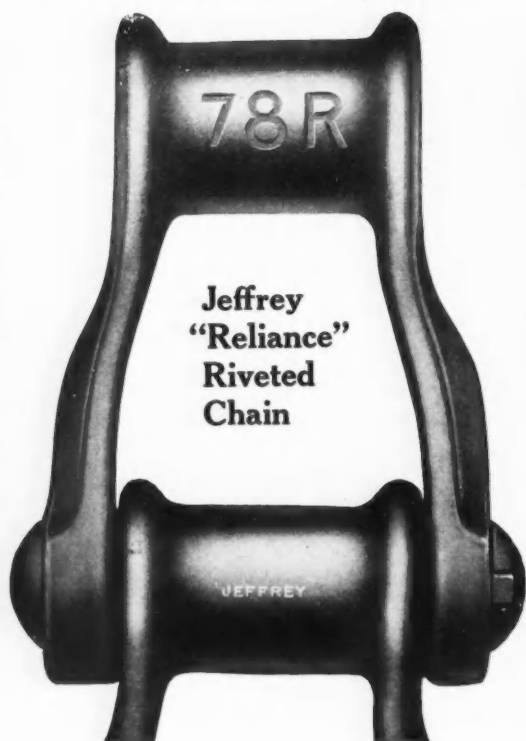
Concrete Dams Replace Wood

For the new development a series of concrete dams has been thrown across the river, downstream from the old wooden dams. The power house itself forms the dam across the west channel except for a stretch of 330 ft. to what was Grand Mère Island (now removed). This west spillway consists of a gravity overfall section with 14 piers, mostly 16 ft. apart, supporting a footbridge. Stoplogs will ordinarily be kept between piers on this section of spillway (for the present to El. 156 and eventually to El. 160) when the pulpwood storage yard has been filled in to its ultimate level.

Over the old island, which has been excavated down to El. 144 upstream of the dam so as to give a good approach for high water, and across the east channel the main spillway extends for about 890 ft. It consists of a low gravity overfall section (crest at El. 140, normal water level, El. 160) with 18 gates. Piers 46 ft. long by 25 ft. high, support the gate frames and footbridge. Beyond the east end of the main spillway is a wing wall, having its crest at El. 160, springing off at an angle and tying into the high east bank.



Courtesy of Engineering News-Record. POWER HOUSE AND THREE SECTIONS OF SPILLWAY FORM A 2230-FOOT DAM.



Jeffrey
"Reliance"
Riveted
Chain



Jeffrey
Detachable
Link Chain

A General Service chain for drives of ordinary service and for Elevators and Conveyers in non-gritty materials or in slightly gritty materials where partially protected—also packages, barrels, boxes, etc.



No. 111½" Square Shank Pin



No. 111 Square
Shank Pin
"Hercules" Chain

Jeffrey Square Shank Pin "Hercules" Combination Malleable Iron and Steel Chains are the recognized standard for Conveyer service for handling Pulp Wood.

JEFFREY CHAINS

For Paper and Board Mills

For Handling Pulp Wood, Wood Slivers, Straw, Etc.

Chains are too important a factor in the efficiency and durability of your Elevating and Conveying Equipment to be passed without investigation.

JEFFREY CHAINS stand the wear and tear of hard service—and are built in types for all Elevating, Conveying and Power Transmission requirements.

Write for Bulletins, Prices and full particulars and let us figure on your requirements.

The Jeffrey Manufacturing Co.
931-41 North Fourth St. Columbus, Ohio



Jeffrey Flat and Round Steel Link Chain

is especially adapted for Carriers for handling wet or dry straw. Used extensively in Straw Board Mills.

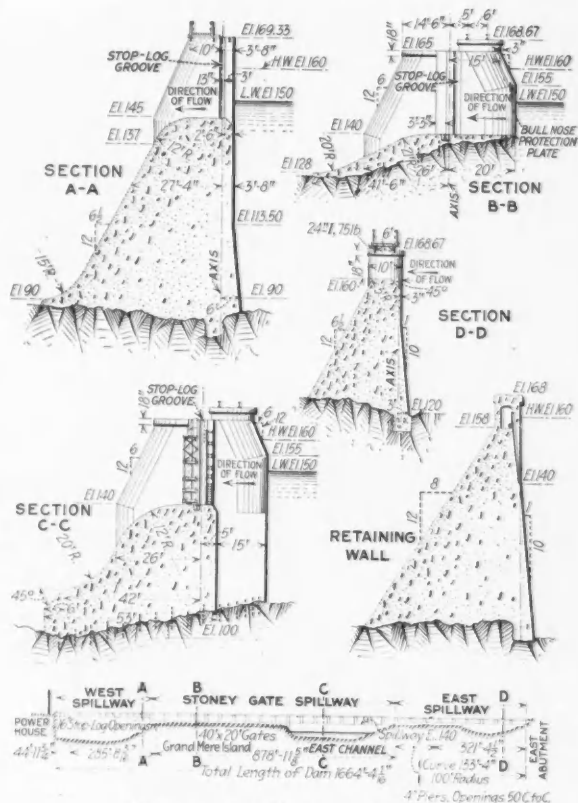
From the north end of the power house a solid gravity-section cut-off wall on rock runs around the mill's water-supply settling basin and barker room to protect the buildings below the dam. The top of this wall is at El. 168 and the entire development has been planned so that no possible danger can be done with water up to El. 168. With the water at El. 160 and all the spillway gates raised the dam will pass 200,000 sec.-ft. (approx. 12½ sec.-ft. per square mile of drainage area) or 20 per cent. more than the maximum recorded flow. At the end of the station there are three sluiceways, together capable of passing about 5,000 sec.-ft. One of these sluices has lowering gates to facilitate skimming of trash without wasting water.

The design of the main spillway gates is seen from the drawing. They are of the regular Stoney type, handled from steel bridges. The gate slots are fitted with end and back bearing channels and front sealing angles. Round bronze sealing rods are hung somewhat loosely in the upstream corner between gate and sealing angle as detailed on p. 976.

The tops of all the gate bridges are connected by a trolley track of 3-ft. gage, on which the gate hoist is run from place to place. The hoist screws are let down to engage the eyes at each top corner of the gate. After the gates are up they are supported on their own bridges by pins (thrown in by the center lever shown in the accompanying sketch) so that the trolley can disengage and go along. Lowering is, of course, a reverse process.

The main gate-piers have grooves upstream from the gates for emergency stoplogs, which in this case are steel beams from 16 to 42 in. high (depending on depth to which they are to be placed) built up of 20-in. I-beams and a front skin plate and sealed by timbers. Two full sets of stop logs are provided. The power house consists essentially of a monolithic concrete substructure forming a section of the dam, the penstocks and turbine scroll cases, the draft tubes and the machinery and building foundations. The arrangement is shown in plan and elevation. This results in a generator room on the downstream side 87 ft. high by 45 ft. wide and 325 ft. long (for six units). Back of this room are the low-tension (6,600-volt) switching and busbar compartments and above these the transformer room 25 x 25 x 400 ft. Over this in turn is the space 33 x 40 x 400 ft. for the high-tension buses (100,000 volts).

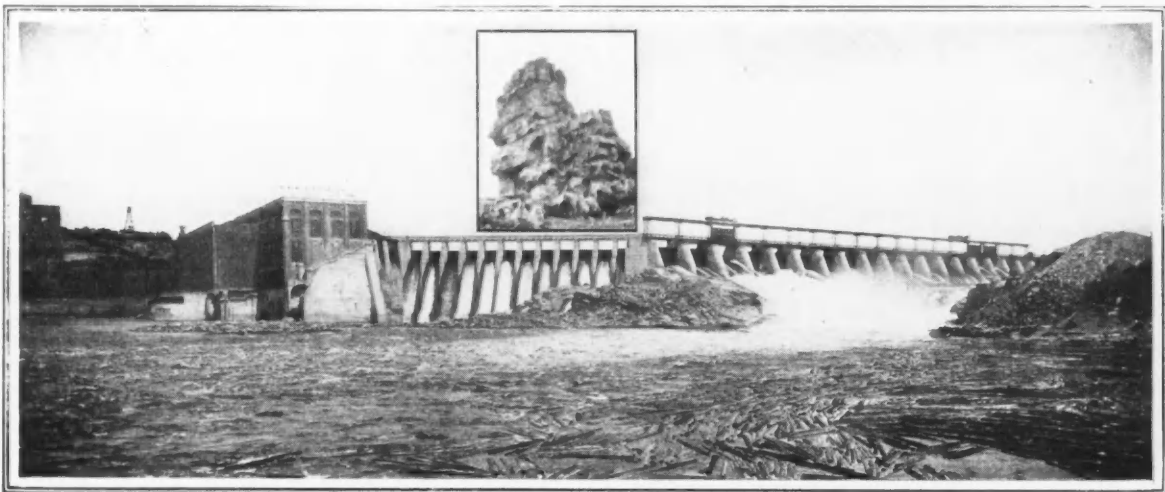
At the north end are the control departments. On the transformer level are control switches and transformers for the mill grinder motors, lubricating and switch oil storage. On the half story above are the storage batteries, the motor-generator sets for



Arrangement of Piers and Spillways on Dam
 Courtesy of Engineering News-Record.
 TYPICAL SECTION OF LAURENTIDE DAM.

220-volt control circuits, cranes and auxiliary excitation. On the high-tension level are the wash rooms and offices. On the half story above is the control apparatus and bench-board panels, including the switchboard controlling the grinder motors.

On the same level, and of about the same size as the high-tension room, is the gate room. It is separated from the former by the thick top section of the concrete substructure, which, however, is



Courtesy of Engineering News-Record.

A LONG CREST GATED DAM STRETCHES ACROSS WHERE GRAND MERE PINNACLE STOOD.



They Help Speed Your Paper Output

Transmission Belts Deckle Straps Water Hose
 Press Roll Coverings Diaphragms Valves
 Packings, etc., made by

GOODRICH

will speed your output due to fewer breakdowns because of the inbred quality that you'll find in every **GOODRICH** product—from the world famous "Silvertown" Tire down to the small but always dependable valve.

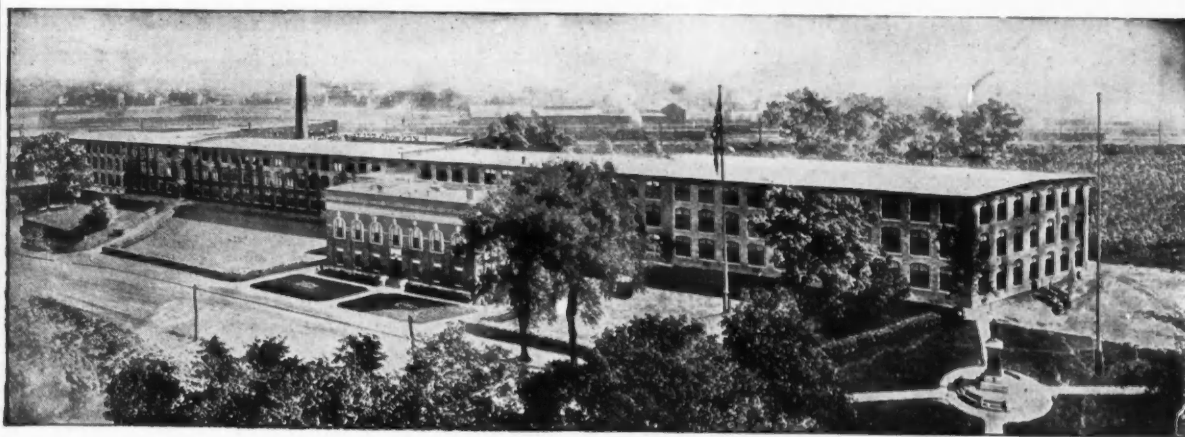
THE B.F. GOODRICH RUBBER COMPANY

Makers of the Celebrated Goodrich Automobile Tires—"Best in the Long Run"

AKRON, OHIO—The City of Goodrich



F. C. HUYCK & SONS ALBANY, N. Y.



Manufacturers of Kenwood Felts and Jackets for all kinds of Paper and Pulp.
 Seamless Felts both for high speed machines and fine papers.

pierced by doors and heating-flues. In the gate room are gratings over the racks in each inlet passage and, upstream from these the emergency gates—plated steel frames in three sections handled by a 20-ton traveling crane. The main gates are placed along the inside wall of the gate room and each is raised or lowered by its own hoist or by the gate-room crane in emergencies.

Underneath the outer wall of the gate room a curtain wall spans between piers and hangs down to El. 147. The warm air from under the roof of the generator and high-tension room is drawn down by a motor-driven fan for each unit and forced into the rack chamber. This is to preserve the heat gradient from the rack bars and gate slots to the water so that no frazil ice will stick. No difficulty has been found with ice, as the approach velocity is very low, less than 1 ft. per sec., and the pond is completely frozen over all winter.

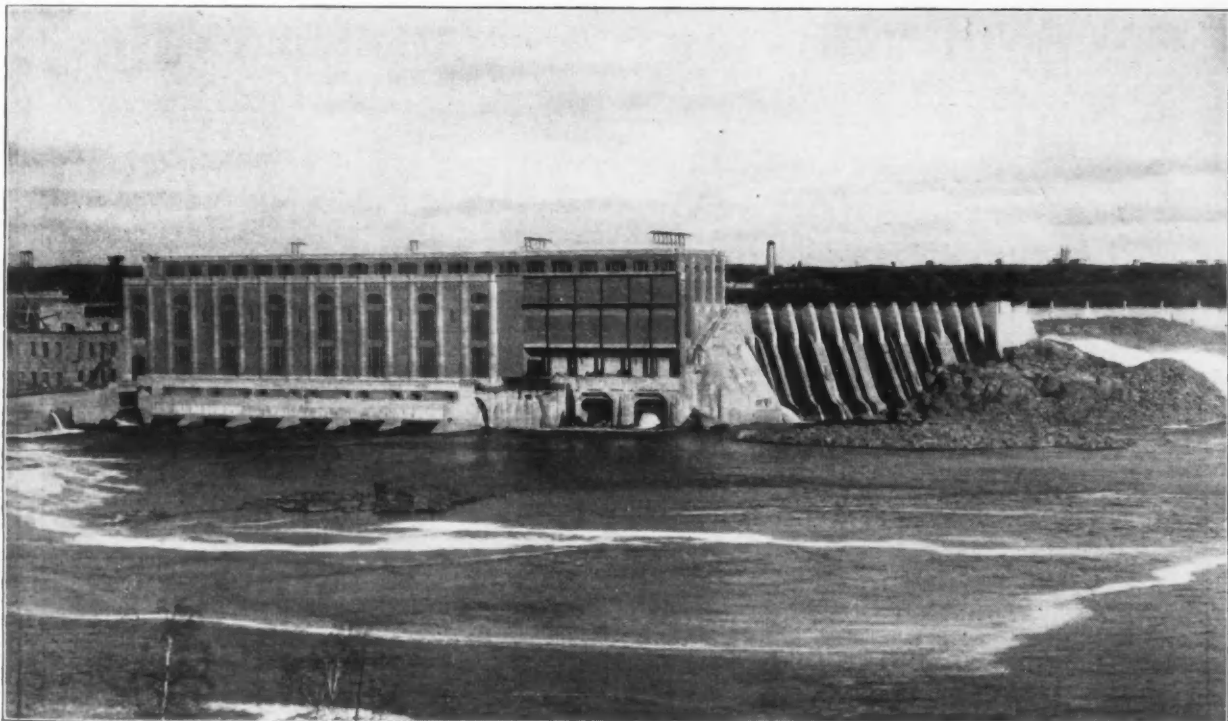
The generating units are single-runner, vertical-shaft Francis turbines developing 25,000 horse-power at 120 r.p.m. under a head of 84 ft., and each driving a single direct-connected 6,600-volt three-phase 60-cycle generator. The notable feature about these generators is the use of mica insulation with which operating temperatures of up to 125° C. can safely be carried.

The weight of the generator rotor and turbine runner (330,000 lb., including 40,000 lb. possible unbalanced hydraulic thrust) is carried entirely by a Kingsbury thrust bearing supported on bridge arms going to the generator armature frame, which transmits the load to the floor. The turbine speed ring serves as a line of interior supporting columns across the interior of the casing chamber.

The Kingsbury bearings are lubricated by oil from a central oil-supply plant coming by gravity through metered duplicate lines. A separate line of oil piping runs to the upper auxiliary (guide) bearing. A small motor-driven pump inside each pit liner returns this oil to the pumping plant for filtering and resupply. The lower guide bearing is a water-lubricated type with lignum vitae strips.



The governor for each unit is driven by a lay shaft geared to the main turbine shaft. Water is supplied under 200 lb. pres-



PARTICULAR ATTENTION WAS PAID TO EXTERIOR AND INTERIOR APPEARANCE.

WE BUY JOBS IN PAPER

Enamel Book and Card Board Seconds, Bonds and Ledger Jobs,
Box Board Over Runs and Side Sheets, Book and News.

LARGEST EXCLUSIVE DEALERS
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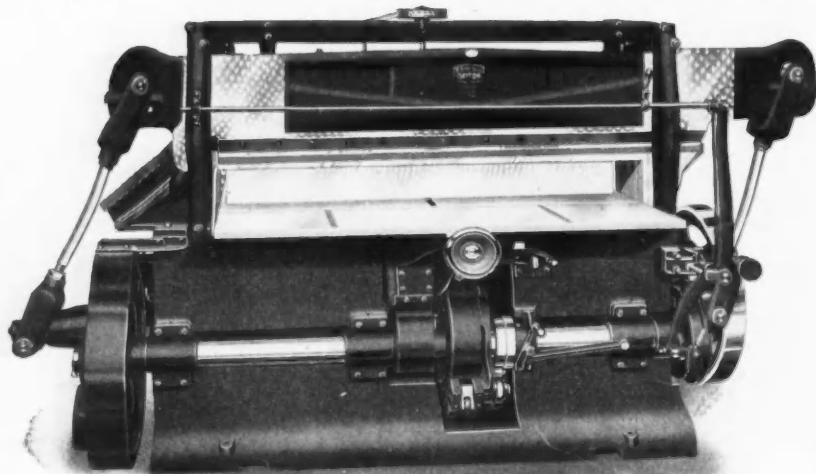
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IN Purchasing a Cutting Machine, measure its VALUE by the RESULTS you are able to obtain by its use.

We welcome the closest comparison of the QUALITY and QUANTITY of the output of the DAYTON CUTTER with that of any other make.

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ATLANTA: J. H. Schroeter & Bro. TORONTO: The J. L. Morrison Co.

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sure to the governors in duplicate pipe lines; the servomotor discharge comes back to the pump room by gravity, is filtered and repumped. The lubricating oil and water-pressure pumps are in a room in a mill building close by the station.

Changes Made on Resuming Construction After Shutdown

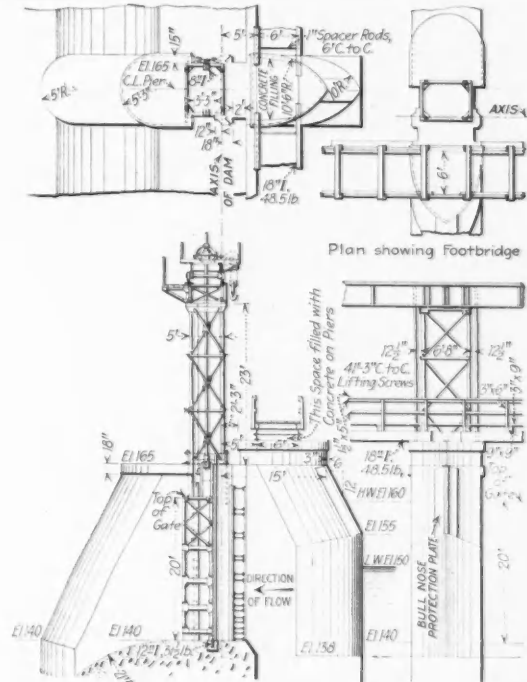
As already noted, work on the Laurentide plant was entirely shut down in the fall of 1914 to await the developments of the war, which had halted the old plans for financing. At that time the power-house substructure had been brought up above tail-water, the steel frame erected, and some of the concrete placed for the adjoining 320 feet of dam and the 458 feet next to the east bank.

About May 1, 1915, the financing was completed and work started again. When it was decided to complete the construction it was thought economical to employ the Laurentide Company's well-organized engineering and construction forces with such few additions as would be needed instead of letting new construction contracts.

The winter of 1913-14 and 1914-15 brought added experience and knowledge of the behavior of a gate-controlled spillway under Canadian winter conditions, so that it was decided to change from the former plans of a solid spillway section of the dam with water level at El. 153, as previously planned, to a gated spillway with the normal water level eventually at 160. This plan resulted in a rise of 7 feet of headwater.

This meant that the turbines which were originally designed to develop 20,000 hp. would produce 25,000 at the original speed. Being mica insulated, the generators, which were originally rated at 14,700 kv.-a. maximum load were capable of being safely run at the increased capacity without injurious heating.

The Laurentide development was originally undertaken by the Laurentide Company, Ltd., the pulp and paper concern, of which George Chahoon, Jr., is president. The original design was made by George F. Hardy, of New York City, as the company's consulting engineer. The work until the shutdown in 1914 was done under contract by H. E. Talbot Company, of Dayton, Ohio. When the financing was completed, a separate concern known as the Laurentide Power Company, Ltd., was organized to own the power development, and a contract was then made with the Shawinigan Water & Power Company to operate the station and also to purchase the power—except what was needed for the Laurentide mills. Under these conditions the company completed the construction with its own forces, except that the tailrace



THE 40 X 20 FOOT STONEY GATES ARE HANDLED FROM A BRIDGE BY A TRAVELING HOIST.

caisson work was done under contract by Fraser, Bracy & Co. of Montreal and New York. The work since resumption of construction has been in charge of E. B. Wardle, chief engineer of the Laurentide Company, Ltd.

The turbines were designed and built by I. P. Morris Company, of Philadelphia, and the governors by the Lombard Governor Company, of Ashland, Mass. The mechanical parts of the generators were made by the Westinghouse Electric & Manufacturing Company, of Pittsburgh. The generator armature windings, station wiring, switches, transformers and instruments were furnished and installed by the Canadian Westinghouse Company, of Hamilton, Ont.



Courtesy of Engineering News-Record.

ON THE CENTER STRETCH OF SPILLWAY ARE STEEL CREST GATES HANDLED BY A TRAVELING HOIST.

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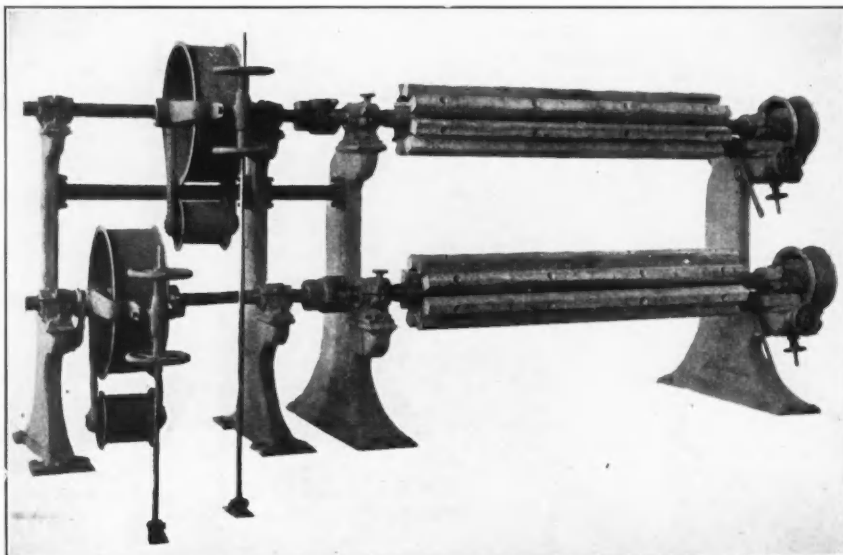
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Improvements in Holyoke and Vicinity

Building Activities in This Well-Known Paper Making Centre During the Past Year Have Been of Vastly Greater Importance Than in Some Time Past—Probably the Most Noteworthy Improvement Was the Reconstruction by the American Writing Paper Co. of the Geo. C. Gill Co. Division, at a Cost of Approximately \$500,000—Some Details of the Improvements Carried Out

Specially Written for the Annual Number of the Paper Trade Journal, by Albert W. Anders

Despite a year of only fair business, building activity in the paper industry of this section was of much greater importance during the past year, than in a number of years past when business was much more active. In 1916, when the local paper manufacturers enjoyed a tremendous business and, almost without any exception, hung up new and very substantial records of profits, the time was not opportune for any great building activity. The manufacturers were "too busy" making paper to think of new buildings or any very great improvements to property.

During the year 1917, conditions, however, were different, and unlike the preceding year the manufacturers were given the chance to improve their manufacturing establishments for future business expansion and greater prosperity.

Probably more important than anything else in the "Paper City" was the re-construction by the American Writing Paper Company of its George C. Gill division mill, which was one of the oldest buildings of the company. To spend a half million dollars would be only a drop in the bucket if applied to the purchase of war materials or ammunition, or to feed Uncle Sam's liberators, but to spend this fortune on a new building with new machinery and equipment, takes time and effort. This is the amount the American Writing Paper Company has expended at the Gill Division mill alone, during the past twelve months.

From the photographs appearing in connection with this review, it will be seen that the American Writing Paper Company had left nothing undone to make this mill one of the finest book paper-making plants in the East. After months of arduous work, the American Writing Paper Company today has a plant, that, viewed from all angles, is without equal in these parts.

Resurrection of An Old Paper Mill

This old mill was called the George C. Gill Division of the American Writing Paper Company. It is still known by this name; yet the changes one year has brought are so great that one familiar with this mill in A. D. 1916 would now fail to recognize it.

The old mill contained three veteran paper machines too uncertain for speed, two small for commercial economy; still capable of making paper, but no longer in running with younger and larger competitors. For thirty-five years the buildings had housed the old machinery; the general designs of these buildings involving the use of muck, some mortar, wooden beams, plank floors and huge peaked slate roof. The deterioration that comes with time necessitated constant repairs to walls and floors; some severe punishment is surely due the man who places wooden floors in a paper mill where they suffer not only from legitimate wear and tear, but also from the excessive moisture, the acids and other chemicals that belong to the mysteries of paper making. In the year 1916, the unsanitary condition of the mill was indescribable; the basements were impregnated with moisture, a condition due to the lack of drainage facilities, and the discharged water from the paper machines, beaters and washers. The loca-

tion of the stuff chests, their inaccessibility, made paper making a disagreeable and dangerous operation. The loading and unloading platforms that skirted the tracks of the tributary railroads were in a state of dilapidation well suited to tempt the adventurous to risk their necks and limbs in a relief to the monotony of earning their living.

Improvements in the Beaters Room

The beater room in those old days of nearly a year ago was used for storage of pulp. This made operations more difficult, necessitated extra labor on the beaters and added to the cost of the handling of the raw materials. When it was decided to rebuild the mill three primary factors were kept in mind. First, the room to handle the raw stock and the finished product economically and rapidly; second, to handle the stock through the mill mechanically by cranes, conveyors and pumps and so eliminating common labor; third, to build with thought and care a fire proof building so as to eliminate as far as possible danger of fire losses, necessity for frequent repairs and rapid deterioration.

The new mill is designed and laid out to make book paper from magazine stock. The magazine stock is carried by hydraulic elevator to the sorting room where it is sorted, shredded, dusted and conveyed by power operated mechanical conveyors to the floor space above the rotary boilers. From the boilers it is dumped by gravity into large reinforced concrete chests in which the stock is kept in constant motion by means of agitators; from these chests it is pumped by specially designed pumps to large reinforced concrete washers, where the stock is cleaned of discolorations and foreign matter. From the washers it is dumped by gravity to reinforced concrete chests, where it is kept in constant agitation. It is then pumped to the reflex, and passes over screens and through a thickener to remove excess water. From the thickener it flows by gravity to the concrete beater chests, and is again agitated and pumped to the beaters. From there it goes to the concrete Jordan chests, and then is pumped to the Jordans. From the Jordans the prepared stock flows by gravity to the machine chest, a large reinforced concrete vat, where the stock is kept in agitation and from where it is pumped to the paper machine. The machine delivers the calendered and rolled paper at the other end of the long machine room. Here the rolls are lifted by air hoist, placed on a truck, which rolls on rails to the finishing room. The finishing room contains a 138-in. duplex cutter, which can slit and cut twelve large rolls simultaneously. The paper is then packed and ready for market.

A Remarkable Paper Machine

The most remarkable machine is the 152-in. paper machine, which is over 210 feet long, its weight over 500 tons. A brief description of this machine follows: Two Moore & White patented rotary screens, complete with auxiliary attachment. The Fourdrinier part, suitable for wire 152 in. wide by 75 ft. long, costs \$22,500. Millspaugh patent suction roll, 18 in. diameter, suitable for 152-in. wire. Cheney-Bigelow dandy roll 12 in. diameter, 154 in. face, No. 50 wire. The stands are Moore & White's latest

*Any old Groundwood will make paper, but—Our
Superior Bleached Spruce Groundwood
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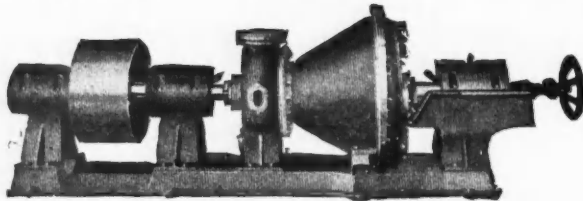
NEW YORK, N. Y.

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OF EVERY DESCRIPTION

Increase Your Production

Three Claflin Continuous Beaters will handle as much stock as six tub-beaters. The six tub-beaters will cost three times as much as three Claflin Continuous Beaters. Six tub-beaters will occupy four times the floor space required for three Claflin Continuous Beaters. These facts have been demonstrated daily for the past nine years in some of the best mills in the country.

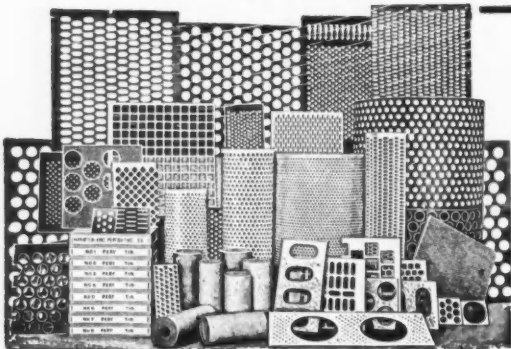


It has also been demonstrated beyond question that the Claflin Continuous Beaters do better beating and brushing, produce a finer, stronger and more uniform pulp than the tub-beaters.

We also have many customers, who prefer our Continuous Beaters to Jordan engines, because the fillings never break or tear out, and they obtain a better product than from a Jordan.

If you manufacture Kraft Paper, and are having trouble with tub-beaters, Jordans and other refining engines, write us for special information on Kraft stock.

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IMPROVEMENTS AT THE GILL DIVISION OF THE AMERICAN WRITING PAPER CO. No. 1. SHOWING 3 JORDANS IN PLACE IN NEW BEATER ROOM. No. 2. INTERIOR VIEW OF NEW BEATER ROOM. No. 3. INTERIOR VIEW OF BEATER ROOM. No. 4. VIEW OF MACHINE ROOM, BEATER ROOM, AND WASHER ROOM. No. 5. INTERIOR VIEW OF MACHINE ROOM SHOWING DRYER PART AND CALENDERS. No. 6. VIEW OF CONSTRUCTION YARD AND SOUTH WALL OF MACHINE ROOM. No. 7. WEST ELEVATION OF MACHINE AND WASHER ROOMS.

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Color Brilliant : Strength Wonderful

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ALL ARE GIVING SATISFACTION ON

NEWS AND FAST RUNNING MACHINES

THESE FELTS ARE WOVEN ENDLESS

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PUT DOLLARS IN THE SAFE

FREEDOM FROM PUMP TROUBLE CUTS THE LABOR COST

Install a set and note how **SELDOM** your pump requires attention. Remember; One of our four grades will do your work—long and well.

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sands to suit 9 in. by 18 in. diameter roll. Five new suction boxes, made of extruded metal with maple covers, $1\frac{3}{4}$ in. thick. A Moore & White high-speed wire guide, of single fender type, suitable for journals 115-16 in. by 8 in. The machine has also one set of save-alls made of copper. They are supported on rear side by wooden trough and in front by angle-iron hold. They raise and lower with machine, but do not oscillate. One Moore & White 8-in. fan pump, vertical discharge; two special steel girder frames located overhead, having attachments for carrying suspension springs, deckel frame and apron board. These are supported at one end by the stretcher post and at the other end by raising and lowering mechanism located in flow box housing. The first press is arranged with straight felt 50 ft. long. The bottom press roll by Manhattan Rubber Company is 24 in. in diameter, 150 in. face, rubber covered, $\frac{7}{8}$ in. thick. The second press is arranged with reverse felt 65 ft. long, and the third press for straight felt 50 ft. long. It has an anti-deflecting press roll, and smoothing press of gun metal covered $\frac{5}{8}$ in. thick, 24 in. diameter, 151 in. face, body of roll made of cast iron with steel journals, 8 in. diameter, 15 in. long. The dryer part is arranged in two tiers and equipped with four felts, two bottom and two top. There are thirty 60 in. diameter, 148-in. face, journals 10 in. diameter, 15 in. long paper dryers, fitted with Moore & White dipper, the front end of each dryer fitted with a man-hole. Two Moore & White felt dryers, 48 in. diameter, 152 in. face, journals of 9 in. diameter, 14 in. long. One spring and one stationary paper roll of gun metal 12 in. diameter, 152 in. face, and one pair of Dilts imp. patented yielding stands from spring roll. The first calendar part is of Lobdell make, and consists of nine rolls, bottom roll 26 in. diameter, next roll 16 in. diameter, six intermediates 11 in. diameter, one top roll 16 in. diameter, all 145 in. face. The second stack, also of Lobdell make, consists of eleven rolls, with eight intermediates, these with top and middle roll being the same size as those in the first stack of the calendar part. One Moore & White extra heavy four-drum revolving reel, drums of 14 in. diameter, 148 in. face, and each drum is fitted with a 14-in. Moore & White friction clutch. The driving arrangement is of gear and hand-slip belt type, equipped with power arrangement also, for changing reels without waste of paper. The slitter part is the latest type by Moore & White, lower slitter shaft with center lateral adjustable bearing, supported by heavy stationary shaft, which operates as a brace for the slitter frames. Either end bearing can be removed and slitters changed without moving the shafts or splitter guard. The top splitter shaft, $3\frac{15}{16}$ in. diameter, is fitted with four Moore & White standard top slitters. Bottom slitter shaft is $3\frac{15}{16}$ in. in diameter, and is fitted with four double-edged slitters 7 in. in diameter. It has also a Moore & White four-drum winder; drums are 12 in. in diameter, with a winder suitable for rolls up to 36 in. in diameter. Face of drums 152 in. The drive is equipped with both slow and fast speed, with Moore & White friction clutch pulley, 24 in. diameter, 8 in. face. The machine is driven through a touch shaft $4\frac{7}{16}$ in. diameter, with exception of the calenders, which are $4\frac{15}{16}$ in. in diameter. This book paper making machine is among the largest ever built and is the largest in Massachusetts.

Construction by Casper Ranger Co.

The construction work was done by the Casper Ranger Construction Company. The walls of the machine room building are built of brick laid in 85 per cent cement and lime mortar, the floors of reinforced concrete, resting on Bethlehem steel beams and H-columns on reinforced concrete spread footings. To prevent condensation on the ceiling in cold weather, sheets of pressed cork were placed on the roofers before the regulation 5-ply tar and gravel roof. To facilitate the erection as well as future handling in case of repairs of the large parts of this immense paper-making machine, some parts of which weigh upward of 12 tons, it was deemed expedient to provide a 10-ton hand-operated traveling

crane with two 5-ton carriages. In going through the mill it will be noticed that the south wall of the machine room is also the north wall of the finishing room building. This old wall was utilized, channels cut in for the insertion of the wall columns, and seats provided to carry the old timber beams in the finishing room. The wall was built high enough above the finishing room to permit the installation of large window spaces on the south side. The position of the old No. 3 paper-making machine was such that it interfered with both the natural light and ventilation. It was therefore decided to tear down this partition wall and create a light and air well between the two buildings for the greatest portion of the length of the rooms. During the process of drying the paper on the dryer part of the new 152-inch paper machine, almost 70 tons of water are evaporated every 24 hours. To carry out this without effecting condensation in the room a large hood directly above the dryer was created, so as to make a direct passage for the steam to the ventilator above, thus eliminating its spread over the entire room.

Features of the Machine Room

The machine room floor is of reinforced concrete, designed for a floor load of 350 pounds per square foot. Owing to the rapid motion of the machine, the weight of the moving drying cylinders and other parts, a large factor of safety to offset vibration, was of course provided for. The machine room is provided with every facility for handling the dry broke and the wet broke without trucking. Large openings are left in the floor directly opposite the calender stacks and the first press, so that as broke is made it is thrown through these openings into the basement and carted to the broke beater located there. The weight of the calender stacks is enormous, each weighing 57 tons, and the rolls in them revolve at times at the rate of 200 R.P.M. The peripheral speed of the machine varies from about 150 to 450 feet per minute. To economize space, the straight stairways of the old mill were removed and four iron spiral stairways were installed, located so as to eliminate unnecessary steps for the machine tenders and helpers.

Beater and Washer Room Buildings

Many difficult problems were encountered in the laying out of the beater room. After much juggling, a simple and economical layout was finally evolved. To facilitate trucking all the posts of the old beater room were done away with, and, instead, 70-foot span roof trusses were designed, spanning across the entire width of the beater room.

In the washer-room building, which was built on a vacant lot east of the beater room, the basement was made on the same levels as all the other buildings, and an 18-foot floor height was found necessary, owing to the extra riffer, rocker screens and thickener. The three rotary bleach boilers are placed as high as possible, to provide plenty of clearance under them, and at the same time make loading easier from the floor above. The sorting room was also given special attention. To provide easy walking for the female employees and to eliminate dust, a floor of reinforced concrete slab, with yellow pine sleepers embedded in cinder concrete, carrying maple-top flooring, was laid. Trolley beams have been installed throughout the mill to provide for the transferring of heavy machinery.

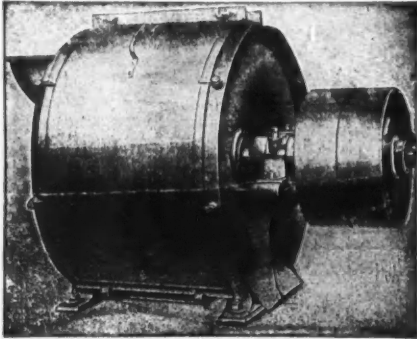
Sanitation and Lighting

The sanitary arrangement of the mill is up-to-date and the comfort of the employees was given first consideration. Light, airy and comfortable rest rooms are at the disposal of the female employees, with communicating lavatories. The men will have well-lighted, tiled toilet rooms, with showers. The wash rooms and toilet rooms were, for the most part, kept separate. The entire plant is provided with automatic sprinklers, in accordance with the best methods and regulations of the Fire Underwriters' Association.

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Can be used for Ground Wood, Sulphite or Sulphate. Built in various sizes up to 30 tons capacity per 24 hours.

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WE BUILD ALL MACHINERY REQUIRED FOR PAPER, PULP AND SULPHITE MILLS

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In the lighting arrangement, economy as well as utility of future lighting was taken into consideration. In general, large units are used, with shades of different shapes to provide proper distribution. Although the work of constructing these new buildings and the tearing down of the old buildings was begun a year ago, the old mill did not cease production until the middle of summer, every possible effort being exerted to do the new work in such a manner as to allow the manufacture of paper to go on until the last possible moment.

Creditable Work by Mr. Brassington

Mr. Brassington, the chief engineer, expressed his appreciation of the splendid co-operation of all parties concerned in this successful rebuilding of an old mill.

EDDY PAPER CO. HAS EFFICIENCY MEETING

Heads of committees of the safety first and efficiency organization of the Eddy Paper Company, White Pigeon, Mich., held a meeting recently for the reception of suggestions to improve the operations of the plant. The policy of the company is to receive suggestions from its workers, which will remove danger to employees, improve methods, save time or in any way help conditions about the plant.

During the past year over a hundred suggestions have been received, many of them being acted on favorably.

The reports showed that the White Pigeon plant has enjoyed a splendid business during the past year and has paid out about \$200,000 in wages to its help.

ERVING PAPER MILLS RAPIDLY EXPANDING

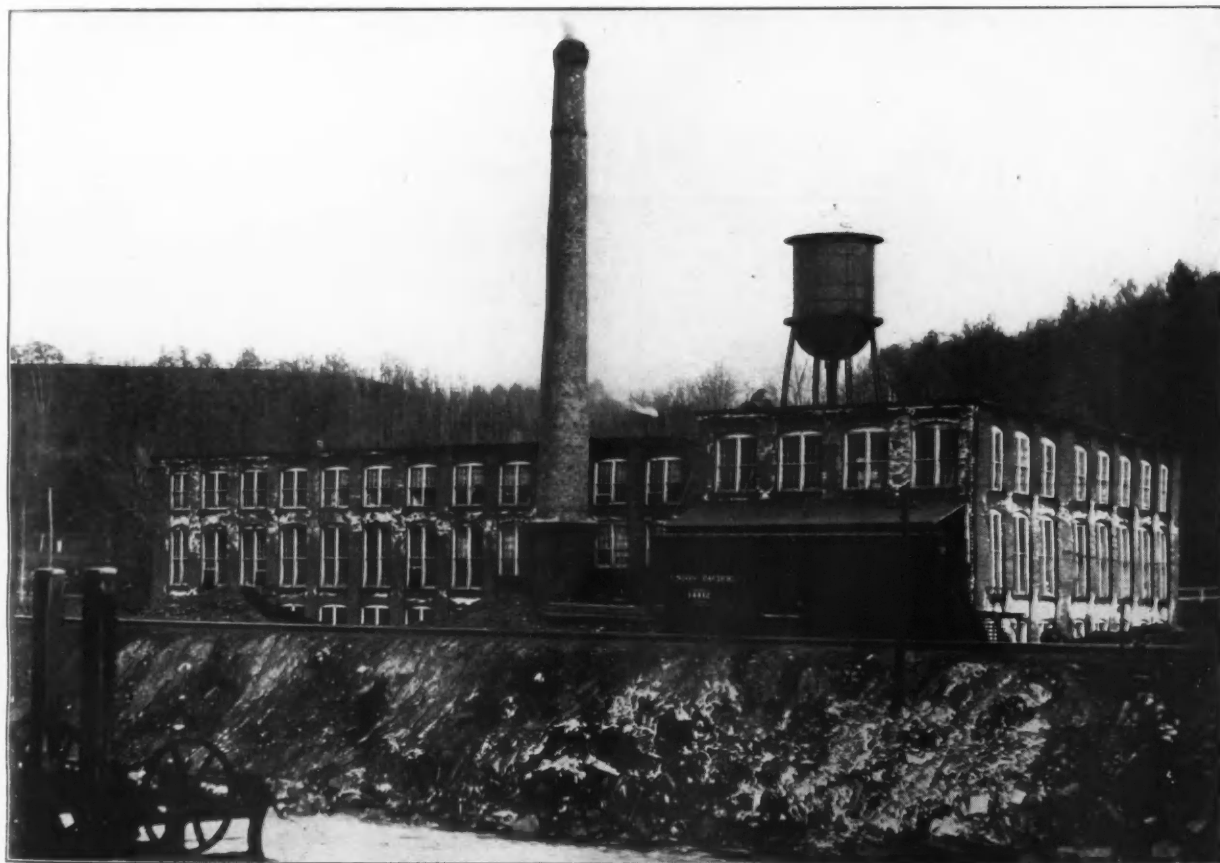
During the past year the Erving Paper Mills at Erving, Mass., which are illustrated herewith, made alterations, built new additions and completed important improvements that enables the company to produce its papers on a scale three times as large as heretofore. The illustration shows the mill pond, mill building and railroad tracks. The location of the mill is ideal. It stands close to its source of water supply, and directly above the pond, between the pond bank and mill building, is the railroad tracks. The picture shows the principal side of the building.

The new work represents a considerable outlay of money, much

time and energy on the part of the owners. Practically the entire manufacturing departments of the mill have been remodelled. Changes were wrought throughout, and the two old paper-making machines of the company were so improved as to enable the company to make better papers and more of it and a third and new paper-making machine was installed.

Description of New Buildings

The new buildings are a two-story brick addition, 38 feet by 42 feet to the main plant, and a one-story stock house. In the base-



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For Any Grade of Paper or Pulp

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FURNISHED COMPLETE, WITH ELECTRIC MOTOR LIFT,
HYDRAULIC LIFT OR RATCHET LIFT,
ALL OPERATED FROM FLOOR.

Grinding Machines for Rolls of all sizes.

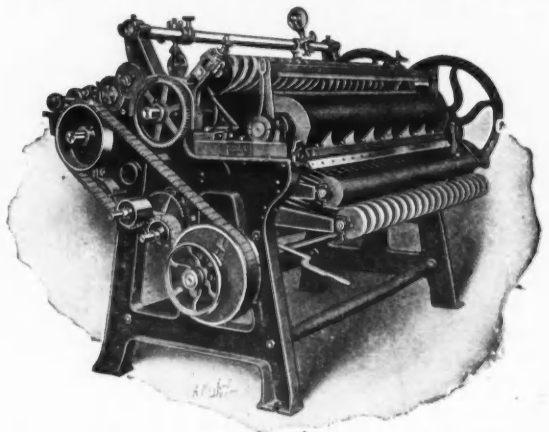


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Wilmington, Del., U. S. A.

Paper Cutters

Single, Duplex and Diagonal



Cutter Knives : Patent Top Slitters

HAMBLET MACHINE CO.

Lawrence Mass.

ment of the former are five Norwood gravity filters, the product of the Norwood Engineering Company of Florence, Mass. These filters give the company 1,000 gallons of beautifully filtered water per minute, which is one of the biggest assets in the manufacture of the grades of paper turned out by this company.

Features of New Equipment

The first floor contains three additional new beater engines, installed by the E. D. Jones & Sons Company. One is of 1,000-pound capacity and the remaining two of 1,500 pounds capacity. All are motor-driven. The upper floor of the building is used for the storage of decorated napkins and crêpe paper.

The one-story stock house is also built of brick and is 65 feet by 42 feet. Here the company's raw materials are stored. A fireproof passageway connects this building with the main mill. Another new building is that which houses the new 50 horse-power variable speed Erie-Ball engine, which drives the new paper-making machine. The company has also put in an 84-inch Dillon boiler, making 230 horse power additional of steam and a Cochrane heater.

The New Yankee paper-making machine was purchased from the Beloit Iron Works, Beloit, Wis. This machine yields a sheet 100 inches wide, 90-inch trim. It is the finest money could buy, equipped with appliances that will help the company to produce a wide variety of papers, and at the same time of excellent quality. It is equipped with calenders so as to make papers with both sides finished as well as the M. G. A 96-inch Dillon duplex cutter and Brannan folder also have been installed.

The past summer provided an excellent time to install many labor-saving devices and making numerous minor improvements.

IMPROVEMENTS TO THE CROCKER MFG. CO. DIV. MILL

Another plant of the American Writing Paper Company that underwent considerable improvements last year was the Crocker Manufacturing Company Division. The plant is located close to the bank of the Connecticut River, near the South Hadley Falls bridge, along with several other division mills of the company.

New Construction Work

For some time past it was seen that the forward trend of business at this plant was considerably hampered, owing to the lack of floor space. Too much crowding made it not only uncomfortable and inconvenient to handle the materials, both raw and finished, but also entailed a larger cost in the constant handling of the stock. For this reason plans were drawn last summer and a contract awarded to the Casper Ranger Construction Company for the construction of a three-story, 44 feet by 75 feet addition to the north end of the mill building. This new addition is now used almost exclusively for storage purposes. The third floor is taken over for the storage of pulp, rags and other materials, and the first floor, which really is two stories high, for the finished paper which is ready for shipment. Below are several parts of the various machinery that was transferred from the north end of the old building, where the new Yankee paper machine was installed. This is really the broke room, where the paper trimmings and shavings from all of the machines is conveyed to. Here the broke goes through various forms of treatment.

The construction work of the new addition is entirely modern. The outside is of red brick. The inside girders and beams are all of heavy iron, with floors of reinforced concrete. It is as near fireproof as is possible for any building to be, with the newest approved electric lighting and steam-heating systems. In the room which now contains the Yankee Paper making machine, the entire floor was ripped up, strengthened and rebuilt with iron footings. The floor is of reinforced concrete.

The Yankee Paper Making Machine

The Crocker Manufacturing Company, Division, previous to

Notable among the summer improvements was the installation of a hot-air heating system built by the Buffalo Forge Company. This system is all that was expected of it, and more. During a recent cold spell, when the mercury dropped to from 20 to 30 degrees below zero, the system was given a severe trial, and was found to be entirely satisfactory.

Capacity of Mill Greatly Increased

The additional machines and equipment will enable the company to increase the capacity of the mill by over 150 per cent. This is nothing short of remarkable. The company is known far and wide because of its high-grade, Columbia line of crêpe paper specialties, including plain and decorated napkins, plain and decorated crêpe tablecloths, tray covers, and many others, and with the M. G. tissue paper added to the output of carpet papers and crêpes, the company will be one of the largest producers of these grades in the country. At present the company is filling large orders for Fourdrinier and cylinder tissues, which it makes in big varieties.

With this large additional output, it was, of course found necessary to make extra preparations for increasing the selling force of the company. Therefore arrangement was made with William E. Ebbetts, 501 Fifth avenue, New York City, to act as sales-manager on the additional product. Mr. Ebbett will have his office in New York, where he will be much more accessible to the trade in general than if he was located at the mill.

The officials of the company, who are exceptionally well known to the paper trade, are Coleman H. Waite, president and treasurer; George I. Walker, vice-president, and C. W. Whiting, secretary.

1917 was a three-machine mill; these being 48 inch, 76 inch and 96 inches. In making a trip through this plant, Frederick M. Butts, who is the proud superintendent, convinced the writer that with the new Yankee machine, the plant has an equipment to make almost any color, quality or style paper demanded. Covers and colored specialties are the principal paper turned out at this mill; the cover papers including dozens of the standard makes. The new Yankee machine, which was imported from England, and came through the German war zone without a scratch, is made by Bentley & Jackson, Ltd., Bury, England, and has the 1917 tag mark. This machine turns out light specialty papers, and has a capacity of from 10 to 14 tons per day, according to the grade of paper manufactured.

When installing this machine it was discovered that the dryer part, as originally planned, was not adequate to the needs of the company, so additional dryers were installed, these being furnished by Rice, Barton & Fales Machine and Iron Company, of Worcester, Mass. The Fourdrinier part is 108 inches wide. There are also new beater machines, cookers and shredders. Two huge chests have been built to take care of the raw stock for this machine. The steam engine for the machine is a William A. Harris make, of 75 h.p., and was furnished by the Harris-Corliss Engine Company, of Providence, R. I. It is a wrist-plate style engine. A new set of filters, to filter the water, have also been installed, as well as pumps and the like.

Power Plant Doubled

The power plant, which was formerly of 500 horsepower, has been doubled by the addition of a second unit of 500 h.p., consisting of a Rice & Sargent engine, made by the Providence Engineering Works of Providence, R. I. It is a rope-driven engine, the driving ropes being increased to 28 with the installation of the second unit.

The new building work at this plant, together with improvements and the new machinery and equipment, represents an outlay of approximately \$250,000 on the part of the American Writing Paper Company.

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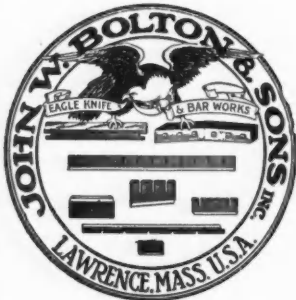
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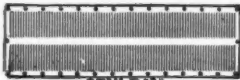
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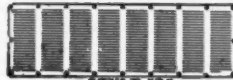
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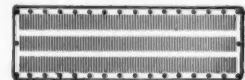
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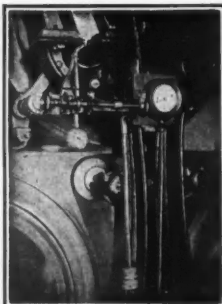
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Pioneers in the Paper Trade of Chicago

W. D. Messinger, President of W. D. Messinger & Co.; George W. Moser, Head of Moser Paper Company; W. C. Gillett, President of the Chicago Paper Co., and James White, Head of the James White Paper Company, All of Whom Have Spent More Than a Half a Century in the Paper Trade of the Western Metropolis, Relate Some Interesting Facts Regarding Their Experiences.

Written Especially for the Annual Number of the Paper Trade Journal by C. D. Burroughs.

To have been engaged in a successful business for a decade, to have followed a career or a calling for a score or more years, is nothing rare or unusual in the annals of commercial business or in the trades and professions. Some men find themselves at their prime of life engaged in business pursuits or callings that are far removed from the field in which they started, while there are a few, to be sure, in every community whose connection with their own particular line has passed the 50-year mark. But such cases

paper houses to be sure in the city of Chicago whose business mile posts, so to speak, number well over the 50 mark, but the men who founded them and built them up are now gone. There are only four men today who started selling paper nearly 50 years ago in Chicago and who are still at it, and still going strong.

Four Old-Time Paper Men

These four men are W. D. Messinger, president of W. D.



JAMES WHITE.



W. C. GILLETT.

are so rare as to attract attention and so unusual as to deserve more than a passing comment.

When a rear-admiral or a major-general reaches the so-called retiring age in the United States Army or Navy, he is relieved from active duty, not because he is unfit in any particular, but for the very good reason that younger shoulders should carry the burden of his responsibility. And the same practices are frequently maintained throughout our great industrial and railroad corporations. It is only natural that the men whose years of service have been long and whose unstinted efforts have contributed much to the success of the enterprises they represent, should receive some recognition and public comment.

In the paper business, however, a man's retirement is quite another story. There are four men in Chicago whose services in the paper selling field cover the 50-year period, but whose retirement would be, to say the least, most unfortunate as far as the morale of the trade itself is concerned. Each man now heads his own business and has done so for many years past, and all grew up in the paper business in Chicago. There are well-known

Messinger & Co.; George W. Moser, head of the Moser Paper Company; W. C. Gillett, president of the Chicago Paper Company, and James White, the head of the James White Paper Company.

It should be said in passing, before proceeding to the story proper, that there never has fallen to the lot of any trade paper a harder task to perform than that of interviewing these four busy men and gathering details and reminiscences for this article. Unanimously all four decided on the first interview that such matters as these "were of no general interest to the trade," etc. However, when it was pointed out that what they had to say might prove an inspiration to the younger generation and possibly a source of benefit to those now toiling up the paths of the paper selling game, this article formally began to take its present shape.

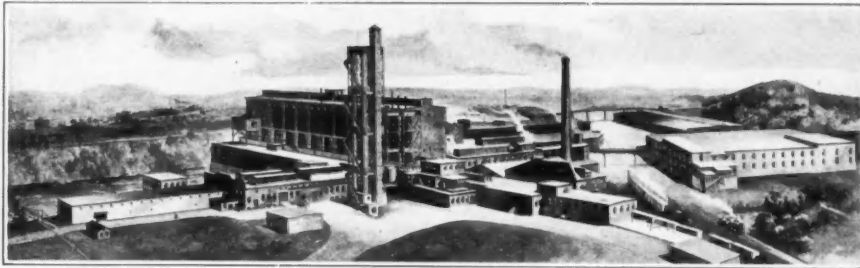
W. C. Gillett Gives His Recollections

"In a moment of weakness," said W. C. Gillett, "I consented in order to help out the story to set down a few recollections of the paper business in Chicago, covering a period of about half a

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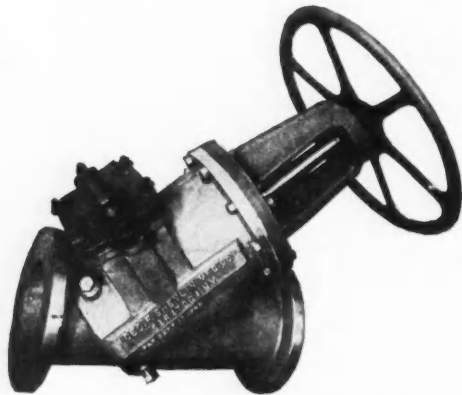
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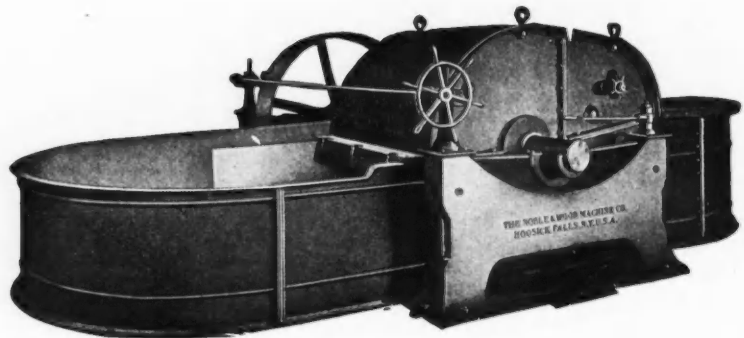
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century. When I promised this, it did not seem to me a very difficult thing to do, but as I get down to it and think it over, it doesn't appeal to me at all, for the principal reason that what I have to write about takes on too much of a personal aspect, which I really do not like."

It happens that the men who have become leading factors in any commercial line are usually reluctant to talk for publication and the PAPER TRADE JOURNAL takes a pardonable pride in presenting these interviews with these four Chicago paper pioneers.

After the Civil War was over, W. D. Messinger, who had enlisted as a mere stripling in the 55th Massachusetts Infantry and had been mustered out shortly after General Lee's surrender, came to Chicago and entered the banking business.

"At this time," said Mr. Messinger, "I had little or no idea that I should enter the paper field.

In 1865 Noyes & Brown had just started a bag business in Chicago. Both the men in the concern had enjoyed considerable experience in the East in this line which was not a very old one in those days. As early as 1862, John M. Hurd, back in Auburn, N. Y., had been manufacturing paper flour sacks. Prior to this time, flour sacks had been made of cotton, but the Civil War prices for cotton made it imperative that some machinery be devised for making bags of paper."

George R. Noyes was an expert in the field of sewing machines, an experience that was very valuable in the early business of manufacturing burlap bags, gunnies, seamless bags for grains and cotton bags for flour. Soon after this, John M. Hurd was persuaded to come to Chicago with his Auburn bag factory, machinery and all, and the firm of Noyes, Brown & Hurd was at once established, and the business of making paper flour sacks and paper bags for grocers and others grew rapidly.

"I had watched the young industry," said Mr. Messinger, "for some little time, and on the first of June, 1870, I entered the firm, the name then being changed to George R. Noyes & Messinger. Six years later the firm of Messinger Bros. was organized, later becoming on New Year's Day, 1880, W. D. Messinger & Co. During these early years we had taken up the printing of bags and wrapping papers and were doing a general jobbing business in coarse papers, gradually adding our fine paper lines."

"It may be of interest in this connection," said Mr. Messinger, "to record that the firm of Noyes, Brown & Norton, not long after the Civil War, built one of the first paper mills in the West, at Marseilles, Ill., for the manufacture of straw paper. If my memory serves me correctly, the oldest paper mill in the West at this time was located in St. Charles, Ill., and owned by the Butler Paper Company of Chicago.

Geo. W. Moser Entered Paper Trade in 1866

George W. Moser's actual experience in the paper selling antedates that of any man in Chicago today. As early as 1866 he was one of the best youngsters on the staff of the old Laffin, Butler & Co. paper house, then located at 42 State street.

"In those days," said Mr. Moser, "we used to have to send in a handsomely gotten up calling card to get an audience. I still

have one of my old ones." And he pulled out of a private drawer in his desk a real work of art. The only regret is that it is not here reproduced. For its old style engraving in script and flourishes alone, to say nothing of the memories it recalls, it is well worth preserving. "This style of business card," said he, "would not get many orders today, but I treasure it very highly; it's the first one I ever used when I went to work for Laffin, Butler & Co. It was printed in 1866."

Since this very early date, Mr. Moser, has passed through the various positions of receiving clerk, shipping clerk, warehouse and mill order man to the head of his own business in 1893. Shortly after the nocturnal escapade of Mrs. O'Leary's now famous cow, wherein Chicago was devastated by the awful fire of 1871, he took a responsible position in the selling end of Bradner

Smith & Co.'s business, only to move on to more responsible places with firms like F. P. Elliott & Co. and others well known in the late 70's. On the tenth of next July, George W. Moser will have completed fifty-two years in the paper business.

Mr. Moser, like most other heads of successful paper houses, devotes almost his entire time to his business. Many big accounts he still handles personally, not because there are no others on his staff capable of doing the work, but from sheer desire of keeping busy and therefore happy in the business he knows and loves so well.

Mr. Gillett Begun Business in Father's Shop

Mr. Gillett's early training in the paper business was secured in his father's establishment.

"My first entry as a continuous worker in this line was on Dearborn street, in the first floor and basement of the Tremont House, located on the corner of the alley just south of Lake street, in the

year 1867 or 1868. At that time my father, Truman S. Gillett, was in the cardboard business, a line distinctly separated from the paper business, although the stock was used by printers almost exclusively. The printers at that time did not have card-cutting machines, and the cards were all cut by us by hand and by choppers and strippers, the price being, for cutting, 50 cents per M. This must have been profitable, as I usually cut from 25 to 30 M. per day, and I believe my stipend was \$3 or \$4 a week. To be sure, I was getting my board, clothes and general living at home, without cost, so I must have had at that time more money than was really good for me. As I look back now, I can see many times when \$4 a week over expenses would have been mighty welcome to me.

"At this time the railroad companies used almost exclusively either thin or thick white china, cut half sheets, that was 14 x 22, for their station advertising time-tables, and in very large quantities and they paid \$7 per 100 sheets for the thin and \$9 per 100 sheets for the thick—which is quite a difference from the present prices.

"Such printers as Jerry Thompson and Horton & Leonard and J. M. W. Jones Company would buy ten, twenty and thirty thousand sheets of this board at one time, and of course, it all came from father, who got it in the East, Bott Johnson & Co., of



W. D. MESSINGER.

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Albany, N. Y., later the Albany Card & Paper Company, being father's source of supply.

"Just back of us on State street, we being on Dearborn street, facing west, were Laflin & Butler, general paper dealers, and my recollection is that at that time George Moser, now president of the Moser Paper Company, was employed by that firm. Bradner Smith & Co., if my memory serves me right, were at that time over on South Water street, dealing more in wrapping papers than in fine papers, which they later added to their lines. These houses, if I am not mistaken, represented the only sources of supply in paper and cardboard for the printers of Chicago, and these conditions continued until about the time the great fire came, when we all, by force of circumstances, migrated over to the west side and remained there until the gradual rebuilding of the south side permitted our return. However, just previous to the fire, the two paper houses considered that a line of cardboard added to their stocks would be made profitable and both houses put in a line—not so complete as ours, but still large enough to create a keen competition, which, of course, father was not hankering after. I have often wondered why my father did not, at that time, put in a general line of paper, and I have always believed that had he done so, his concern would have been one of Chicago's leading paper houses today. He no doubt must have had his reasons, of which I was too young to know.

"Of course, it was natural that buyers should prefer to confine their purchases to one source as much as possible, especially as most of them required considerable financing in those times, following the business panic of 1873.

"Along about 1874, F. P. Elliott started in business at 169 Randolph street, a few doors east of where W. D. Messinger is now located, and I went with him during the first few months of his business. George Moser was his head man at that time. However, Mr. Elliott stood for me as long as he could and let me go for a better man, Jim Reidelhuber by name, one of Chicago's greatest salesmen of those times.

"Later, about September, 1875, Mr. Clarke, of Clarke, Friend, Fox & Co., after repeated efforts on my part to get him to appreciate my importance to his success, evidently took pity on me and gave me a job. This firm remained in business, I think, until the latter part of 1881, and to this day I have always considered them the most aggressive, up-to-date paper dealers of that day in Chicago. Their employees were as loyal a lot as ever worked for anyone and were fully appreciated and cared for by Mr. Clarke, and when Mr. Clarke quit business, everyone in his employ was able to get equally as good a position with other paper houses, if not better, than they had with Clarke, Friend, Fox & Co., which certainly speaks well for the training of Mr. Clarke. A. T. Hodge was Mr. Clarke's head man as long as they were in business. James White and George D. Forrest both went to work there at the same time I did. Billy Halliday a year or two later, and all have steadily advanced in the paper lines to this day. When Clarke, Friend, Fox & Co. quit business, the fine paper houses in existence were J. W. Butler Paper Company, Bradner Smith & Co., F. P. Elliott & Co., George H. Taylor & Co., M. P. Carroll and Oglesby, Barnitz & Co. The Chicago Paper Company, organized in October, 1882, was composed of the Meads, of Dayton, Ohio; Mr. Hodge, Mr. Forrest and myself, and occupied their first store at 181 Monroe street.

"Along about 1885, Warren Tyler left Butler and James L. Rubel left the Brelmaker Moore Paper Company, of Louisville, Ky., and started the W. O. Tyler Paper Company, located on Adams street east of Fifth avenue, in a fine five-story building. They took all the Tyler boys from Butler and, I believe, some others, and they did make things quite lively for all of us for a full year or more. However, they were unfortunate and went out of business under that name, but reorganized under the name of the Calumet Paper Company, which concern was in business

for a short time, then was taken over by the Whiting Paper Company, of Holyoke, Mass., who are still in business there. The Tyler boys then started the American Paper Company, if I remember correctly.

"I have been rambling along with these memories, which are most vivid to my mind because of my close association with most of the firm mentioned herein in one way or another; but as Mr. Messinger, Mr. Moser and Mr. White are also setting down some of their recollections of business of long ago, they will no doubt fill up the gaps left by me, because of their more intimate and closer connection with these events. In these circumstances I feel even now that much that I have said should be thrown into the waste-basket instead of being printed, and certainly I will take no offense if this disposition is finally made of it."

Mr. White Reluctant to Talk

Like the others, James White was also somewhat reluctant to talk. It was a bitterly cold day, however, and the weather got him started.

"These are not the coldest days the West has ever seen," said he, in recalling his arrival in Chicago. "When I got here on the ninth of January, 1875, I remember very clearly that it was 20 below zero. I had come here from Banbridge, near Belfast, Ireland, to live with my brother William and to look for a job. We Irish lads from around Belfast knew something of the linen business, but it was paper and not dry goods that gave me my first chance to earn my board and room.

"At the age of 23 I started with Clarke, Friend, Fox & Co., then at 150 and 152 Clark street, a few doors south of Madison, East front, to learn something of the paper business and incidentally, by the use of a good deal of physical energy, to earn the pay then prevailing, which, so soon after the panic of 1873, was not great, but enough. I was fortunate enough to get my wages every payday, but the same was not true of some young chaps I knew in those days."

Mr. White has always been of robust constitution and still enjoys excellent health. In the early days there were none of the conveniences there are today for handling paper, and it was physically hard work in warehouse and stockroom. His natural abilities soon earned him promotion, and some time later he was made shipping and receiving clerk, afterwards collector, and still later, salesman, with charge of the mill order department for the then famous firm.

"When Clarke, Friend, Fox & Co.," said Mr. White, "disposed of their stock in 1881, I went with Bradner Smith & Co., and traveled for them most of 1882.

"In December, 1882, on the death of Mr. Knickerbocker, secretary of George H. Taylor & Co., Mr. Taylor asked me to become secretary, and on consultation with, and advice from, C. Mather Smith, I went with that company.

"Unfortunately, a sale of mills at South Bend and Mishawaka, Indiana, supposed to have been effected to Lucius Clark by the Taylor firm, did not 'stick,' and on March 1, 1883, the company began disposing of their stock.

"The Friend & Fox Paper Company, of Lockland, Ohio, wishing to have an outlet in Chicago for their book and wrapping paper products (which had been handled by George H. Taylor & Co.), opened an office and warehouse on Wabash avenue, with John E. Wright in charge of the office, and they put me in charge of the merchandise.

"Later, this branch was changed into a corporation, Illinois Paper Company being the name selected, occupying 181 Monroe street, the old Chicago Paper Company building, and so continued until Mr. Wright purchased my interest, taking effect July 1, 1896.

"On that date, together with my brothers, Robert and Fred C. White, I opened offices in the old Fort Dearborn Bank Building,

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as James White & Co., and in a few months—September or October—when stocks of cover, etc., began coming in, the third floor of 177 and 179 Monroe street was taken, in which building the Empire Paper Company was also located.

Needing more space for their growing business in the latter part of 1899, the firm moved to the third floor of their present location, then 206-210 East Monroe street, now 215-219 West Monroe. Since 1900 they have taken the fourth floor and basement.

In 1906 the firm name was changed to James White Paper Company as being more comprehensive. A sad blow to the firm was the death of Robert White on April 17, 1904, after an operation.

Cover and book papers are the only lines handled, and the company's unique method of issuing sample books is very familiar to all buyers of its lines in the Middle West.

In those early days the sample book had not come into use and it was while with Bradner Smith & Co. that Mr. White evolved the system of cover sample books now so widely used. Paper houses then did not carry any cards already cut to size for the printers' uses, and Mr. White was instrumental in getting that delay done away with by having cards cut and boxed in 500 or 1,000 lots for immediate delivery. Card cutting machines had come into use, but the paper dealers did not carry cards already cut. This custom, however, soon grew into the wide use it enjoys today.

Mr. White was president of the Western Paper Dealers' Association for two successive terms and has enjoyed no end of pleasant times in committee work of various kinds, not only with the older, but also the younger bright lights of the business he loves to work in, and which will no doubt go on to greater things.

Going to his former home in Ireland, Banbridge, near Belfast, is about his only "hobby," for beginning in the summer of 1877, two and a half years after coming to Chicago, he has spent nine summers that way, and is looking forward to the time of peace for the next trip.

The Story of Mr. Messinger

The recollection of the big fire of 1871 is still vivid in the memory of those men who were in business then. Mr. Messinger's memory is most keen because of a slight delay in shipment that caused a substantial loss his firm suffered.

"In the spring of 1871," said he, "we had moved into larger quarters at 11-13 Market street. Just across the alley from us was the Butler Paper Company at 15 and 17. They had already suffered quite heavily, as I recall it, from a fire a short time before. At the close of business on Saturday, the day before the fire started, we had all ready for shipment about three cars of paper flour sacks. In those days we had to arrange to cart our shipments to the freight terminal for loading, but had been considerably upset by the delay on the part of the teamsters we had hired. So it was necessary to put off shipment till Monday. Never in my life have I felt so truly the force of the proverb, 'Put not off until tomorrow,' etc.

"When it got down to our factory on Monday, as soon as the fire had abated in that quarter sufficiently to approach the smoldering ruins, I found some of our men had removed the safe containing our books to a place of safety across the way—the old Lynd block between Lake and Randolph, owing to the vagaries of the wind, was unharmed. One of my men said, 'Well, the bags are all lost'—mentioning the delayed shipment of Saturday. I don't remember what else I said to his remark. But in tragic moments, like those, it is sometimes the funny side that crops out. I do recall very vividly making the fatuous comment: 'At any rate, we've saved our cartage bill for Monday.'"

Mr. Messinger told a story of a friend of his visiting at the time in the city, who had wandered as far north into the burned area

as Lincoln Park, looking at the ruins and devastation a week or so after the fire had burned itself out. This gentleman accosted a stranger and inquired the way to the house of a well-known resident of Michigan avenue. "Can you direct me, sir, to Mr. So-and-So's residence?" "Follow this street," said the stranger, "it's the first house you come to." This advice was literally true, but about four miles of the burned district lay in between.

Chicago Paper Deans Greatly Respected

Probably many other communities could furnish other examples of men who still survive and who are still active in their lines of business endeavor, but it is safe to say that no community and no business can point to four men who enjoy the admiration, confidence and respect of their contemporaries and competitors more than the four men whose reminiscences it is our privilege here to record. May continued health and prosperity in things material be theirs for many years to come—these pioneers in the Chicago paper trade and venerable deans in an industry that owes much to their stanch integrity, personal presence and commercial endeavor.

IMPROVEMENT ABOUT PHILADELPHIA

Construction of new mills for the manufacture of paper and allied lines in the Philadelphia district has dropped behind considerably in the last year, due to shortage of labor, mounting cost of building material and other things that have generally operated as a brake on building operations.

Planning Further Extensions

Nevertheless, some progress has been made, and most of the mills in this district are planning further extensions as soon as conditions will permit. One large firm with headquarters here and in New York, which got in the manufacturing end of a paper specialty about one year ago, is now planning to construct a big modern factory. Details are withheld pending more definite arrangements.

The Paper Manufacturers Company, now at 529 Cherry street, is about to move into a new building at 13th and Noble streets. Weather conditions have held up the removal, but the firm expects to be manufacturing at the new plant about the middle of the present month. Several new lines of paper specialties will be added to the already large list produced by this firm.

Fibre Container Co. Expands

The present mill has a capacity of 100 tons of fibre shipping containers in ten hours. Each of the four units to the plant is operated by individual motor-driven machinery. Containers are manufactured in standard sizes and shapes and for special uses on contract. The product of this firm has found favor with manufacturers and shippers of canned goods.

Shryock Bros. Build Addition

During the year just ended a large addition was made to the plant of Shryock Brothers at Downington, Pa. This firm has a most interesting history. It was the first in the world to manufacture paper boards by machinery, the process having been discovered by accident about 100 years ago. This company also invented the grooved wood roll. The firm is a member of the American Association of Centenary Firms. S. S. Shryock, who retired from active participation in the business some years ago, inherited it from his father, under whose tutelage he became an expert maker of paper boards. The original mill was located at Chambersburg, Pa., where it was established in 1790. Seventy years later the plant was established at Shippensburg, Pa., and a few years ago the present site was selected at Downington. This site is likewise historical, the Dorlan family of paper makers having operated a mill there more than a century ago. Offices and warehouses are maintained by the firm in this city at 924 to 928 Cherry street. Additions made to the factory last year add nearly 50 per cent to the production.

DAILY CAPACITY 300 TONS

MAIN PAPER STOCK CO., INC.SPECIAL GRADERS OF PAPER STOCK
NEW AND OLD COTTON RAGS*If you have special requirements we can certainly please you.*

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New York City

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New and Old Linen and Cotton Rags
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Carefully assorted Paper Stock, Rags and New Clippings

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PAPER MILL FELT, BAGGING & BURLAP BALING,
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INDICATOR
IS INDISPENSABLEIn obtaining a UNIFORM speed of machinery, and is one of
the most PROFITABLE little devices ever put in a mill. Will
pay for itself in 30 days. Dial 12 in. in diam. Weight, 10 lbs.
The N. P. Bowsher Co., South Bend, Ind.**AGALITE FILLER**

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and Soda Pulps

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CASTLE, GOTTHEIL & OVERTON

National Paper Trade Association Banquet

Eighth Annual Banquet of the Organization Is Held Wednesday Evening and Is Largely Attended—Men and Women Present Enjoy the Hooverized Menu Which is Provided as Well as the Vaudeville Entertainment, Which Usually Takes the Place of the After-Dinner Speaking at the Banquet of This Association—Ladies Present Unanimously Vote to Aid Red Cross.

The eighth annual banquet of the National Paper Trade Association was held at the Waldorf-Astoria on Wednesday evening and was largely attended.

"Hooverized" Dinner Enjoyed

The ladies were present in large numbers and enjoyed the "Hooverized" program equally with their escorts. While the dinner was in progress President Smith in a short speech suggested that the net proceeds of the banquet be given to the Red Cross and invited the ladies to vote on the question. The vote

was unanimously in favor of the suggestion of the president.

The vaudeville program, which always takes the place of speakers at this association's affairs, was of a high and entertaining character, and especially interesting was the animated doll who mingled with the guests and whispered into the ears of many of the jobbers the means for obtaining shipments promptly and into those of the manufacturers present words of encouragement over coal shortages and low registering thermometers. It was certainly a most enjoyable occasion and one long to be remembered.

THOSE WHO ATTENDED THE BANQUET

A
A. A. Adams
Mr. and Mrs. John F. Adie
Ross P. Andrews
R. L. Allison

B
H. F. Badgley
Mr. and Mrs. Aaron Bagg
Mr. and Mrs. Chas. H. Baldwin
Mr. and Mrs. D. K. Ballou
Mr. and Mrs. Wm. T. Bannister
Norman Bardeen
G. E. Bardwell
Mr. and Mrs. Nicholas J. Barret
Mr. and Mrs. D. E. Barry
Miss Lucille Bauer
Mr. and Mrs. Richard Bauer
B. J. Beardsley
Mr. and Mrs. Geo. W. Beatty
Leonidas Beck
Geo. W. Becker
Thos. Beckett
Geo. E. Beggs
S. A. Benedict
C. N. Bicknell
L. A. Biglow
L. Bittner
Mr. Blackford
L. S. Blackman
J. T. Bonham
B. F. Bond
B. F. Bond, Jr.
L. R. Boswell
H. L. Bowes
Mr. and Mrs. Jas. E. Bradley
Mr. and Mrs. John Brannan
F. H. Bridal
H. A. Breck
George Breeze
L. S. Bresler
Wm. F. Bromley
Neill S. Brown
J. Burke
Mr. and Mrs. Frederick T. Burkhardt
M. O. Byrne

C
Mr. and Mrs. Angus Cameron
Mr. and Mrs. Jas. A. Cameron
Jas. E. Campbell
Mr. and Mrs. Harry Caplin
Jas. A. Canfield

Guests of Canfield Paper Co.
Mr. and Mrs. Geo. C. Carpenter
G. C. Carpenter, Jr.
G. E. Carpenter
Mr. and Mrs. J. A. Carpenter
A. P. Carter
Mr. and Mrs. H. L. Carter
Jas. Richard Carter
G. E. Caskie, Jr.
C. Washington Chabot
Leo Charles
Hugo Christianson
Mr. and Mrs. Jesse Clark
Mr. and Mrs. Wm. H. Clark
R. M. Clements
Chas. Clinton
Mr. and Mrs. H. A. Cohn
Thos. D. Coleman
E. W. Coplin
A. J. Corning
Chas. F. Corning
C. E. Cortis
Miss Mary Costello
John H. Coyle
Mr. and Mrs. Thos. N. Cook
Geo. E. Crafts
Mr. and Mrs. C. A. Crocker
Miss Elizabeth Crocker
Dick Crotteau
Mr. and Mrs. F. B. Cummings
W. B. Curtis
H. H. Curtis

D
Mr. and Mrs. Arthur B. Daniels
H. C. Davis
T. K. Davis
J. C. DeCoster
S. S. Dillard
Mr. and Mrs. C. H. Dodge
Mr. and Mrs. A. L. Donahower
Harry F. Donahue
Mr. and Mrs. Jas. S. Donehy
Harry W. Doremus
Arthur Dougherty
Mr. and Mrs. L. T. Dryer
Mr. and Mrs. A. E. Dubey
Miss Gertrude Dubey
A. E. Dubey, Jr.
T. W. Dunn
Miss Pauline Dunn
W. D. Duryea

E
Mr. and Mrs. H. A. Earle
Walter Eastman
Mr. and Mrs. Geo. A. Eastwood
Mr. and Mrs. Albert M. Eaton
J. A. Edgerton
E. L. Edmonds
Miss Genevieve Edmonds
Mr. and Mrs. John H. Eick
Mr. and Mrs. E. F. Eilert
J. S. Ely
Henry Emery

F
Mr. and Mrs. J. S. Filbert
R. H. Fischel
Mr. and Mrs. W. E. Fischer
Mr. and Mrs. Paul Fiske
F. E. Floyd
Mr. and Mrs. J. S. Forbes
Thos. Fox
Mr. and Mrs. Max Frank
J. O. Franz
Mr. and Mrs. M. L. Freeman
A. E. Fuhlage

G
Arthur M. Gabel
Mr. and Mrs. Chas. H. Gardner
N. L. R. Gardner
Mr. and Mrs. Samuel Garner
Mr. and Mrs. John M. Garvey
William Gilbert
John Gilkey
Mr. Gilkin
B. W. Gillespie
W. N. Gillett
Philip Glatfelter
Mr. and Mrs. G. H. Gleason
Mr. and Mrs. H. L. Goodman
Mr. and Mrs. Chas. J. Grant
M. H. Grassly
Mr. and Mrs. Samuel Graydon
Geo. E. Greene
Guest of R. L. Greene Paper Co.
J. A. C. Groner
Henry Guild

H
M. L. Haggerty
Miss L. G. Hale
Mr. and Mrs. Arthur C. Hall
Geo. E. Hall
Mr. and Mrs. Arthur E. Ham

Want and For Sale Advertisements

Minimum rate for advertisements of 25 words or less, first insertion \$1.00.

Situations Wanted, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words taken.

Help and Miscellaneous Wants, and small For Sale Ads, 4 cents a word for each and every insertion. No ad of less than 25 words taken.

Answers can be forwarded care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

Cash must accompany order.

HELP WANTED

WANTED—Cylinder machine tender. Must be first class man, sober, well recommended. Steady position. Familiar with running building paper, light weight chip. Address Box 16, care Paper Trade Journal.

WANTED—First class chemist for sulphate process—hemlock and spruce-wood mixed. Western Canada, very comfortable accommodations, near large city. Address with full particulars to Box 17, care Paper Trade Journal.

WANTED ASSISTANT for paper department of export house. Must be well acquainted with trade. Some knowledge of Spanish desirable. State age, experience and salary wanted. Address Box 18, care Paper Trade Journal.

SUPERINTENDENT for the erection and operation of a modern roofing paper plant in Australia. First class man, able to operate paper machine and saturating plant, 5 tons capacity. State age, experience, references and salary expected. Address for particulars: P. H., P. O. Box 100, Weehawken, N. J.

WANTED—Two boss beatmen. Must be first class in every respect. Also two back tenders and two finishers. Address Box 19, care Paper Trade Journal.

WANTED—A Beaterman and also a millwright in a one machine mill in central New York making chip and wood boards. Steady work. Give references. Address Box 2, care Paper Trade Journal.

ENGINEERING DRAFTSMAN—Wanted immediately for Canadian pulp mill located centrally, experienced man on sulphite and paper mills, hydro electric and steam plants, general layouts and mechanical equipment. State technical training and past experience, also age, nationality and salary expected. Interesting work, fine chance for advancement, permanent employment. Address Box 4, care Paper Trade Journal.

STEAM ENGINEER AND ELECTRICIAN—Wanted by a modern mill in New York State. A man capable of handling steam power plant (2,500 h. p.) and electric power plant (1,000 h. p.). Energetic and efficient technical graduate preferred. Address Box 5, care Paper Trade Journal.

FOR SALE:—

One 136" Horne Fourdrinier
One 92" Dillon Single Cutter
One 124" Black-Clawson Cutter
and one thousand other items
for Paper Makers. Address:

The Shurtle Brothers Machine Company
Middletown, Ohio.

HELP WANTED

WANTED—Two machine tenders, two back tenders and three finishers in board mill in East. Address Box 978, care Paper Trade Journal.

HELP WANTED—Wanted capable machinist, experienced in running and adjusting automatic bag machines for position in Canada. Reply stating age, experience and salary expected. Address Box 979, care Paper Trade Journal.

WANTED AT ONCE—One machine tender, one back tender, one third hand, for slow running three cylinder machine. Two tours. Mill located near one of the large eastern cities. Good wages to the right men. Address The Nixon & Costello Co., White Hall, Md.

MASTER MECHANIC WANTED to take charge large paper and pulp mill. High salary paid to right man. Enclose references stating experience to Box 984, care Paper Trade Journal.

WANTED—For new sulphite mill Green Bay Barker operators, electricians, cooks, machine tenders. Highest wages, comfortable quarters. Apply to Box 966, care Paper Trade Journal.

STOREKEEPER FOR LARGE PULP MILL WANTED IMMEDIATELY. Give full details experience. Apply to Box 967, care Paper Trade Journal.

WANTED—Young man with engineering education. Work in drafting room on paper mill machinery, with opportunity for advancement as traveling salesman. Address Dilts Machine Works, Inc., Fulton, New York.

WANTED—Competent engineer and draughtsman to act as assistant to resident engineer in large paper mill in west. Must have knowledge of paper industry, building construction, surveying and hydraulic work. Canadian citizen exempt under military service act preferred. Address Box 956, care Paper Trade Journal.

WANTED—Competent machine tender on light-weight manila tissue. Good pay, eight hours. Address Box 776, Paper Trade Journal.

POSITION OPEN FOR GOOD SOBER MACHINE TENDER AND BACK TENDER in writing mill, located in good city in middle west. Address Box 719, care Paper Trade Journal.

WANTED—Experienced toilet paper salesman to represent manufacturer in large cities. Commission basis. Address Box 11, care Paper Trade Journal.

SITUATIONS WANTED

BEATERMAN WISHES TO MAKE A CHANGE from his present position. Experience on all grades of box, pulp and test boards. Married, steady and sober. Can furnish good references. Address Box 986, care Paper Trade Journal.

PURCHASING AGENT, NOW EMPLOYED WISHES TO MAKE A CHANGE. Six years' experience with large paper making concern. Well posted on all lines and can control supplies for maximum efficiency on lowest possible investment. Address Box 20, care Paper Trade Journal.

SUPERINTENDENT NOW EMPLOYED WISHES TO MAKE A CHANGE. Eighteen years' experience on coated, book, lithograph, glazed and embossed papers. Familiar with mill construction and general repairs. Address Box 21, care Paper Trade Journal.

WANTED POSITION AS SUPERINTENDENT—Fifteen years' experience on all grades of tissues, toilet, colors, carol fruit wrapps and waxing, also board and wrapping. Age 40, can furnish best of references. Strictly sober. Address Box 6, care Paper Trade Journal.

(Continued on page 373.)

FOR SALE

PAPER MACHINE—1 90" Tissue Paper Machine, 10 dryers 36" x 84", calenders, reel, Marshall Drive.

WET MACHINES—2 48" Wet Machines for board.

PAPER CUTTERS—1 112" Horne 44", 41" Finlay, 76" Hamblet.

RAG CUTTERS—1 Taylor Heavy Type Rag Cutter, triplex bed knife.

REAM CUTTERS—1 48" Acme; 76", 38", 48" Cranston, 55" Seybold, 42" Sheridan.

BOARD CALENDERS—1 45" Farrel Board Calender, 65" Downingtown.

SUPER CALENDERS—1 84" and 1 60" Stack Super Calenders.

PRESSES—6 Hydraulic Presses, 1 Boomer & Boschert Screw Press.

JORDANS—4 Jordan Refining Engines.

FANS—5 48" Perkins, 1 7" Horizontal.

PUMPS—1 9" x 12" Gould's Triplex, several triplex stuff and suction pumps; 2 triplex Hydraulic Pumps.

SLITTERS—1 50" Black & Clawson, 74" slitter and winder, 110" Kidder; 40" Kidder.

2 Shredders.

2 7" x 25" Rotary Boilers.

2 Kollergangs with stones.

2 Centrifugal, 2 Wandel Screens.

1 76" x 14 1/2" Millspaugh Suction Roll.

1 Filter Press.

4 Water Wheels.

1 Lombard Governor.

12 Three Pocket Grinders.

2 Trombley & Paul Sulphur Burners.

FRANK H. DAVIS

175 Richdale Ave., Cambridge, B Branch, Mass.

FOR SALE

BEATERS—40x36" with iron tub, 17' long, two 65x54, one 42x42, one 48x48, 4 Claffins. New Umpherstons.

CALENDERS—Five roll 48", 9 roll 63", 7 and 9 roll 72", 3 roll 80", 9 roll 80", 9 roll 84", 7 roll 86". Four roll friction.

COATER—One 43" double Waldron coater.

CUTTER—100" Finlay, 72" Dillon, 68" Black & Clawson, 84" Moore & White, 48" Holyoke, One T & S rag cutter. Several ream cutters.

CYLINDER MOULDS—Two moulds 30" dia., 70" face.

DRIVES—One Moore & White No. 9 A.

DRYERS—36 new shells 36" dia., 124" face; 3 new shells 36" x 76"; also three 36 x 36 with frames, etc.; four 28 x 62" all ready to set up. Lot of odd dryers.

DUSTERS—One 6 bowl Holyoke revolving, also two railroad dusters.

JORDANS—Emerson & Horne type Jordans.

MACHINES—One 72", 2 cylinder machine.

PUMPS—One triplex self-contained suction pump, one 1,000 gal. Worthington, tank pump 10 x 16 x 18 Knowles, fifteen fan pumps. New stock pumps, single and duplex.

ROTARIES—About ten horizontal rotaries; three Globe rotaries.

SCREEN—One Wandel screen.

Also a lot of other machines which have not yet been listed. Write us for anything you want.

Lot of new split pulleys, sprocket chains, cone pulleys. Some new wooden pulleys with friction clutches.

Mills Machine Company
LAWRENCE, MASS.

(Continued from page 372.)

SITUATIONS WANTED

MARRIED MAN, 36 years of age, at present employed as sales and office manager, held same position for twelve years, satisfactory reasons for wishing to change. Will be in New York City from Feb. 5 to 8. Address Box 8, care Paper Trade Journal.

PRACTICAL PAPER MILL SUPERINTENDENT now employed wishes to make change, experienced on nearly all grades of papers and familiar with manufacturing of ground wood and sulphite. References from previous employers and satisfactory reasons given for changing. Address Box 9, care Paper Trade Journal.

SUPERINTENDENT WISHING TO MAKE A CHANGE. Many years' experience in making most all grades of paper and colors. Best of references as to ability and character. Address Box 15, care Paper Trade Journal.

MECHANICAL ENGINEER with 14 years' shop and office experience in pulp and paper mills, paper machinery design, and general machinery work. At present holding a responsible position with a paper machinery concern. Address Box 12, care Paper Trade Journal.

I WISH TO MAKE A CONNECTION with a good toilet paper line, wrapping, also will entertain a good bag line. Will be at liberty Feb. 15 to 18. I have had five years' experience calling on the wholesale grocery and paper trade in the following territory Wisconsin, Minnesota, Iowa, Northern Illinois and North Central Michigan. The best of references can be given. Address Box 13, care Paper Trade Journal.

WANTED—Position as superintendent or assistant in board or cylinder machine mill. Thoroughly competent, 18 years' experience. For past 6 years in charge pulp mill and wet machines making specialties. Address Box 14, care Paper Trade Journal.

SUPERINTENDENT NOW EMPLOYED WISHES TO MAKE A CHANGE. 25 years' experience making boards, ledgers, writings and colored specialties. 7 years as superintendent. Good references. Address Box 987, care Paper Trade Journal.

FIRST CLASS CYLINDER MACHINE TENDER WANTS POSITION. First class on all kinds boards, test and container boards. Can give best references. Address Box 998, care Paper Trade Journal.

SUPERINTENDENT, experienced sulphite pulp and coarse paper maker wants position. Thorough practical and some technical training, mechanical ability. Married. A 1 references. Address Box 975, care Paper Trade Journal.

AN EXPERIENCED BOSS MACHINE TENDER OR NIGHT BOSS OPEN FOR POSITION. Well used to straw and test container boards and coloring. Address Box 936, care Paper Trade Journal.

SUPERINTENDENT OPEN FOR POSITION. Well used to all grades of box boards and specialties. Good on repair work and getting mills to their fullest capacity. Address Box 937, care Paper Trade Journal.

MISCELLANEOUS

FOR SALE—600 ft. Yale town overhead track, with turn table, switches and one ton hoist. In perfect condition. Price \$350. Address Box 22, care Paper Trade Journal.

FOR SALE—1-3" Brass covered agitator shaft, for 18 ft. horizontal stuff chest, with drives complete. Price \$100. Address Box 23, care Paper Trade Journal.

WANTED—Paper machine reel, two reels and upright frame 72" or wider. Give description, price and delivery in first letter. Address Box 24, care Paper Trade Journal.

FOR SALE—Second hand Kidder 40" model S. L. and 60" model S. H. slitters and re-winders, also model S. T. M. mill slitters, thoroughly overhauled and in A1 condition. Reasonable prices. Address Gibbs-Brower Co., 261 Broadway, New York.

MISCELLANEOUS

FOR SALE—Binder's Board Mill with forty acres of land and six dwelling houses. Factory thoroughly equipped with machinery and now running. Splendid water power and side track. Also another binder's board mill which I will dismantle. Size of machine seventy-two inches. Also a star cutter. Everything up to date. Address James Gaskell, 1 Rivington St., New York.

WANTED—Second hand layboy in good condition to fit a 55" Clark sheet cutter. Address Box 961, care Paper Trade Journal.

PAPER BAGS—Wanted by a manufacturer in Brooklyn, New York, experienced man to demonstrate **PAPER BAG AND ENVELOPE MACHINES.** Address Box 3, care Paper Trade Journal.

FOR SALE

NEWSBOARD CUTTINGS. RANGE OF SIZES: From 1" to 5" in width; from 12" to 60" in length.

CALIPER .230 to .330.

Apply to
Agasote Millboard Co.
Trenton, N. J.

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Write us for samples and prices.
Salesman Wanted.
THE H. NORWOOD EWING CO.
New York

Woolworth Bldg.

FOR SALE

One Hoffman Imported Kollergang.
Two Union Machine Company Kollergangs, both complete with drive shafts.

One 84" Mills Wet Machine.

One 1,800-lb. Dayton Globe & Iron Co., Iron Beater, complete except bottoms.

Two J. H. Horne & Sons Company's Jordan Engine.

For information, address
Kingsport Pulp Corporation,
Kingsport, Tennessee

Ready for Immediate Delivery

4 Slightly used Lockport Bag Machines, making bags from 2 ounces to 35 pounds.

Also an Open End Envelope Machine, ranges from 4x2½ to 8x12, with Flap Gumming Attachment.

Reason for selling. Owners going into other line of business.

Apply Box 997, care Paper Trade Journal.

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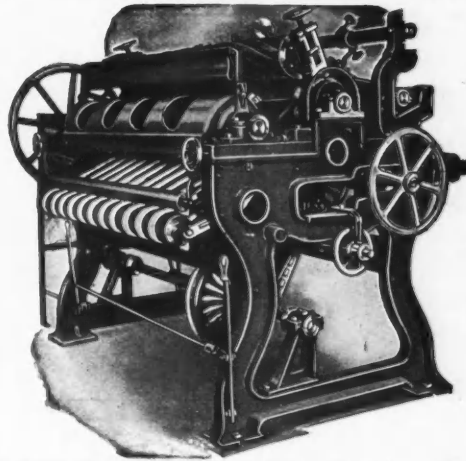
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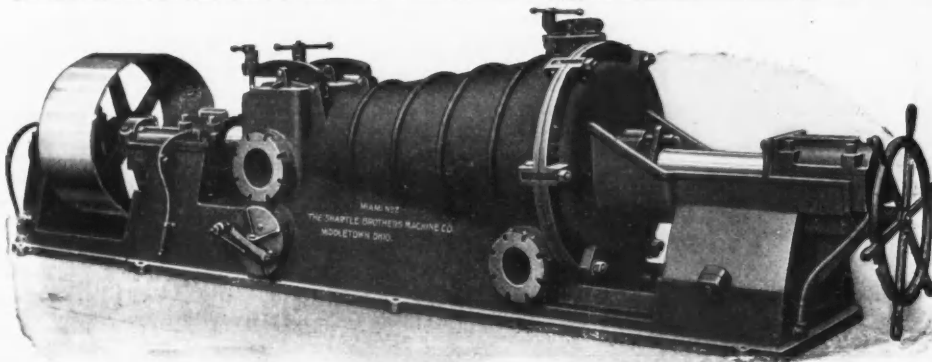
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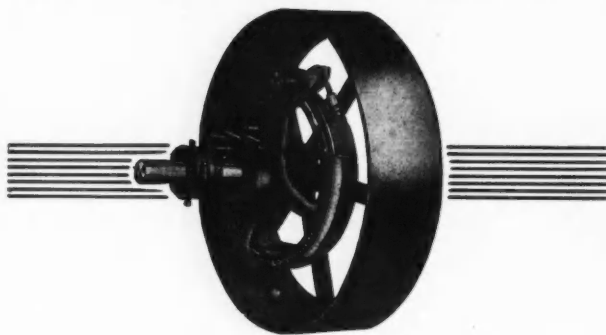
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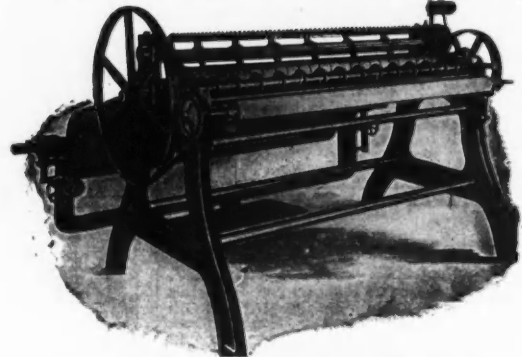
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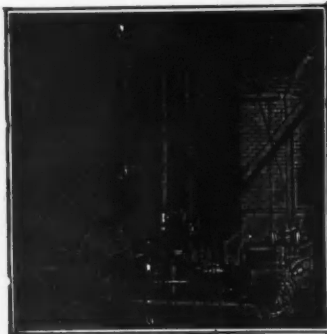
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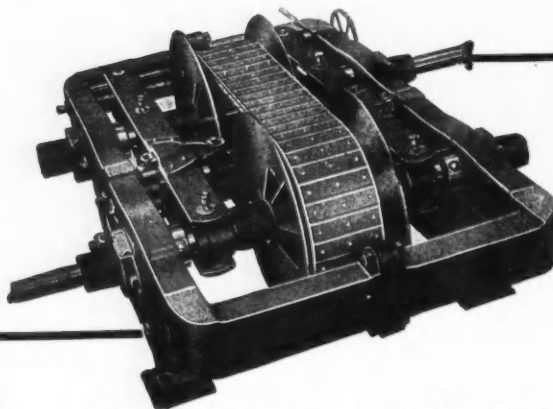
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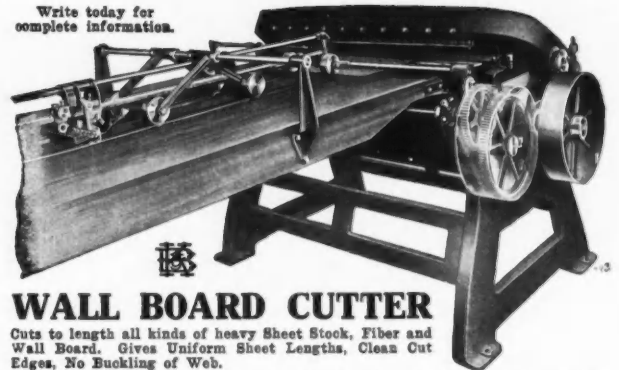
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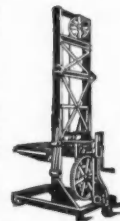
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Associated Dealers in Paper Mill Supplies Dine

Tenth Annual Banquet at the Hotel Brevoort Is Most Successful in the History of the Organization—An Atmosphere of Intense Patriotism Prevails Throughout the Evening—"Manny" Salomon Makes Good as Toastmaster—Music and Song Help to Make the Evening a Most Enjoyable One—Speakers in Eloquent Language Tell Why We Are Bound to Win the War.

The tenth annual banquet of the Associated Dealers in Paper Mill Supplies held on Wednesday evening at the Hotel Brevoort was full of patriotic fervor from the first course on the menu to the time when the belated photographer set off his last flashlight.

Meeting Will Long Be Remembered

The meeting is one that will be long remembered in the annals of the paper mill supply trade.

The corridors of the Brevoort were crowded with members of the Association and all were talking—well—all were talking shop as the vernacular has it—talking business and doing more business than at any other given time of the same duration.

There was a slight delay before the diners were inducted into the main dining room of the Brevoort. The dining room was decked out with flags of various nations and presented a pretty appearance. As a jazz band began to play the members sat down and made their several attacks on an eight course dinner ranging from Hors-d'Oeuvre Assortis going to Carre'd' Agneau Parisienne with Haricots Verts and finishing with a grand finale with Mousse à la Fraise, Cafe and a big fragrant cigar.

All in all the beginning was good. Of course the jazz band made its periodical ventures into song to relieve the stress of dining so heartily and (whisper this) some of the members, upon inevitable request, rendered vocal selections.

Mr. Salomon Acts as Toastmaster

The toastmaster of the meeting was "Manny" Salomon. He introduced the various speakers with a manner born of long practice and sprung some witticisms himself.

The first speaker was Anthony J. Westmayr, a representative of the Committee on Public Information at Washington. He delivered a highly patriotic address on "The United States in the War." He declared the devil had taken the Kaiser as his partner in the nefarious war he had brought upon three-fourths of the globe. He stated he had traveled in Germany in 1907 and everywhere he heard the expression "Der Tag—der Tag"—"The Day—the day." He asked for an explanation of the term and he says he was told the two words signified the great day when Germany would rise supreme over all nations and conquer all Europe.

"The 'great day' is coming," he continued, "to an end and it's our business to see that a new day will have dawned—a new day of peace and plenty the world over."

His remarks were heartily applauded and showed that the sympathies of the association were strongly American.

"Trade, As Affected By Patriotism"

Martin Wechsler, a New York attorney, spoke on "Your Trade as Affected by Patriotism." His address was witty. One of his observations was that while the meeting had come down in altitude from the 24th floor of the Hotel McAlpin to the ground floor of the Brevoort, the price of the dinner had

also come down. He brought out the value of the work the members were doing in the conservation of waste. He declared the war was one of attrition, with millions of corpses lying stark on the battlefield because one man willed it.

Creswell McLaughlin Speaks

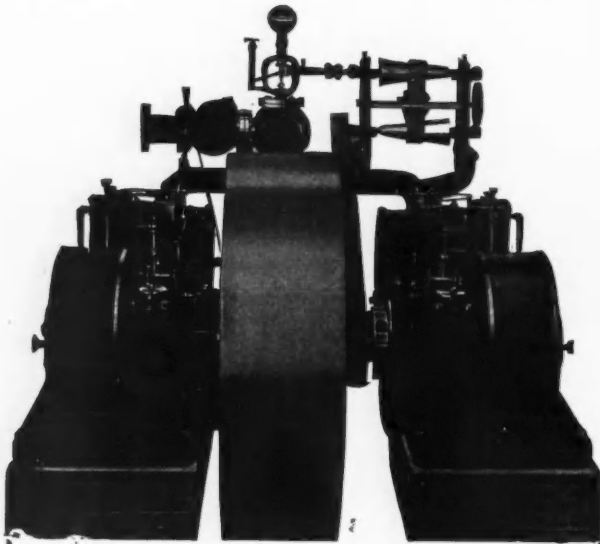
Creswell McLaughlin of Cornwall-on-Hudson was the last speaker. He occasioned many laughs by his droll witticisms. His talk gradually grew more serious and closed with this admonition: "Wait until that western front is thoroughly manned with American troops—wait until the armies of the United States decide that there shall be no more trenches—then—then, I repeat, Germany will go down, down to defeat and as far as military autocracy is concerned to ruin."

He roused the audience to a large degree of enthusiasm and was heartily applauded.

The members present were:

Those present at the annual dinner of the Associated Dealers in Paper Mills Supplies: Louis Darmstadt & James I. Courtney, of Darmstadt, Scott & Courtney; Joseph Graham, Bergen Paper Company, Little Ferry, N. J.; Evan B. Thomas, Alfred J. Moran, Thos. W. Carroll, of E. B. Thomas & Co., Inc.; F. H. Luning, of F. H. Luning & Co.; P. L. Sullivan, of P. Sullivan & Son, Philadelphia, Pa.; Curt Altman, G. A. Noeckel, E. H. Trafford, Wm. McLean, Frank A. Favata, John H. Engelke & Albert Eckert, of Marx Maier, Inc.; S. J. Fulcher, Piermont Paper Company; J. P. Gaccione, Main Paper Stock Company, Inc.; F. A. Dieckmann, United Paper Board Company; N. R. Carrano, Main Paper Stock Company, Inc.; E. P. La Cava, Chambers Paper Stock Co.; Michael Stramiello, of Michael Stramiello Company; Chas. Maronna, Chas. Maronna & Co.; John H. Bitters, United Paper Board Company; P. M. Meel, Thos. H. Ireland, E. L. Conklin, all of Wm. Hughes & Co., Inc.; Belmont Wolfer, of Wolfer Waste Company; Chas. Wolfer, of Jaffe & Co.; Robert Blank, of Robert Blank.

Joseph L. Gottlieb, of General Waste Company; T. A. Kenny & E. J. Stoesser, of Philadelphia Paper Manufacturing Company; Joseph I. Whitney, D. J. O'Connell and Thos. J. Moon, of Box Board & Lining Company; Theo. J. Sullivan, Catholic Protective Society; Ellsworth D. Gosling, of Gosling & Farr Company; Jas. J. Boyd, Norwich, Conn.; James L. Martin, Union Rag Company; Wm. C. Steck, E. Butterworth & Company; H. L. Woodward, of Train Smith & Company; Wm. Ebner & L. Jennings, E. Butterworth & Company; J. A. Howard & Russell McCandless, Atterbury Bros., Inc.; S. George, of George Shenard Paper Company; S. J. Fisher, of Nat E. Berzen; M. A. Castle, Frank C. Overton, Leon Gottheil, H. L. Albro, F. A. Cherrie, G. H. French, and Abner Koplik, of Castle, Gottheil & Overton; Geo. C. Russell and A. H. Searle, The Barrett Company; E. H. Morris, John Lang Paper Company; F. P. Wilder, Diana Paper Company; F. N. Stevens, Stevens & Thompson Paper Company; Henry W. Marshall, National Fibre & Insulation Company; H. P. Van Gilder, Diamond Mills Paper Company; J. A. Marshall, Marshall



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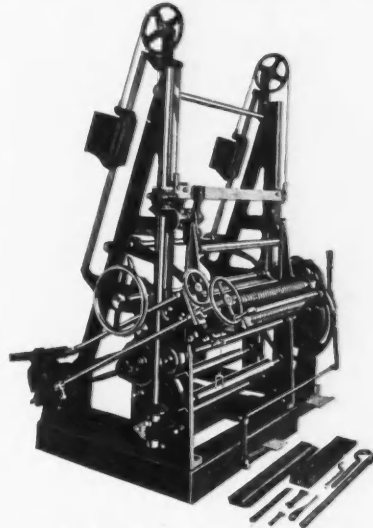
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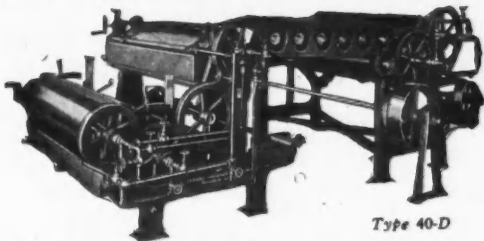
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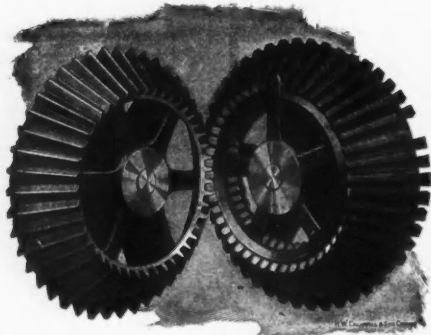
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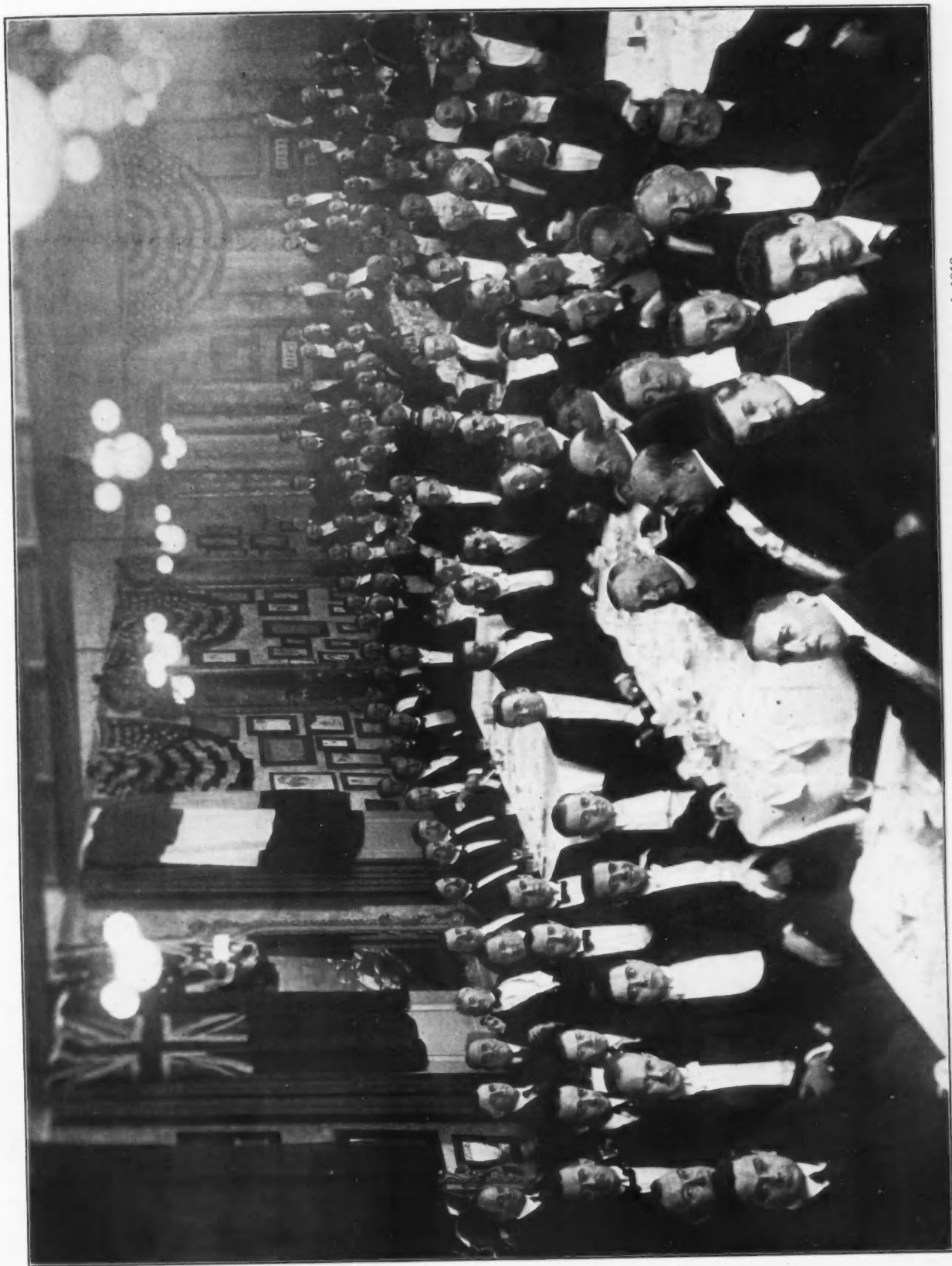
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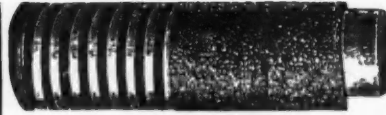
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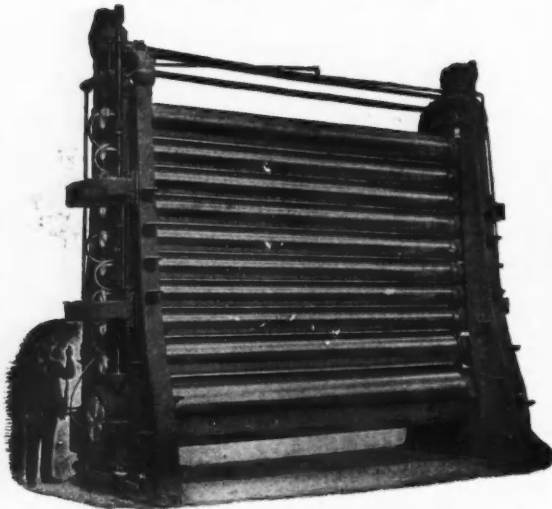
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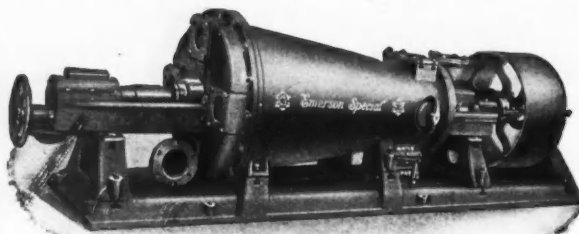
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Pierce J. Welsh, of McEwan Bros. Paper Company; Jos. Carrizzo, Anthony A. Barone & Marcennino Barone, of Geo. Garizzo & Co.; Jas. Rosenberg, American Woodpulp Corporation; J. L. Gilberg, A. V. Lee and J. H. Corwin, of Union Waxed & Parchment Paper Company; J. D. Goldberg, of Hammerschlag Manufacturing Company; J. F. Patton, of J. F. Patton & Co., Inc.; W. Oppenheimer, of Oppenheimer & Co.; A. H. Muller, of A. H. Muller Company; J. C. McKelvey, of Atterbury & McKelvey, Inc.; Albert Salomon, of Salomon Bros. & Co.; Louis Vogel, of Iron Trading Corporation; Milton Eckstein, M. Reich and A. T. Hicks, J. B. Woodruff, of A. Salomon, Inc.; Maurice Goldstein, L. H. Kerngood, of R. Goldstein & Son; H. L. Green, G. Mathes Co.; W. J. Burrows, W. J. Green, James Kaiser, E. J. Keller, of E. J. Keller Company; F. H. Cowden, of F. H. Cowden; L. O. Angevine and R. J. Williams, Warren Manufacturing Company; James Cardinale, P. Cardinale & Son; P. T. Zalinger and D. J. Salomon, Gotham Paper Stock Company, Inc.

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Herbert P. Brock, of Brock & McGarrity; J. L. Schulman, of Onondaga Trading Company; Ralph Cohen, of Syracuse Bag & Burlap Company; Wm. J. McGarrity, of Penn Paper & Stock Company, Philadelphia; R. M. Taylor, of The Hinde & Dauch Paper Company; M. Grassi and L. R. Brandenburg, of Brandenburg Company; Andrew Ragone and Horace Greeley May, of Main Paper Stock Company; J. B. King, of Diamond Mills Paper Company; Benj. Abrams, Waste Merchants Mercantile Agency; D. L. Manley, U. S. Paper Maker; John Cornell, The Paper Mill; Thos. F. Conroy, the PAPER TRADE JOURNAL; R. S. Garraway, The Daily Mill Stock Reporter.

HAVE HEARING ON GOVERNMENT MILL

An unexpected hearing was held at Washington Monday before the House Committee on Printing, of which Henry Barnhart, of Indiana, is chairman, on the Raker Bill, proposing the erection, on the Pacific Coast, of a Government paper mill to manufacture paper for the use of the Public Printer. The bill is similar to several others now resting in the House Committee on Printing, save that it asks that the mill be placed on the Pacific Coast.

Those who testified at the short hearing before the committee included Representative Raker, of California, the father of the

bill; Representative Campbell, of Kansas; Dr. S. W. Stratton, Director of the Bureau of Standards, Department of Commerce, and L. R. Brandenburg, representing the General Waste Paper Recovery Company.

Representative Raker took up the proposition of the utilization of timber on the National Forests of the West Coast and stated that he believed that paper could be manufactured much cheaper than it is now being furnished.

Dr. Stratton and Mr. Brandenburg took up the matter of pulp machines and stated that they believed that \$100,000 a year could be saved by the Government's turning the waste paper into pulp instead of selling it as waste paper. The committee was discussing the advisability of such a step.

It is doubtful if further hearings will be held by the committee and some in a position to know are of the opinion that the bill will be favorably reported out of committee. It doesn't seem possible though that it would have much chance of passing both Houses of Congress at this session, even in the guise of War legislation.

MOTHER OF MESSRS. NAYLOR DEAD

In the midst of his activities as secretary of the American Paper and Pulp Association, A. D. Naylor was saddened and shocked by the news that his aged mother in Chicago, Ill., died on Tuesday of this week.

His many friends among the manufacturers all expressed their regrets and commiserations.

Mr. Naylor will leave for Chicago to attend his mother's funeral on Friday of this week.

E. H. Naylor, secretary of the Tissue Manufacturers' Association and brother of A. D. Naylor will leave on Thursday.

GUILTY OF RIOTING AT HAMILTON

The courts of Butler county, Ohio, are engaged in hearing the rioting cases in Hamilton. Sheldon Norton and Mary Williamson were found guilty on Friday in the Criminal Court of assembling for riot in connection with the demonstration at the Shuler-Benninghofen mills. The defendants were convicted after due deliberations by the jury. On August 6 the defendants with a crowd of 25 or 30, are said to have visited the Wei home in Hamilton in an effort to persuade Helen and Bertha Wei not to return to work at the mills. It was claimed by the State the persons were guilty of rioting and the leaders were indicted by the October grand jury. Other cases are still on trial.

J. P. LEWIS CO. IMPROVEMENTS

(Continued from page 269.)

time the plant was destroyed by fire, which occurred in 1915.

The mill will be driven throughout by electricity.

The construction work has been done entirely by the company, under the supervision of its resident engineer, Mr. R. H. Brown.

The company's power plant is located at Eagle Falls, on Beaver River, and the power transmitted 16 miles to the mills of the company. The penstock is 9 ft. in diameter, and 2,800 ft. in length, and the equipment consists of three General Electric generators, each of 2,000 H. P., operating under 140 ft. head. The power is very steady, for in low water seasons, the plant has the first use of the water from the large State storage dam at Stillwater Lake.

The organization is as follows: H. S. Lewis, president and general manager; H. L. VanArnum, treasurer; F. W. VanArnum, purchasing agent; E. S. Nuspliger, sales manager; Charles Steinhilber, manager of woodlands; Lawson Ramage, general superintendent.

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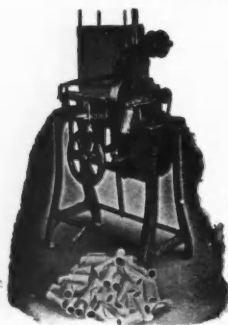
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Send us a trial order now, with particulars as to stock used, quality of paper made and speed of machine.

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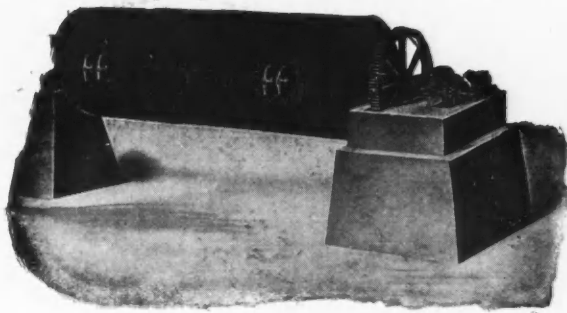
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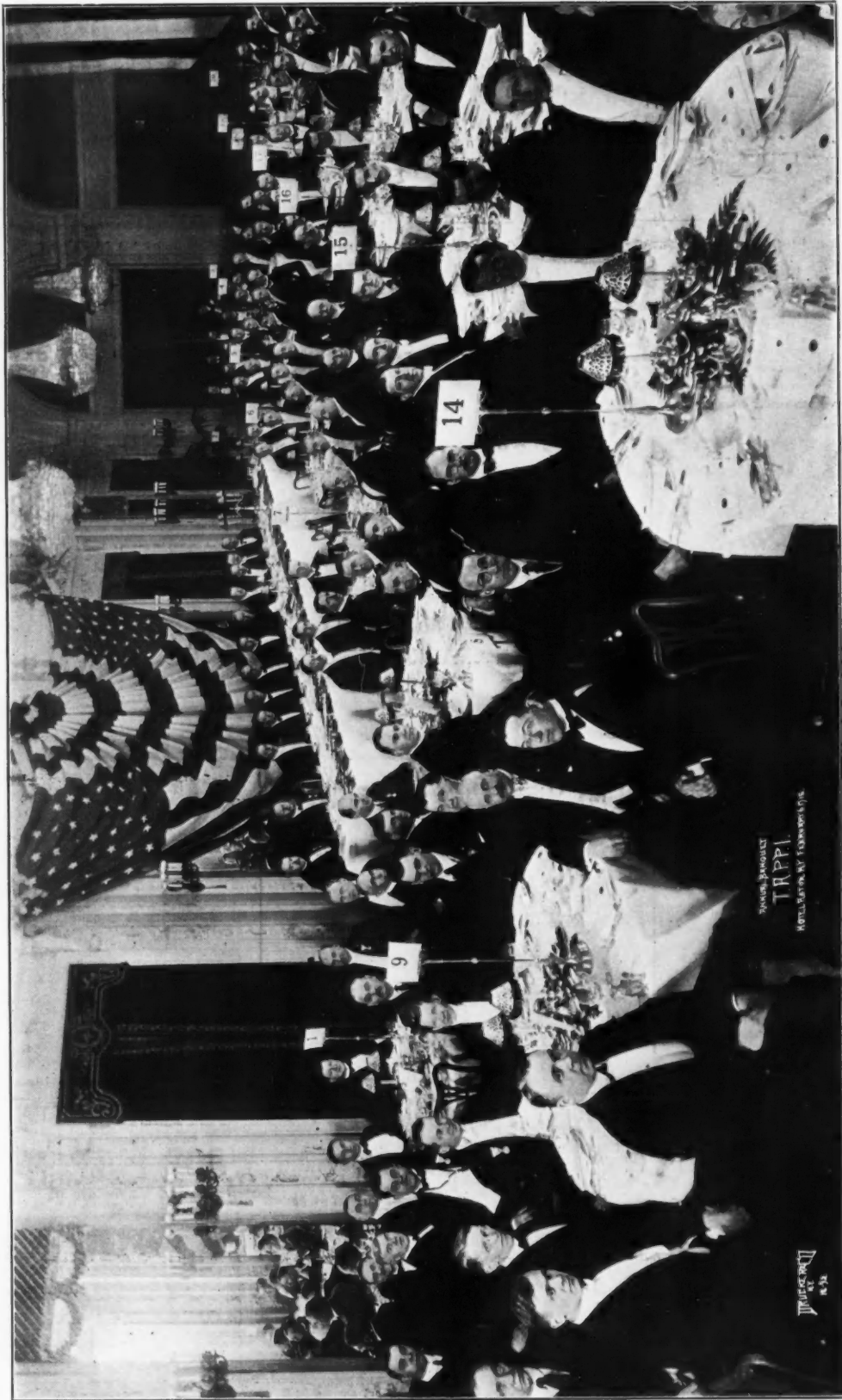
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Special Banquet
TRPPI.
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THE
HOTEL
ASTOR

Dinner of the Technical Association

Although Meatless, Wheatless and Fatless, According to the Present Hooverized Plan, Is a Thoroughly Enjoyable Occasion—One Hundred and Twenty-five Members and Guests Attend the Banquet at the Hotel Astor Wednesday Evening—Judge Moore Presides in His Usually Acceptable Manner as Toastmaster—The List of Speakers and Those Present.

The war made itself very evident at the annual dinner of the Technical Association of the Paper and Pulp Industry at the Hotel Astor on Wednesday evening. One hundred and twenty members and guests gathered in the foyer of the East Ball room at 7 o'clock and soon after partook of a truly Hooverized though very attractive meatless, wheatless and fatless dinner. The old time banquet has gone by the boards and the fact that each man present was doing his bit in aid of the Food Administration made the dinner all the more enjoyable.

Judge Moore Is Toastmaster

The toastmaster of the evening was the Hon. Charles F. Moore and the invited guests were Dr. Charles H. Herty, Editor of the Journal of Industrial and Engineering Chemistry; Arthur H. Sheldon, President of the Sheldon School of Business Science; Frank J. Sensenbrenner, Vice-President, Kimberly-Clark Company; George H. Mead, President Mead Pulp & Paper Company; George A. Galliver, President, American Writing Paper Company; Arthur L. Dawe, Secretary, Canadian Pulp and Paper Association; R. W. Hovey, Forest Products Laboratories of Canada and Alexander D. Naylor, Secretary, American Paper & Pulp Association. The speakers of the evening were Dr. Charles H. Herty and Arthur F. Sheldon.

Among the Guests Present

The following were among the guests at the dinner: L. M. Alexander, D. C. Andrews, G. J. Armbruster, Carl Bache-Wiig, O. Bache-Wiig, John L. Bagg, W. E. Byron Baker, H. J. Berger, R. C. Bergin, Wm. M. Bovard, J. W. Brassington, S. L. Bush, Ross Campbell, Henry P. Carruth, Elwood I. Clapp, Fred C. Clark, Norman Clark, A. S. Cosler, W. W. Cronkhite, Lester W. Crouse, F. E. Cuddeback, W. L. Davis, Jr., A. L. Dawe, Walter J. Deery, Walter H. Dickerson, Arthur B. C. Drew, George F. Drew, O. S. Egan, Henry E. Fletcher, W. A. Forman, Ragnar Forsgren, J. J. Frank, W. B. Fulton, George A. Galliver, R. B. Gardner, Hans Gesell, E. P. Gleason, J. H. Graff, A. B. Green, Martin L. Griffin, R. F. Griffin, H. W. Guettler, E. J. Hafele, Jas. W. Hagar, C. S. Hammerschlag, A. F. Hartman, R. S. Hatch, George H. Harvey, E. A. Haynes, Charles L. Henderson, Charles H. Herty, J. P. Hill, R. T. Hirsh, C. C. Hockley, Joseph L. Hodgins, Harold H. Holden, J. H. Houghton, R. W. Hovey, A. V. Howland, Edward Hutchins, Irving C. Jennings, H. Jensenjus, Bjarne Johnsen.

Thomas J. Keenan, H. E. Lindquist, W. Allan Lindsay, Frank C. Ladd, G. T. Lane, Wm. J. Lawrence, Dr. August Lendle, Franklin T. Locke, S. E. Lunak, E. J. McDonnell, Charles McDowell, Prof. Ralph H. McKee, Ernest Mahler, W. B. Marshall, J. O. Mason, George H. Mead, W. L. Merrill, Judge Charles F. Moore, Joseph G. Morgan, J. G. (Guest of) Morgan, E. C. Morse, F. J. F. Murer, J. B. Nash, L. E. Nash, A. D. Naylor, Mr. Nelson, A. W. Nickerson, W. L. Nixon, W. A. Nivling.

H. F. Obermanns, P. A. Paulson, H. B. Prather, Henry G. Rogers, James S. Ridley, A. N. Russell, Thomas H. Savery, Jr., Carl Schneider, Otto Schutz, L. H. Shipman, F. T. E. Sisson, Arthur F. Sheldon, A. F. (Guest of) Sheldon, A. F. (Guest of) Shel-

don, A. F. (Guest of) Sheldon, A. F. (Guest of) Sheldon, A. F. (Guest of) Sheldon, Rufus L. Sisson, Jr., L. E. Smith, Ralph M. Snell, George K. Spence, John Stadler, Geo. A. Stebbins, J. Newell Stephenson, R. M. Strathearn, W. J. Sullivan, H. S. Taylor, C. K. Textor, Wm. F. Thiele, C. B. Thorne, John Traquair, E. C. Tucker, J. M. Wade, Tom Walden, Howard Wallingford, S. Wang, C. W. Whitehouse, E. E. Whitney, T. T. Whittier, C. A. Wiley, J. B. Wilt, R. B. Wolf.

L. M. Yoerg.

Max Zimmerman.

THOSE AT A. P. & P. A. BANQUET

(Continued from page 265.)

Kit S. Warner	A. H. White	Frank W. Wilson
R. T. Warren	Fred White	Norman W. Wilson
Thomas E. Warren	Fred S. White	W. J. Wilson, Jr.
J. S. Watson	J. B. White	C. M. Winchester
T. C. Watson	W. C. White	William C. Wing
H. R. Weaver	Allen E. Whiting	G. S. Witham, Sr.
S. W. Webb	F. B. Whiting	R. B. Wolf
O. L. E. Weber	George A. Whiting	J. T. Wolohan
Fred Webster	S. R. Whiting	F. L. Wood
John Weidman	W. A. Whitney	E. C. Woodruff
Henry Wellhouse	Howard Whittemore	J. B. Woodruff
C. S. Weston	F. B. Whittet	W. A. Wrase
D. P. Weston	F. P. Wilder	E. Wright
A. C. Wetmeyer	C. A. Wiley	E. M. Wright
G. M. Wetmore	W. N. Wilkinson	Y
C. E. Weyand	Stanley C. Willey	Leon M. Yoerg
W. T. G. Weymouth	F. M. Williams	C. A. Young
M. J. Wheeler	R. C. Williams	Edw. Yulke
P. B. Wheeler	F. L. Willis	Z
Dwight E. Wheeler	S. L. Willson	Max Zimmerman
William A. Wheeler	C. C. Wilson	

EDWIN V. FOX WITH NEKOOSA-EDWARDS

The trade in general will be pleased to learn that Edwin V. Fox has joined the Nekoosa-Edwards Paper Company and will be connected with their mill at Grand Rapids, Wis. For the present, he will be associated with I. S. Reynolds who is in charge of the Chicago office of the company in the Rookery building, 209 South La Salle street. Mr. Fox is widely known in the trade and was for 5 years connected with the Wausau Sulphate Fibre Company of Mosinee, Wis., and therefore is no stranger to the Kraft lines of wrapping papers.

CURTAILING PRODUCTION IN CANADA

The order of the fuel controller shutting industrial plants for three days from Saturday will throw 2,000 employees of the Eddy & Booth Paper Mills temporarily out of work. The production of paper mills in and near Ottawa, Ont., will be affected to the extent of five hundred tons.

The Mathieson Alkali Works, Inc.

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48 per cent. and 58 per cent.

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60 per cent., 70 per cent., 72 per cent., 74 per cent., 76 per cent.; also 78 per cent. Our 78 per cent. Caustic Soda is an article of greater purity than has ever before been produced in a commercial way, analyzing 99.70 Hydrate of Soda

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IMPORTANT

The paper quotations presented herewith are more or less nominal as many of the mills have withdrawn quotations, due to unusual conditions.

Market Quotations

NEW YORK Trade Securities

Bids and asked quotations of securities listed on the Stock Exchange of companies engaged in the manufacture of paper as reported on February 6, 1918, follow:

Table with columns for company name, bid price, and asked price. Includes American Writing Paper Company, International Paper Company, etc.

Paper

Table listing various paper products such as Bond, Ledgers, Writing, News, Book, Manila, and Fibre Papers with their respective prices.

Table for Kraft (Domestic) paper, listing delivered and soda bleached prices.

Domestic Rags

Table listing prices for domestic rags, including white, blue, and mixed rags, and various types of cuttings.

Foreign Rags

Table listing prices for foreign rags, including white, light, and medium light rags.

Bagging

Table listing prices for various types of bagging, including Gunny No. 1 and Sulphite.

Mechanical Pulp

Table listing prices for mechanical pulp, including f. o. b. Pulp Mill and No. 1 f. o. b. Mill.

Chemical Pulp

Table listing prices for chemical pulp, including Sulphite (Foreign) and Sulphite (Domestic).

Table listing prices for wool tares, Manila rope, and twines.

Twines

Table listing prices for various types of twines, including India, No. 6 basis, and Paper Makers' Twine.

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Table listing prices for paper products in Chicago, including Bonds, Ledgers, Writing, and Manila.

Table listing prices for Manila rope, No. 2 and Manila Rope.

Old Waste Papers

Table listing prices for various types of old waste papers, including Shavings, Flat Stock, and Old Papers.

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Table listing prices for paper products in Philadelphia, including Bonds, Ledgers, and Writing.

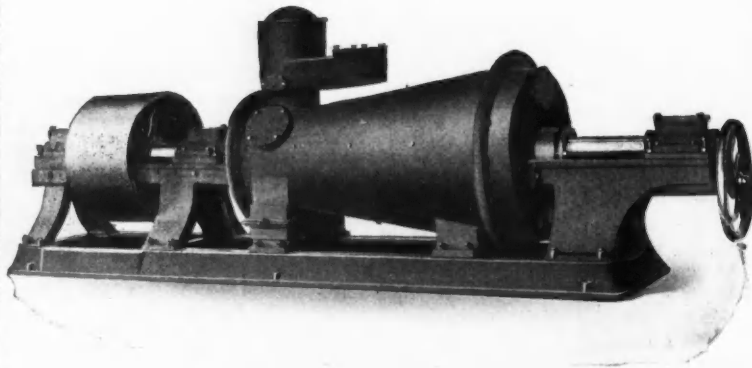
Bagging

Table listing prices for various types of bagging in Philadelphia, including Gunny No. 1 and Foreign Domestic.

Old Papers

Table listing prices for various types of old papers in Philadelphia, including Shavings and Old Newspapers.

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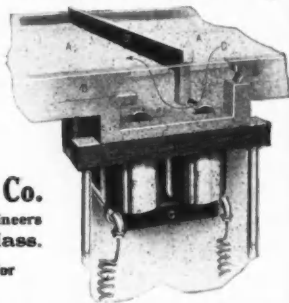
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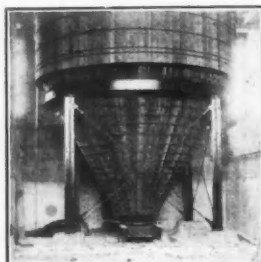
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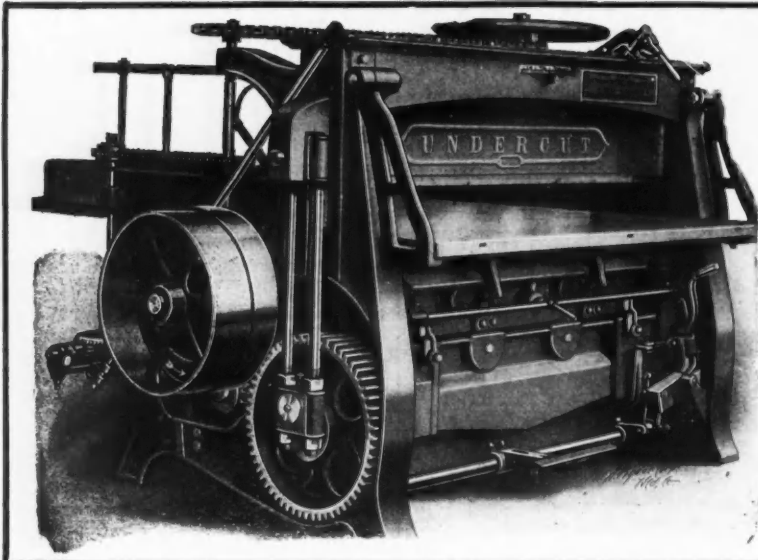
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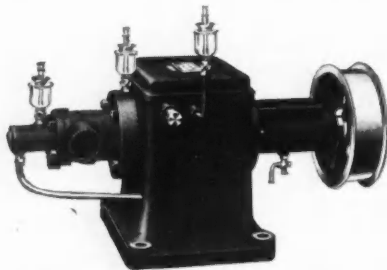
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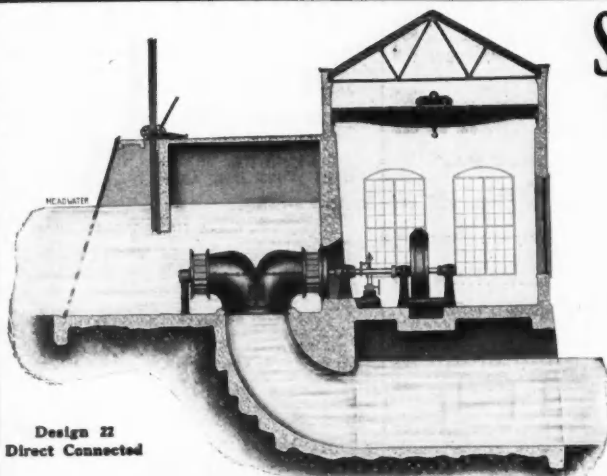
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