

# PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

**PAPER**

**SIXTY-FIFTH YEAR**



Established Feb. 17, 1899  
Consolidated Nov. 16, 1899  
with PAPER TRADE JOURNAL.

Vol. CIII, No. 26 Thursday, December 24, 1936

Established Sept. 21, 1910  
Consolidated Feb. 19, 1925  
with PAPER TRADE JOURNAL.

## To Build 200-Ton Kraft Mill In Virginia

Chesapeake-Camp Corp., owned by Albemarle, Chesapeake and Camp Interests, Will Start Construction in January at Franklin and Expect to Complete Plant in Ten Months—210-Inch Pusey & Jones Fourdrinier

The Chesapeake-Camp Corporation will build a 200-ton kraft pulp and board mill at Franklin, Va. This site is located on the Blackwater River and the S. A. L. Railway, one permitting of water transportation and the other of railroad transportation.

The company is owned by the Albermarle, Chesapeake and Camp interests, J. L. Camp, Jr., president of the Camp Manufacturing Company, will be president of the new concern.

### 210-Inch Pusey & Jones Fourdrinier

The Pusey & Jones Corporation will furnish the paper machine. This will have a width of 210 inches and a speed of 1,500 feet. The mill will be equipped with B. & W. boilers and there will be B. & W. units in the recovery plant. It is expected to have the mill completed within ten months from the first of January.

The new mill will be designed especially for the production of kraft board as a finished product.

### Ideal Location for Wood Supply

The location is an ideal one for wood supply. It can be reached by water, rail and highway. There are several highways running into the territory for a 50 mile radius of the mill and there are numerous rivers that are navigable and that flow into the Blackwater River. The company also will have the transportation facilities of the Camp Lumber Company logging roads which will bring in pulpwood from their logging operations.

### Continental Files Bankruptcy Petition

A voluntary petition in bankruptcy was filed last week by the Continental Paper and Bag Corporation, a subsidiary of the International Paper and Power Company, in the Federal Court for the Southern District of New York.

It was stated by officers of the International Paper and Power Company that all the operating paper and bag properties had been sold on December 7, 1936, to the Southern Kraft Corporation, another subsidiary of the International Paper and Power Company, and that cash had been deposited with the trustees of the several outstanding indentures of the Continental Paper and Bag Corporation in an amount sufficient to pay off all of that company's outstanding bonds. It was also stated that other outside in-

debtedness except minor tax liabilities had been assumed by the Southern Kraft Corporation.

All of the remaining debt of the Continental Paper and Bag Corporation and all its capital stock is held by the International Paper Company. As pointed out in the last quarterly report of the International Paper and Power Company, the program for liquidating idle properties will involve a material write-down of assets with a corresponding charge to consolidated surplus at the end of the year. For many years, however, taxes, maintenance and operating losses of the now idle units of the Continental properties have represented a heavy burden of expense. Their elimination should be helpful to consolidated profits in the future, both for International Paper Company and International Paper and Power Company.

### Consolidated Paper Plan Approved

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 21, 1936.—At a meeting of the holders of Consolidated Paper Corporation, Limited 5½ first mortgage bonds and registered debenture stock, 1861 series, approval was given to the proposals involved in a "five-year plan" of dealing with bond interest.

It was announced that the total amount of these securities outstanding was \$62,899,745. Representation at the meeting, in person and by proxy, was \$34,560,749, and the poll on the proposal resulted in a vote of \$34,532,849 in favor and none against. Earlier in the day, shareholders at a special meeting approved an increase in the authorized capital from 2,000,000 shares to 3,000,000 shares of no par value.

This increase was needed as the "five-year plan" calls for issuance of fifteen shares of common stock in lieu of interest on each \$1,000 par value of bonds for the three years ending July 2, 1939, being at the rate of five shares per \$1,000 bond per annum, and for issuance of either shares or cash, or a combination of both, to cover the next two years' interest.

The determining factors which will guide the directors in deciding how interest is to be paid during the final two years of the five-year plan, will be the company's earnings and working capital position. The object will be to keep working capital from falling below \$10,000,000. For the two years, interest will be payable annually instead of semi-annually.

# Activities of the Wisconsin Paper Industry

Officials In Charge Announce Transfer of Marinette & Menominee Paper Co. Mills to Southern Kraft Corp. Will Not Affect Personnel or Local Operations—D. C. Everest Heads Wisconsin Manufacturers Association

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 21, 1936—Transfer of the Marinette and Menominee Paper Company mills at Marinette, Wis., to the Southern Kraft Corporation, as announced in New York last week, will have no effect on local operations or personnel, according to advices of officials in charge. The Marinette mill, and another at Oconto Falls, Wis., idle for several years, were owned by the Continental Paper and Bag Corporation. The properties still remain in the International Paper and Power Company group, since these are all subsidiaries.

Some of the 7½ per cent first mortgage bonds of the Marinette and Menominee Paper Company are still outstanding, but are covered by deposits made with the trustees.

## Wax Paper Developments

How perfection of waxed paper has created a new philosophy of merchandising was explained by Allan Abrams, technical director of the Marathon Paper Mills Company, in an address before the Rotary Club at Menasha, Wis., is now producing ten million pounds of waxed paper annually, and is believed to be the largest consumer in the United States in its converting operations. The Menasha Division, formerly the Menasha Printing and Carton Company, was acquired in 1927. Accomplishments in this field through the company's untiring research were described.

## News of the Industry

In an address last week before the Outagamie County Bar Association at Appleton, Wis., Eric D. Lindberg, treasurer of the Patten Paper Company, Ltd. described how his testimony caused dismissal of a large eastern lawsuit. A document which one of the litigants claimed was a carbon copy of an agreement made in 1922 was involved in the case. When Mr. Lindberg testified that the kind of paper on which the document was typed was not manufactured until 1932, the suit ended abruptly.

Milwaukee land owners who have frontage on the Wisconsin River and Pickerel Lake will be paid approximately \$4,000 by the Wisconsin Valley Improvement Company of Wausau, Wis., operators of a chain of control dams for paper mills along the Wisconsin River. The circuit court at Rhinelander, Wis., awarded judgments to the plaintiffs growing out of the flooding of their lands when the Rainbow Rapids storage reservoir was completed recently.

Lower freight rates have been granted by the Interstate Commerce Commission on sulphur shipped from Texas and Louisiana to mills at Green Bay and Marinette, Wis. and Menominee, Mich. The decision makes it possible for the railroads to compete with steamship lines for the sulphur business. The rates are granted as exceptions to the long-and-short-haul provisions of the Interstate Commerce Act. Shipments made to the Hoberg Paper and Fibre Company, Green Bay, were cited as an example. Under a previous grant, the delivered cost by rail was \$25.84 a ton, while the cost, delivered by water to the company's dock, was \$25.35, including cost of unloading and switching from dock to plant. It was an-

nounced the Hoberg company intended to ship by water unless the former rates could prevail.

D. Clark Everest, vice-president and general manager of the Marathon Paper Mills Company, Rothschild, Wis., was elected president of the Wisconsin Manufacturers Association at its 25th annual meeting December 17 at Milwaukee, Wis. He is a former president of the American Pulp and Paper Association. The Milwaukee meeting was devoted largely to discussion of the elimination of labor troubles through protection to industries in the operation of their plants without restraint of force. The paper industry in Wisconsin, through its employment relations departments, has been fortunate in avoiding the labor agitation which has harassed many other plants in the state.

Higher wages will be paid woodsmen in northern Michigan during the pulpwood cutting this winter. Because of the increased demand for pulpwood in the paper industry, as well as in lumbering and chemical operations, a scarcity of men has become evident. Competition for crews therefore has brought offers of wages equal to prosperous times. It is estimated the timber operators are short 300 men for the winter logging.

Capital stock of the Appleton Machine Company, Appleton, Wis., well known manufacturers of beaters and other equipment, has been increased from \$30,000 to \$45,000, according to amendments to the articles of incorporation filed with the secretary of state. The board of directors has been increased from four members to five. F. E. Saecker is president of the company, and C. E. Saecker is secretary.

Funeral services were held at Green Bay, Wis., last week for Frank K. Ramsay, secretary-treasurer of the Hoberg Paper and Fibre Company. He was found dead in his home December 14. He was 51 years old.

## Hal Harvey Joins Penick & Ford

Hal Harvey has joined the staff of Penick & Ford, Ltd., and will call mostly on the paper mills in Western New York, Western Pennsylvania and Ohio. Mr. Harvey comes from an old paper making family, his father, Tom Harvey, now being associated with the Chesapeake Paper Board Company at Baltimore, Md.

After leaving college Hal spent about three years in the Gardner & Harvey mill working in all departments and then spent seven years with their Enterprise Machine Company, selling special paper mill machinery. He also spent a year with the Bevis Machine Company.

## M. E. McGarry Goes to Wausau Paper Mills

The Wausau Paper Mills Company, Brokaw, Wis., announces the appointment of M. E. McGarry as vice-president in charge of sales.

Mr. McGarry brings to his new connection a very wide experience in both the manufacture and sale of papers, having spent ten years with the American Writing Paper Company and nearly eleven years with the Munsing Paper Company.

Mr. McGarry will headquarter in Chicago at the company's sales office at 111 West Washington Boulevard.

# Ontario Newsprint Paper Mills Very Active

Due to Great Improvement In Position of Industry, Issues of Various Newsprint Companies Advance Several Points—Use of Jack Pine In Manufacture of Pulp for Newsprint Discussed by E. W. McBride, of Abitibi.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 21, 1936.—E. W. McBride, of the Abitibi Power and Paper Company, Ltd., Toronto, who recently made reference to the use of jack pine in the manufacture of pulp for newsprint, says that spruce is still the principal wood used in the paper industry. Recently a number of kraft mills have been built in the southern United States, says Mr. McBride, and they are successfully using jack pine, producing pulp which is manufactured into ordinary brown wrapping paper and bags.

Some attempts have been made to use this pine to make newsprint, and the efforts are apparently successful. "Further investigation," adds Mr. McBride, "may solve all the present difficulties, and if entirely successful in the United States, there is no reason why the same process could not be applied to jack pine in Canada where large stands are available. The Abitibi Power and Paper Company have carried out some research work on the use of jack pine, but investigations have not reached a stage where this wood can be employed in the manufacture of newsprint."

## Visits Great Lakes Plant

C. H. Carlisle, of Toronto, president of the Great Lakes Paper Company, Fort William, Ont., recently paid an official visit to the plant. Mr. Carlisle accepted the duties of president and head of the reorganized company after an already successful career in industry and business had placed him at the head of the Dominion Bank of Canada, the Goodyear Tire and Rubber Co., the Canada Bread Company, etc. He came to the Dominion in 1910 from Ohio, to organize the Goodyear Company of Canada, of which he is now president.

## Thorold Mill Very Busy

Word received from St. Catharines, Ont., is to the effect that the Ontario Paper Company, Limited, will continue its production at the Thorold mill without abatement. Its twelve million dollar mill and townsite development at Baie Comeau, Que., will be needed to make newsprint for the *New York Daily News* while the mill at Thorold, Ont., will continue to serve the needs of the *Chicago Tribune*. The newsprint mills are all very busy at the present time and their stock issues have been in the limelight on the various exchanges for some time. They are attracting great attention and in the last month the issues of Abitibi Power and Paper Company, Canadian International Paper Company, Consolidated Paper Company, Great Lakes Paper Company, Minnesota and Ontario Paper Company and the Howard Smith Paper Mills have advanced several points. It is believed, with returning improvement in the industry, that the issues may go considerably higher.

## News of the Industry

The Hon. C. W. Cox, M.L.A., who is Mayor of Port Arthur and one of the largest timber dealers and pulpwood operators in Northern Ontario, has been appointed a member of the cabinet of the Ontario Government without portfolio, by Premier Hepburn. It is understood that Mr. Cox will be entrusted with the preparation of material on which Mr. Hepburn will base his long promised Royal Commission inquiry into timber and pulpwood administration of previous governments of the province. For

some time it has been reported that Mr. Cox will be the eventual successor to the Hon. Peter Heenan, the present Minister of Lands and Forests.

Many friends in the paper trade learned with regret of the death of C. W. Graham, president of the old established wholesale paper and stationery firm of Buntin, Gillies & Co., Ltd., Hamilton, Ont. For many years he was prominently associated with the paper industry and in his passing is removed one of its most esteemed and honored names.

The forest products industry of the Thunder Bay district, of which Port Arthur is the pivot, will produce this winter more than \$600,000 in revenue for the Ontario Government. It is estimated that some \$200,000 will be collected on export and local wood. There will be a considerable increase in the cut, and more employment is now assured. About 2,000 men were engaged last winter in logging, and last summer about the same number were employed in cutting and peeling pulpwood. This winter it is estimated that between 3,000 and 4,000 men are engaged in the bush. The wage bill in the Thunder Bay district for the season will run close to \$125,000 and the timber and pulpwood companies will spend from \$2,500 to \$3,000 a month in food and supplies for the men, and a proportionate amount for gasoline, tires, etc.

Some sixteen large operators have their headquarters in Port Arthur and in addition to pulpwood the employees will produce railway ties, dimension timbers, poles and logs. The Hon. Peter Heenan, Minister of Lands and Forests for Ontario, recently had officials of the Port Arthur branch prepare an estimate of the timber cut in the Thunder Bay district during the 1936-1937 season. The estimate of pulpwood is 399,000 cords, which will be 11,000 in excess of last year, and the highest in a five year period.

The Kenora Pulp and Sulphite Workers Association No. 133, Kenora, Ont., played Santa Claus lately to over two hundred children and adults. Robert Halliday, chairman of the local committee, ably presided and a splendid programme was carried out. The children were made the recipients of several gifts.

## Decorated Corrugated Containers

Corrugated containers—traditionally drab-looking and designed merely to get articles from one place to another—may now be expected to blossom forth in all the colors and patterns common to ultra modern design.

A new process, which frees the designer from the necessity of using only alkaline-proof inks and their narrow color range, has just been announced by Jordon Bauer, technical director of the Stein-Hall Company of Chicago.

Containers fabricated of corrugated board manufactured by this process may be converted into highly attractive "traveling signboards" when hauled in trucks, or smart display cases when placed on dealers' shelves. Even the lightest and most delicately tinted papers hitherto used only on fancy boxes and other decorative purposes may be employed on the sturdiest corrugated containers without danger of being stained by the presence of free alkali.

The process enables low-alkali or even non-alkaline starch adhesive to be substituted for the ordinary alkaline adhesives in manufacturing the corrugated board.

# Demand for Paper Well Sustained in Chicago

**Practically All Grades of Paper Show Increased Strength—Fine Paper Market Little Affected By Seasonal Reaction—Kraft Wrapping Paper In Excellent Request—Sentiment In Newsprint Industry Becomes Improved**

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 21, 1936—The near approach of Christmas has failed to halt the advancing strength in the local paper market to any appreciable extent. Reports from virtually every line represented in this territory continue to show increasing strength with an obvious plenty of foundation for actual price increases. The entire kraft line, extending into wrappings, butchers and other grades, showed further demand and resultant fundamental market strength during the week. Groundwoods held firm with reports current of a situation likely to result in increases. The newsprint market responded to much better contract demands for the coming twelve months resulting from an increase in newspaper advertising lineage.

Bonds and ledgers were reported to be only slightly affected by the seasonal reaction and there is a feeling in the Chicago area that the inventory period will be marked by a far less recession in buying activity than in past years. Books and covers held gains, with the former, in particular, responding impressively to the recent advance in price. The board market was firm, while certain grades of waste paper were also more in demand due to the requirements of mills far behind in their production schedules.

## Paper Salesmen Plan Yuletide Party

The Midwest Division of the Salesmen's Association of the Paper Industry has completed plans for its annual Christmas party. With Ben Babbitt absent while recovering from a major operation, John Diggs, Mosinee, is in charge of the program and has announced that it will be held at the Hotel Sherman, Tuesday noon, December 29, thus taking the form of a combined Christmas and New Year's program. The two piano team which has been so popular in past meetings has again been scheduled to provide the musical highlights, with Harold Pfeister of Bradner, Smith & Co. as the paper representative on the duo. Plenty of singing, with James H. Coy, Sr., as the major domo, will also feature the Christmas party expected to attract a record breaking attendance of members and guests.

## Direct Mail Display

The Fourth Annual Direct Mail Advertising Association "Trail to Sales," presenting the fifty Direct Mail Leaders for 1936, was held at the Hotel Sherman, Chicago, December 14, 15, 16 and 17. The comprehensive display attracted a record breaking attendance including a considerable number of paper executives. The exhibits were built around displays of leading concerns selling to the direct mail field with a number of paper manufacturers taking a leading part.

In the group were the Rising Paper Company, with its direct advertising papers, Olde Quill, D. E., Red Lion Text and other lines, including ten lines of bonds and writings, with the Messinger Paper Company, Parker, Thomas & Tucker and the Midland Paper Company as local outlets; Strathmore Paper Company, with the James White Paper Company, J. W. Butler Paper Company, Chicago Paper Company and Swigart Paper Company benefiting locally from the comprehensive display of twenty-four book and cover lines and sixteen bond and writing lines; and the

Appleton Coated Paper Company, with its Direct Sales Bond coated on one side with Dwight Bros., Moser, Whitaker and James White as local outlets.

The Eastern Manufacturing Company, in cooperation with the Dwight Bros., Paper Company and LaSalle Paper Company, had an exhibit of Atlantic Bond, while the Oxford Paper Company exhibited through the cooperation of Birmingham & Prosser and Bradner Smith & Co. Midland, Messinger, Birmingham & Prosser and J. W. Butler were benefited by the International Paper Company display of Adirondack Bonds and Ledgers, Ticonderoga Books, Texts and Vellums and other features of the line. The Gilbert Paper Company Rag Content line was displayed through the courtesy of seven Chicago outlets—Bradner, Smith, Moser, Dwight, Swigart, Berkshire, Empire and Messinger. S. D. Warren Printing Papers had a comprehensive display in conjunction with the Chicago Paper Company while Crocker-McElwain and Chemical Paper Manufacturing Company exhibited through the Chicago offices at 208 South Jefferson. The 1937 Howard Bond portfolio was featured through Midland, Moser and Parker, Thomas & Tucker, while the Linweave Paper line including the new "Linweave Romney," was distributed through the Chicago outlets of Chicago Paper Company and Swigart Paper Company. Gaw-O'Hara Envelope Company attracted considerable attention with its introduction of the new "Glow-Tone" papers for envelope use. The entire exhibition was built around the "Trail to Sales" motif with information cabins and attractive girl guides to the exhibits. The Fifty Direct Mail Leaders occupied a prominent spot on the south wall of the exposition space.

## News of the Industry

Important sessions of the Book Paper Manufacturers Association are to be held at the Drake Hotel, Chicago, Tuesday and Wednesday, January 12 and 13. The Executive Committee will meet the morning of January 12, while a general meeting of the entire association is slated for 10 a.m. the morning of January 13.

Through the Swigart Paper Company, the Strathmore 1937 Handbook has been announced this week. Every bond paper shown in the new Handbook is stocked in Chicago by the Swigart organization. Included among the ten leading bond lines manufactured by Strathmore and distributed by Swigart are the lines which attracted favorable attention at the 1936 DMAA exhibits in Chicago.

Bradner, Smith & Co. have recently stocked three new and popular lines, including Dura-Glo cover, made by Hammermill; Leatherette Cover, made by Port Huron Sulphite and Paper and Marco Cover, manufactured by the Marvellum organization.

## Emil E. Kolk Starts Sales Agency

Emil E. Kolk, who has been connected with Stevens & Thompson Paper Company for the past twenty-two years, has resigned to establish his own sales agency, and after January 15, 1937, he will be located at the Woolworth Building, New York City, Room 1589, Tel. Worth 2-1261.

As always

We wish our customers  
and friends a

**Very Merry Christmas**

and continued prosperity  
thruout the

**NEW YEAR**

**- Dilts -**  
MACHINE WORKS Inc. FULTON. N.Y.

*"Your paper is made in your beaters"*

# Scott Paper Declares 100% Stock Dividend

Share-for-Share Payment of No Par Common Capital Issue Payable on January 11 to Shareholders of Record on December 31—Dividends Paid This Year by the Company on Common Stock Amounted to \$2.15 Per Share

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 21, 1936—A 100 per cent stock dividend has been declared by Scott Paper Company directors, who voted a common stock disbursement at the rate of one share for each share of the company's no par common capital stock payable January 11 to stockholders of record December 31. The dividend conforms to the company's policy over a number of years, of paying out substantially lower cash dividends than earned. Last year the company paid a stock dividend of 50 per cent. Cash dividends paid this year on common amounted to \$2.15 a share.

## Association Activities

On Monday, December 28, the Paper Trade Association of Philadelphia will hold its final meeting of the year prior to the annual meeting, at which election of officers for the ensuing year will take place. The nominating committee has been appointed and will make its report at the annual meeting in January, 1937.

Ninety-seven students in the Paper Salesmen's Study Course, conducted by the Paper Trade Association of Philadelphia, were in attendance at the Class Visitation to Cuneo Eastern Press through the courtesy of C. S. Ruddle, sales manager, and L. C. Werden, general manager. They were conducted in groups of ten to witness the Gutenberg Press exhibit, and actual operation of a modern job printing plant, where the relation of the right paper to the process used and the character of the job were illustrated.

## Annual Christmas Party

The jollity of Christmastide was spread in abundance to sixty children, selected from the range of the Salvation Army under the guidance of Brigadier Jennie R. Ward and Adjutant Harriet Godden, at the annual Christmas party given by the Philadelphia Paper and Cordage Association in the Crystal Room of Adelphia Hotel on Thursday, December 17.

Leonard Fitzgerald who, in everyday life, is distributor for Hummel-Ross Fibre Corporation, impersonated Santa Claus, presenting each little guest with a pair of shoes, roller bearing skates, sweater, game, candy, doll and peanuts together with a 10-lb. bag of oranges.

The guest of honor on this occasion was Mrs. Frank B. Hooper, mother of President Hooper, who came from Baltimore to be in attendance. Seated at the speakers' table were Colonel Sorley, U. S. A., Thomas Hanna, James Andrews, Rev. Crosswell McBee, George K. Hooper, E. K. Lay, John Howarth, Harry S. Platt and Jack Shinnars. Rev. Dr. McBee, rector of Old St. Davids Church, Devon, Pa., pronounced the blessing.

## George K. Hooper Speaks

Following the dinner, George K. Hooper, retiring president, related the story of the association's activities during the past year. Said President Hooper: "This year has been a most successful one for us. When we started we had seventy members; we were determined to reach a goal of 100, and the officers assured me they would bring this about. Not only have they accomplished their goal but have

exceeded it by 6, so that our membership now totals 106. Our organization is the only one in the United States that numbers among its members, manufacturers and distributors of paper and cordage. The substantial results attained by this organization in the past (and incidentally this is our 10th anniversary) are outstanding.

"To our esteemed friend, John Howarth, we are indebted for his unique idea of having each member as he is accepted to membership, file with the association enough copies of his letterhead to supply the entire membership. On this letterhead are set forth the various lines he carries; this is put in a special binder furnished by the association, and it is an unwritten law among the members to consult their files and whenever possible patronize his fellow members in this association."

Mr. Hooper paid personal tribute to Amos Coath, expressing to him his personal gratitude and that of the association for his beneficent donation of sixty sweaters for these worthy children. Likewise he paid glowing tributes to Mrs. E. K. Lay, wife of president-elect of the association, for her untiring efforts, the other donors for their generosity in making possible the entertainment and gifts for the little guests.

Mr. Hooper welcomed the incoming officers and congratulated the association upon having such a fine body of men to carry on for the coming year. E. K. Lay of E. K. Lay Company, was elected president; James Andrews of Schuylkill Paper Company, vice-president; T. W. Monteith of F. W. Winne & Son, treasurer, and Jack Shinnars, of Acme Specialty Sales Company, secretary.

President Lay in accepting the office as president said he was happy to head this group because of what it and its members stood for—a unity of purpose to harmonize their lives through cooperative effort, and he gave assurance to try and have it go on to even greater heights.

Sixty employees of the Sabin Robbins Paper Company, 15th and Carpenter streets, will receive a Christmas bonus of a week's salary, company officials announced this week.

Mathias Paper Corporation, distributors of fancy papers, presented a handsome bonus to its employees during the week.

## Mrs. George H. Spencer Dead

Mrs. George H. Spencer, wife of George H. Spencer, general manager of E. D. Jones & Sons Company, Pittsfield, Mass., passed away on December 8.

Upon returning home from Christmas shopping and but a short distance from her home in Pittsfield, Mrs. Spencer lost control of her automobile, in which she was alone, and crashed into a tree, sustaining fatal injuries.

But thirty-one years of age, Mrs. Spencer leaves her husband and two sons, George H. Jr., and William; her mother; and her brother, Edward Theurkauf, of Montclair, N. J.

The many friends of Mr. Spencer's in the paper industry extend their deep, heartfelt sorrow to him in his sad bereavement.

# Outlook for the Paper Industry in 1937\*

By Dr. E. O. Merchant<sup>1</sup>

Any business forecast for the year 1937 must necessarily be based on the assumption that a European War or other major catastrophe will not occur during the year. We must also remember that the present business cycle will not be permitted to run its course without interference. The Federal Government will undoubtedly undertake to regulate interest rates, stock prices, commodity prices, etc. in order to head off another boom.

## Interest Rates

From the Government standpoint interest rates must be kept low in order to facilitate further borrowing and to prevent a sharp decline in bond prices, which would ruin our national banks already overloaded with Government securities and so involved that they must take on any additional loans that the Federal Treasury hands out whether they want to or not.

Old fashioned Economists like myself have always believed that the way to curb stock market speculation or head off a boom is to raise money rates. This will stop the expansion of credit. But now we are going to witness an attempt to control credit expansion, while keeping money rates low. It will be an interesting experiment to watch and we can only hope and pray that it will succeed, for if it doesn't, we are in for plenty of headaches in the next few years.

## Upward Trend Anticipated

With these general observations in mind you will find most forecasts for 1937 agreeing on the following:

(1) The general trend of business activity will continue upward during the year. In other words the leading indexes of business activity will be somewhat higher in December 1937 than they are now.

(2) The intermediate swings are more difficult to determine, but there is considerable likelihood of a temporary recession during the first quarter of 1937 and of a period of feverish activity in the fourth quarter.

(3) The heavy or durable goods industries especially steel, electrical, railroad and factory equipment and new construction will show the greatest improvement during 1937, but the consumers goods industries will make some further progress upward.

(4) The general trend of wholesale commodity prices will continue upward. If any obstructions should occur in the production or distribution of essential commodities, prices are likely to soar. The volume of consumption will be running so heavy in many lines that it will not take much to start a buyers' panic.

(5) The cost of living is bound to rise in 1937, which will cause a demand for wage increases and aggregate labor troubles.

(6) Interest rates will be kept artificially low by Government manipulation. Hence high grade bond prices will remain at the present exceptionally high level during most of the year. In spite of Governmental activities, some stiffening of money rates may be seen toward the end of 1937.

(7) The Federal budget will not be balanced in 1937, and the National debt will rise to a new all-time high, despite rapidly increasing revenues. The beneficiaries of the

present spending campaign are naturally going to fight to perpetuate it.

(8) Corporation profits will show some further increase in 1937, and if the present tax on undistributed profits is not amended, there will be another shower of special dividends and bonuses distributed during the last quarter of the year.

(9) Industrial, railroad and utility stock prices will probably close the year at a somewhat higher level than they reached in 1936, but I am inclined to think the market will be more irregular and two sided and I would not be surprised to see a setback during the first quarter.

(10) The total output of paper and paper board will make a new all time high in 1937, probably exceeding the 1936 output by 5 or 6 per cent. Some grades will show a larger increase than others. The trend of costs and prices will be upward.

## Paper Production Forecast

I am inclined to be rather conservative about the further increase in paper production in 1937 because most mills are already operating at close to capacity and expansions in the South will be delayed by the difficulty of getting delivery on new equipment. There is also some likelihood of a pulp shortage developing during the year which would interfere with full operations of mills not producing their own pulp.

## Michigan Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 21, 1936.—The December meeting of the Michigan Division of the Superintendents Association was held Thursday evening, December 17, at the Park American Hotel. An unusually large attendance marked the event. Following the dinner, Chairman Otto Fisher introduced H. G. Specht, of the Eastwood Nealy Corporation as the guest speaker. This was Mr. Specht's second appearance before this body, and he delivered an interesting description of the Eastwood product, augmented by a series of slides showing manufacturing processes and wires in actual operation. Mr. Specht is always a welcome visitor to the sessions, his comprehensive knowledge of his products and ability to assist the superintendents in their wire problems are appreciated.

## To Dismiss Eastern Board Case

Ray Martin Boyd, attorney, 1908 Lincoln Liberty Building, Philadelphia, Pa., advises creditors that a petition will be presented to the United States District Court for the Eastern District of Pennsylvania in the Post Office Building, Philadelphia on Monday, January 4, 1937 to dismiss the petition and proceedings of the Eastern Board and Paper Corporation under 77B of the Bankruptcy Act.

## Gerald F. Alcorn Approved Testing Chemist

The Joint Committee on Approved Pulp Testing Chemists announces that Gerald F. Alcorn, of Pulp Division Weyerhaeuser Timber Company, Everett, Wash., has been accepted by the committee as an approved pulp and paper mill testing chemist and is listed as such, effective December 16, 1936.

\* Delivered at the meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, December 21, 1936.

<sup>1</sup> Secretary of the Salesmen's Association of the Paper Industry and of the Ground Wood Paper Manufacturers Association.

### Eagle-A Announcement Association Meets

The Eagle-A Announcement Association—Eastern Division—held its regular annual meeting November 28th at the offices of the Kent Paper Company, Inc., New York, converters of Eagle-A Announcements.

The meeting was based on a presentation of sales charts showing the trend of each of the Eagle-A Announcements items for the past five years. Various discussions were held regarding further improvement of the lines and plans were made for advertising and constructive sales efforts for the coming year. Presentation was made by J. G. Voltmann, secretary, who further reported that for the fifth successive year Eagle-A Announcements had shown a sales increase.

The new officers elected were: Frank W. Holden, Rourke-Eno Paper Company, Hartford, president; George



FRANK W. HOLDEN, President

S. Clerk, Hudson Valley Paper Company, Albany, first vice-president; Duncan Whyte, Whitaker Paper Company, New York, second vice-president; J. G. Voltmann, Kent Paper Company, Inc., New York, secretary; C. Vernon Morris, J. E. Linde Paper Company, New York, chairman, in charge of advertising and merchandising.

The retiring president, Harry J. Fleming, Garrett-Buchanan Company, Philadelphia, was presented with a handsome golf bag.

The annual sales banner, presented to the member showing the largest percentage of increase in Eagle-A Announcement sales for the previous year, was awarded to the Central Paper Company, Newark, N. J.

Addresses were made by R. S. Madden, vice-president in charge of sales, American Writing Paper Company, Inc. who spoke on the rising costs confronting the paper manufacturers and the outlook for the future; Richard F. Linsert, Eagle-A's advertising manager, spoke on advertising phases affecting the announcement line and Charles H. Wilkinson, president of The Kent Paper Company, Inc. welcomed the members to the meeting.

Serious as the day's conference was, it had its lighter moments in the form of a "Slogan" contest, in which W. R. Kinkead of the Whitaker Paper Company, New York, won an attractive traveling kit; a luncheon at Mario's, one of the village's well known Italian restaurants; dinner at the Queen Mary, famed for its Swedish smorgasbord, and witnessing of "Murder in the Old Red Barn," New York's newest old-fashioned melodrama. Eagle-A merchants from all the Eastern states were well represented.

### New Kenwood Talking Picture Shown

As a special service to paper-makers—and especially to mill operators charged with getting best results from their equipment—F. C. Huyck & Sons (Kenwood Mills), producers of paper-makers' felts, have just completed a talking picture film vividly depicting every important step in the making of a Kenwood Felt. Especially impressive are the scenes showing the sorting and grading of fine wools and the many laboratory tests and factory inspections, all aimed to insure high average performance over the longest possible period of time.

This 40-minute picture was shown for the first time in the Music Room of the Hotel Biltmore, New York City, December 17, at a luncheon attended by paper-mill executives and representatives of the trade press. It will shortly be released for request-showings under the direction of Kenwood field representatives to employee groups at leading paper mills throughout the United States. The film will also be made available to vocational classes in the various colleges offering instruction in modern paper-making.

The film is appropriately titled "Two Related Industries," and it is believed that its production marks a forward step toward a closer understanding between the felt-maker and the papermaker, both of whom are primarily working toward the same objects—better paper, greater production, lower costs.

F. C. Huyck & Sons were prompted to make this picture by the fact that paper-mill executives visiting the Kenwood Mills at Albany repeatedly expressed the wish that there were some way in which their mill operators could see the care that goes into the designing and manufacturing of the felts they used. These executives particularly had in mind the many developments pioneered by Kenwood; and, in this connection, paper-makers viewing the picture on its tours throughout the country will be gratified to observe that many animated diagrams have been included, each depicting some function that felt performs on a paper machine.

The new Kenwood film is the first of its kind ever to be made by a member of the felt industry and was produced by Caravel Films, Inc., of New York City, an organization enjoying an enviable reputation in this highly technical field.

### Foxboro Adds to Field Personnel

Walter N. Stancati has joined the staff of the Pittsburgh office of the Foxboro Company, Foxboro, Mass., makers of industrial precision instruments. Mr. Stancati will work out of Pittsburgh as a sales engineer. Frank H. Herman has been added to the personnel in the repair shops of Foxboro's Pittsburgh office.

Roger W. Allen has been appointed as sales engineer in the Atlanta, Georgia, office of the Foxboro Company.

T. R. Smiley has been added to the personnel in the repair shops of the San Francisco office.

### Ohio TAPPI To Meet

The Ohio Section of the Technical Association of the Pulp and Paper Industry will meet at the Hotel Manchester, Middletown, Ohio on Saturday, January 9, 1937, at 6:30 P. M.

The speaker will be John D. Rue, Hooker Electrochemical Company, Niagara Falls, N. Y. who will talk on "Some Developments in Improving the Quality of Chemical Woodpulp." Anyone interested will be welcome to attend.





# CONSTRUCTION NEWS

## *A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

### Construction News

**Fernandina, Fla.**—The Container Corporation of America, Inc., 111 West Washington street, Chicago, Ill., manufacturer of corrugated paper boxes and containers, has authorized plans for new pulp and paperboard mill at Fernandina, under consideration for several months past, as previously noted in these columns. A large tract of land has been acquired, with about 3,000 feet of waterfrontage on the Amelia River. Plant will comprise a group of one and multi-story units, to be equipped for an ultimate capacity of about 350 tons per day. It will include a power house, pumping station and other mechanical departments. Work is scheduled to begin in January and will require close to a year for completion. Cost estimated about \$6,000,000. George F. Hardy, 305 Broadway, New York, N. Y., is consulting engineer. Walter Paepcke is president.

**Minneapolis, Minn.**—The Rapinwax Paper Company, 293-95 Como avenue, St. Paul, Minn., manufacturer of waxed and other processed papers, has taken out a permit for alterations and improvements in factory at 2600-10 Delaware street, Minneapolis, to be occupied for plant service. General contract for work has been let to L. H. Sault, Gilfillan Building, St. Paul, and will be placed under way at once; other awards for iron work, millwork, etc., also have been made. Project is estimated to cost about \$20,000. J. J. Ahern is president.

**Alton, Ill.**—The Alton Box Board Company, Inc., has been incorporated under Delaware laws, with capital of \$2,000,000, to take over and succeed to the Alton Box Board and Paper Company, operating mills at Carlyle and Federal, Ill., Lafayette, Ind., and other points.

**Urbana, Ohio**—The United Paperboard Company, manufacturer of paperboard specialties, chip board and kindred products, has approved plans for new one-story addition to plant, for which superstructure will begin at early date. It is reported to cost close to \$30,000, with equipment. Company headquarters are at 171 Madison avenue, New York, N. Y.

**Tonawanda, N. Y.**—Cellophane Division, E. I. du Pont de Nemours & Co., River road, has plans under way for new addition to steam power house at local plant, including installation of equipment. Cost about \$45,000. Work will be placed under way soon.

**Memphis, Tenn.**—The Lloyd A. Fry Roofing Company, 5302 West 66th street, Chicago, Ill., manufacturer of roll roofing paper products, prepared roofing, etc., has acquired property in industrial district at North Memphis, as site for new branch plant, for which plans will be completed at early date. It will be one-story, 120 x 500 feet, estimated to cost over \$125,000, including equipment.

**New York, N. Y.**—D. Benedetto, Inc., 420 Lexington avenue, paper stock converter, affiliated with the Rob-

ert Gair Company, 155 East 44th street, manufacturer of corrugated paper containers, etc., has leased the buildings at 6-12 East 134th street, previously occupied by the Everard Brewery, totaling about 65,000 square feet of floor space. Property will be taken over at once and will be used for a new paper-converting plant.

**Plymouth, N. C.**—The Kieckhefer Container Company, West Canal street, Milwaukee, Wis., manufacturer of corrugated boxes and containers, has engaged the Lee Engineering Company, Charlotte, N. C., consulting engineer, to prepare plans for certain units of new pulp mill to be erected on 75-acre tract of land, near Plymouth, recently referred to in these columns. Work on project is expected to begin early in 1937. General building contract has been let to James Stewart & Company, 230 Park avenue, New York, N. Y. Entire project will cost in excess of \$3,500,000, including equipment.

**Newark, N. J.**—The Lewmar Company has been organized to take over and consolidate the Lewmar Paper Company, 116-32 Sussex avenue, and the Paper House of New Jersey, Inc., 98 Branford place. The new company will maintain headquarters in the future at first noted address. Herman Ostroff is president, and Mac L. Weisman, treasurer.

**New York, N. Y.**—The Anchor Container Corporation, recently organized with capital of \$200,000, plans operation of local plant for manufacture of paper boxes and containers of various kinds. New company is represented by Charles Entmacher, 450 Seventh avenue, New York, attorney.

**Enka, N. C.**—The American Enka Corporation, Enka, near Asheville, N. C., manufacturer of cellulose rayon products, has low bid from the Daniels Construction Company, Anderson, S. C., for addition to power plant at local mill, and will make award at early date. It is reported to cost over \$80,000, including turbine unit and auxiliary equipment.

**Berlin, N. H.**—The Brown Company, manufacturer of pulp products, kraft and other paper stocks, has advanced the wages of employees at local mill by approximately 10 per cent, effective January 3, 1937.

**Donnacona, Que.**—The Donnacona Paper Company, Ltd., has completed plans for new one-story addition to mill and will begin superstructure at early date. It is estimated to cost close to \$50,000, including equipment. It is proposed to carry out erection by day labor.

**Savannah, Ga.**—The Union Bag and Paper Corporation, Woolworth Building, New York, N. Y., has awarded general contract to the Merritt-Chapman & Scott Corporation, 17 Battery place, New York, N. Y., for construction of third unit at new kraft pulp and paper mill at Hermitage Plantation, Savannah, recently organized. The same contractor has constructed the first two units of the plant,

work on latter now being in progress. It will be equipped for a capacity of 40,000 tons of kraft paper per annum, duplicating the output of each of the first two units. It is estimated to cost close to \$3,000,000, with machinery and is scheduled for completion late in 1937. George F. Hardy, 305 Broadway, New York, N. Y., is consulting engineer. Alexander Calder is president. Company has recently concluded negotiations for acquisition of about 25,000 acres of land in Liberty County, Ga., and will develop for pulpwood supply.

**Gippsland, Australia**—The Australia Paper and Pulp Company, Ltd., has plans under way for new wood pulp mill, comprising several large units, to be equipped for an initial capacity of about 25,000 tons of pulp per annum. It is proposed to begin work early in 1937. Cost estimated over \$500,000, including machinery.

**Mexicali, Lower California**—The Provincial Government of the North District of Lower California, Ensenada, is projecting plans for a new pulp and paper mill at Mexicali, utilizing flax and other fibers in that district as raw material for pulp production. Plant will be given over to the production of high-grade paper stocks, and will consist of several units for pulp department and finished paper division. Application has been made to the Federal Government of Mexico, Mexico, D. F., for an appropriation for the project, which is reported to cost about \$400,000, of which machinery installation will represent approximately \$250,000.

#### New Companies

**Forest City, N. C.**—The Dalton Paper Company has been organized to deal in paper products of various kinds. New company is headed by J. F. Dalton and B. H. Long, both of Forest City.

**Cleveland, Ohio**—The Ace Waste Paper Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in waste paper products. The incorporators include William H. Stone and Maurice Grant, 1001 Hippodrome Building, Cleveland. Last noted is representative.

### Paper Demand Active In Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 21, 1936—Orders for paper to Boston wholesalers continued in good volume last week; in some quarters it was stated that business was very, very good. Mill deliveries are still difficult, with manufacturers extremely busy. The fancy paper trade was active. In the wrapping paper division, orders were placed in substantial quantities. Box board prices remained steady, although buying was slightly less than previously.

The paper stock market was exceedingly strong, with an active demand and prices steady, advancing in a number of cases. In old papers, No. 1 kraft rose to 1.35 from 1.25 and screening wrappers to .55 @ .60 from .40 @ .45, both f.o.b. Boston.

In bagging, several grades advanced. Foreign gunny No. 1 went up to 2.20 @ 2.25 from 2.05 @ 2.15, domestic gunny No. 1 to 2.00 @ 2.05 from 1.90 to 2.00, foreign scrap burlap to 2.10 @ 2.15 from 2.00 @ 2.05, domestic scrap burlap to 2.00 @ 2.05 from 1.80 @ 1.90, scrap sisal to 2.10 @ 2.15 from 2.00 @ 2.10, scrap sisal for shredding to 2.25 @ 2.35 from 2.10 @ 2.35, heavy wool tares to 2.00 @ 2.10 from 1.90 @ 2.00, and heavy baling bagging to 2.25 @ 2.65 from 2.00 @ 2.50, all f.o.b. Boston.

New and old domestic rags and foreign were unquotably changed. Orders for twine kept up in considerable volume.

### Japan Seeks New Pulp Supply

A considerable amount of space in the local press has been devoted to pulp during the past several months, according to a report from Assistant Trade Commissioner Carl H. Boehringer at Tokyo. Japanese industrialists are intensely interested in obtaining new sources of supply for pulp both for paper making and for the manufacture of rayon. Inventors are also busy attempting to produce pulp from domestic raw materials. In general, most of the publicity given the subject has been of an extremely optimistic nature, although news of several definite developments have been published. Among others, is the article appearing in the "Industrial Nippon" to the effect that the South Manchurian Railway Company has decided to embark upon the pulp manufacturing industry on a large scale. The railway intends to secure material for the manufacture of wood pulp from forests in the Hingan Province.

Production of chemical and mechanical pulp in Japan during the third quarter of 1936 totaled 187,636 short tons, a slight decline compared with the preceding quarter and an increase of 3.5 per cent over the corresponding period of last year. Total production for the first nine months of the year, according to a report made to the Japan Paper Manufacturers' Association comprised 286,477 tons of chemical pulp and 266,612 tons of mechanical pulp as against 275,709 tons of the former and 256,004 tons of the latter during the corresponding period in 1935.

Pulp imports during the third quarter reached 97,277 short tons, an increase of 17 per cent over the preceding quarter and 68 per cent over the third quarter of 1935. Imports for the nine months period reached a total of 268,408 short tons, of which 135,441 tons were for paper products and 132,967 tons for the production of rayon. American exporters have supplied nearly 50 per cent of the total imports during this period as against 8 per cent for Canada. Other competitors in the field have been Germany and Sweden.

### Cost Finding Committee Meets

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 21, 1936—An unusually well-attended luncheon meeting of the Cost Finding Committee of Wrapping Paper Merchants of Boston was held Friday at the Chamber of Commerce. The group discussed claims for refunds for taxes paid under the AAA and also filing statements under the so-called windfall tax. In a consideration of market conditions, it was felt that the demand was good, with a definitely firmer tendency in the situation. Harry J. Dowd, chairman of the group, presided. Harry Goodman, CPA, advised the committee that it was correct accounting procedure to base out-of-warehouse cost on replacement values rather than on inventory prices.

### Rol-Man Manganese Steel Products

The Manganese Steel Forge Company, Richmond street and Castor avenue, Philadelphia, has issued Bulletin R-81 under the title of "Index of Applications, Rol-man True Manganese Steel Products." This bulletin will be of special interest to persons who have experienced difficulties due to abrasion or breakage of metal parts. Rol-man is available in welding rod and also in threaded bolts. A considerable number of pages of the bulletin is devoted to outlining the type of service where Rol-man is said to excel.

## Smith and Holden Sponsor Duck Dinner

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 23, 1936.—The annual duck dinner sponsored by C. "Baldy" Smith and Roy W. Holden, which has been aptly termed a classic, was held in the Recreation Room of the Park American Hotel, Saturday evening December 19. This yearly event is tendered to a group of mill executives and salesmen residing in Kalamazoo and several out of town guests, all of whom look forward eagerly to the party.

The dinner as usual was superb, the entertainment high class and Fischer's Orchestra contributed in no small way to the festivities. The dinner gains in popularity and seems to meet with more hearty approval each year by those attending. George Hendricks drove down from Brokaw, Wis., but W. B. Clements was unable to attend. A telegram from him was read at the dinner.

Among those seated at the table the following were noted: Chas. Yonker, Joe Dennahey and Jack Dayton, Allied Paper Company; Otto Fisher and Wayne Crotty, Bryant Paper Company; Arthur Coll and Harry Bradford, Rex Paper Company; Norman Cowie, Homer E. Stafford, and Edward Cowling, Hawthorne Paper Company; James Wise and Mike Redmond, Kalamazoo Paper Company; Arnold Weller and Glen Sutton, Sutherland Paper Company; Charles Kindleberger, Robert Stewart, and George Rice, Kalamazoo Vegetable Parchment Company; Frank Brown, Ray Barton and Roy Muenier, Michigan Paper Company; E. H. Gilman, Watervliet Paper Company; Doc Quigley; Jake Parent; Gray Blackman; Ed Moran; Bob Milroy; Arthur Woolaan; Ray Fulton, Lester Liberte; George Hendricks, Brokaw, Wis.; Thomas Gillespie, L. "Buster" Griffith, and Lawrence Lynd.

## Goes With Hooker Electro-chemical

Geo. W. Houk, Yale Sheffield Scientific School 1923 (Chemical Engineering), formerly with Union Bag and Paper Corporation, Wrenn Paper Company, Middletown, Ohio, and Hawley Pulp and Paper Company, Oregon City, has become associated with the Hooker Electro-chemical Company at Tacoma in the sales department. Mr. Houk has many connections in the paper industry; his cousin George Houk Mead, president, his father, R. T. Houk, vice-president and his brother, J. T. Houk in the sales department of the Mead Corporation of Dayton, Ohio. Mr. Houk was recently on the executive committee of the American Pulp and Paper Association, and was first president of the Pacific Coast Association of Pulp and Paper Manufacturers.

## Ship Napkin Machine To England

Early in 1937 one of the leading manufacturers of paper in England will put on the English market, napkins made on a new machine which has been shipped to them by the Paper Converting Machine Company of Green Bay, Wis. This machine is arranged to take two webs of paper, emboss them and print them in three colors. The machine was shipped from Milwaukee November 15 on the steamer "Rutenfjell" direct to England. From the time the machine was loaded at Milwaukee until it was unloaded in England there was no transfer made.

The napkin quarterfolder is similar to those made by Paper Converting Machine Company and installed in a number of converting plants in the United States. It has a capacity of 700 napkins per minute, all printed in three colors, embossed and folded.

## Defiance Gold and Platinum Samples

Believing that the function of the paper merchant is to assist the printer in promoting more sales of profitable printed matter, and further believing that it is the function of the paper merchant to suggest new, attractive eye-compelling papers for these advertising pieces, M. M. Elish & Co., Inc., 29 Beekman Street, New York City, have just issued to the trade their all-visible new Defiance Gold and Platinum Sampler containing gold and platinum label paper, gummed paper, cover, post card and blanks.

Information as to roll widths, stock sizes and grain direction is given on the inside front cover, eliminating the necessity of unnecessary telephone calls by the busy printer to obtain this information.

The cover of this Defiance Gold and Platinum Sampler is printed in one impression illustrating the easy printing qualities of the stock itself. The inside flap, Black Detroit Embossed Cover, printed in silver, is a good example of the satisfactory results that can be obtained directly on an embossed surface in one impression. The top leaf and all the steps of the sample pad were also printed in one impression. This is another example of capable printing in that it overcomes the double problem of printing a metal-coated surface plus obtaining proper make-ready by building up the press for one impression printing. It is an excellent illustration of the easy printing qualities of Defiance Gold and Platinum papers.

## Diamond Mechanical Rubber Goods Catalog

"A Buyer's Guide to Diamond Mechanical Rubber Goods" is the title of the new 27-page illustrated catalog just issued by the Diamond Mechanical Division of The B. F. Goodrich Company, Akron, Ohio.

This catalog contains illustrations and descriptions of over fifty mechanical rubber products and accessories, which are widely used throughout all industry, such as transmission and conveyor belting, hose and fittings, tubing, packing, cements, valves and matting.

Also included for the buyer's information are tables listing horsepower capacity and minimum pulley diameter for belts of various sizes and plies, general data pertaining to the proper selection and installation of conveyor belting for different types of service and interesting facts about hose construction and application.

Copies of this catalog are available upon request.

## New Rogers Bulletins

Samuel C. Rogers & Co., 191-205 Dutton avenue, Buffalo, N. Y., have just issued the following new circulars: "A New High Quality Grinder at a New Low Price," which describes Type CC in two sizes: "Rogers Type F Automatic Knife Grinder with Full Automatic Feed," and "Rogers Type W Reversible Knife Grinder," which is fully automatic and grinds toward or away from the cutting edge. These circulars may be had free on application to the company.

## W. P. Quinn Approved Testing Chemist

The Joint Committee on Approved Pulp Testing Chemists announces that Walter P. Quinn, of the Container Corporation of America, Manayunk, Philadelphia, Pa., has been accepted by the committee as an approved pulp and paper mill testing chemist and is listed as such, effective December 22, 1936.

# PAPER TRADE ESTABLISHED 1872 JOURNAL

Reg. U. S. Pat. Off.

15 West 47th St., New York, N. Y.

Henry J. Berger

Editor

Ronald G. Macdonald

Editor Technical Section

Thomas J. Burke, C. A.

Editor Cost Section

Herbert J. Laughton

Associate Editor

Lynne M. Lamm

Washington Correspondent

Price, Per Copy, 10 Cents

Canada and Foreign Countries in Postal Union, \$6.00

United States, Per Annum, \$4.00

Member Audit Bureau of Circulations

Vol. CIII New York, December 24, 1936 No. 26

## COMING EVENTS IN THE PAPER INDUSTRY

AMERICAN PAPER AND PULP ASSOCIATION, Sixtieth Annual Convention and meeting, Waldorf-Astoria Hotel, New York, February 22-26.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 22-25. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 25.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 23.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, New York, February 24.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 22-26.

CANADIAN PULP AND PAPER ASSOCIATION AND SECTIONS, Annual Meeting, Montreal, January 27-29.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

## MERRY CHRISTMAS

The PAPER TRADE JOURNAL wishes its subscribers, its advertisers, and its numerous friends everywhere the compliments of the season. The better times so long hoped for are definitely here. There is substantial evidence of this on every hand. According to the latest production ratio reports, the industry is running at 88 per cent as compared with 75.3 per cent at the same time last year and 59.5 per cent in 1934. Financial reports from the various pulp and paper companies also pretty uniformly tell stories of greatly improved conditions. The stocks and bonds of paper and pulp firms long depressed, inert and neglected, have shown life and have attracted the attention and study of financial houses by whom in increasing instances they are being recommended to the public for investment purposes. Thus almost every phase of the situation has improved greatly in the recent past and the prospects for continued improvement are most promising. Not in a long number of years in the pulp and paper industry have practically all the factors coincided so favorably to make a Merry Christmas and a Happy New Year.

## PULPWOOD MANUFACTURE, 1935

Both employment and production in the manufacture of pulp in 1935 showed substantial increases as compared with 1933, according to preliminary figures compiled from returns of the Biennial Census of Manufactures taken this year, and just made public by Director William L. Austin, Bureau of the Census, Department of Commerce.

The number of wage earners employed in pulp mills increased 17.7 per cent, from 20,074 in 1933 to 23,623 in 1935, and their wages, \$23,401,212, exceeded the 1933 figure by 29.3 per cent.

The total production of pulp (wood and other fiber) increased from 4,365,668 tons, valued at \$132,471,475, in 1933 to 5,050,856 tons, valued at \$166,343,506, in 1935, the rates of increase being 15.7 per cent for quantity and 25.6 per cent for value.

The production of mechanical pulp was 1,355,819 tons in 1935 valued at \$24,972,104 as compared with 1,197,553 tons valued at \$23,612,012 in 1933.

The total production of sulphite pulp in 1935 was 1,594,748 tons valued at \$71,415,585, as compared with 1,327,575 tons valued at \$54,508,773 in 1933. Of this total unbleached sulphite accounted for 611,084 tons, valued at \$21,227,775 in 1935 as compared with 601,102 tons valued at \$21,142,621 in 1933 and bleached sulphite accounted for 983,664 tons valued at \$50,187,810 in 1935 as compared with 726,473 tons in 1933 valued at \$33,366,152.

The total production of sulphate pulp amounted to 1,467,749 tons in 1935 valued at \$36,008,886 as compared with 1,259,351 tons valued at \$29,095,663 in 1933. Of this total unbleached sulphate pulp accounted for 1,340,288 tons valued at \$31,213,254 in 1935 as compared with 1,195,938 tons valued at \$26,618,287 in 1933 and bleached sulphate pulp accounted for 127,461 tons valued at \$4,795,632 in 1935 as compared with 63,413 tons valued at \$2,477,376 in 1933.

The production of soda, semi-chemical and other varieties of pulp amounted to 489,238 tons valued at \$18,204,824 in 1935 as compared with 457,790 tons valued at \$16,471,331 in 1933.

Mechanical and chemical screenings amounted to 36,672 tons, valued at \$401,136 in 1935 as compared with 33,935 tons valued at \$384,686 in 1933.

The total consumption of wood was 7,628,274 cords, costing \$58,243,652 in 1935 as compared with 6,581,674 cords costing \$48,507,790 in 1933.

Among the most important varieties of pulpwood the consumption of domestic spruce amounted to 1,755,112 cords, valued at \$17,906,240 in 1935, as compared with 1,495,061 cords valued at \$15,794,350 in 1933 and the consumption of imported spruce amount to 625,462 cords valued at \$7,835,799 in 1935 as compared with 576,000 cords valued at \$6,927,426 in 1933.

The consumption of Southern yellow pine amounted to 1,785,228 cords, valued at \$8,527,145 in 1935 as compared with 1,560,414 cords, valued at \$6,864,202 in 1933.

The consumption of domestic and imported hemlock amounted to 1,521,271 cords, valued at \$10,234,560 in 1935 as compared with 1,112,556 cords valued at \$6,764,330 in 1933.

The consumption of Jack pine amounted to 224,538 cords, valued at \$1,779,425 in 1935 as compared with 178,974 cords valued at \$1,223,037 in 1933.

### Newsprint Production Greater

Production of newsprint in Canada during November 1936 amounted to 285,771 tons and shipments to 293,075 tons, according to the Newsprint Service Bureau. Production in the United States was 79,853 tons and shipments 80,221 tons, making a total United States and Canadian newsprint production of 365,624 tons and shipments of 373,296 tons. During November, 28,201 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 393,825 tons. Total production in November 1935 was 372,421 tons.

The Canadian mills produced 379,625 tons more in the first eleven months of 1936 than in the first eleven months of 1935, which was an increase of fifteen and one tenth per cent. The output in the United States was slightly greater than for the first eleven months of 1935, in Newfoundland production was 8,619 tons or two and eight tenths per cent less, with no production in Mexico, making a net increase of 354,473 tons, or nine and six tenths per cent.

Stocks of newsprint paper at Canadian mills were reported at 52,135 tons at the end of November and 16,032 tons at United States mills making a combined total of 68,167 tons compared with 75,839 tons on October 31, 1936 and 63,112 tons on November 30, 1935.

### Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 23, 1936—The Government Printing Office has received the following bids for 100,000 pounds of machine finish book paper: Paper Corporation of U. S., 5.28 cents per pound; Whitaker Paper Company, 5.37 cents; R. P. Andrews Paper Company, 5.41 cents; Fitchburg Paper Company, 5.28 cents; Dobler & Mudge, 5.07 cents; and Atanford Paper Company, 5.28 cents.

For 10,000 pounds (25,000 sheets) of manila cardboard; Reese & Reese, Inc., 4.47 cents; Whitaker Paper Company, 3.88 cents; and R. P. Andrews Paper Company, 3.88 cents.

For 1,000 pounds of white stereotype molding paper: Cauthorne Paper Company, 10 cents; and Russell Products Company, 11.5 cents.

For 10,500 pounds (33,000 sheets) of high finish red sulphite paper; Reese & Reese, Inc., 6.64 cents; and Whitaker Paper Company, 6.5 cents.

For 10,000 sheets of white railroad board: Virginia Paper Company, \$34.07 per M sheets; Whitaker Paper Company, \$34.43; Barton, Duer & Koch Paper Company, \$35.50; Old Dominion Paper Company, \$34.43; Reese & Reese, Inc., \$34.45; George W. Millar & Co., \$34.43; and Dobler & Mudge, \$34.04

### Now Royal Paper Corp.

The Royal Card and Paper Company, 210-216 Eleventh avenue, New York City, announces that it has changed its name to the Royal Paper Corp.

### Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association:

#### COMPARATIVE MONTHLY SUMMARIES

Months	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July	77.3%	64.9%	.....
August	81.5%	70.9%	.....
September	80.5%	71.9%	58.2%
October	87.6%	75.6%	64.7%
November	88.0%	75.3%	61.7%
December	.....	71.2%	59.6%
Year	.....	70.5%	.....

#### COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936	CORRESPONDING WEEKS, 1935
* December 5..... 90.5%	December 7..... 76.0%
* December 12..... 91.3%	December 14..... 76.2%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks	
	December 5, 1936	December 12, 1936
0% to 50%.....	51	35
51% to 100%.....	269	192
Total Mills Reporting.....	320	227

\* Subject to revision until all reports are received.

### PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Months	1936	1935	1934	Months	1936	1935	1934
January	61%	61%	.....	July	69%	59%	.....
February	67%	67%	.....	August	75%	65%	.....
March	68%	67%	.....	September	76%	69%	62%
April	70%	61%	.....	October	82%	76%	63%
May	68%	61%	.....	November	.....	70%	56%
June	68%	65%	.....	December	.....	60%	52%
Week ending Nov. 7, 1936—79%				Week ending Nov. 28, 1936—75%			
Week ending Nov. 14, 1936—81%				Week ending Dec. 5, 1936—78%			
Week ending Nov. 21, 1936—80%				Week ending Dec. 12, 1936—81%			

### Sutherland Paper Corp. Occupy New Offices

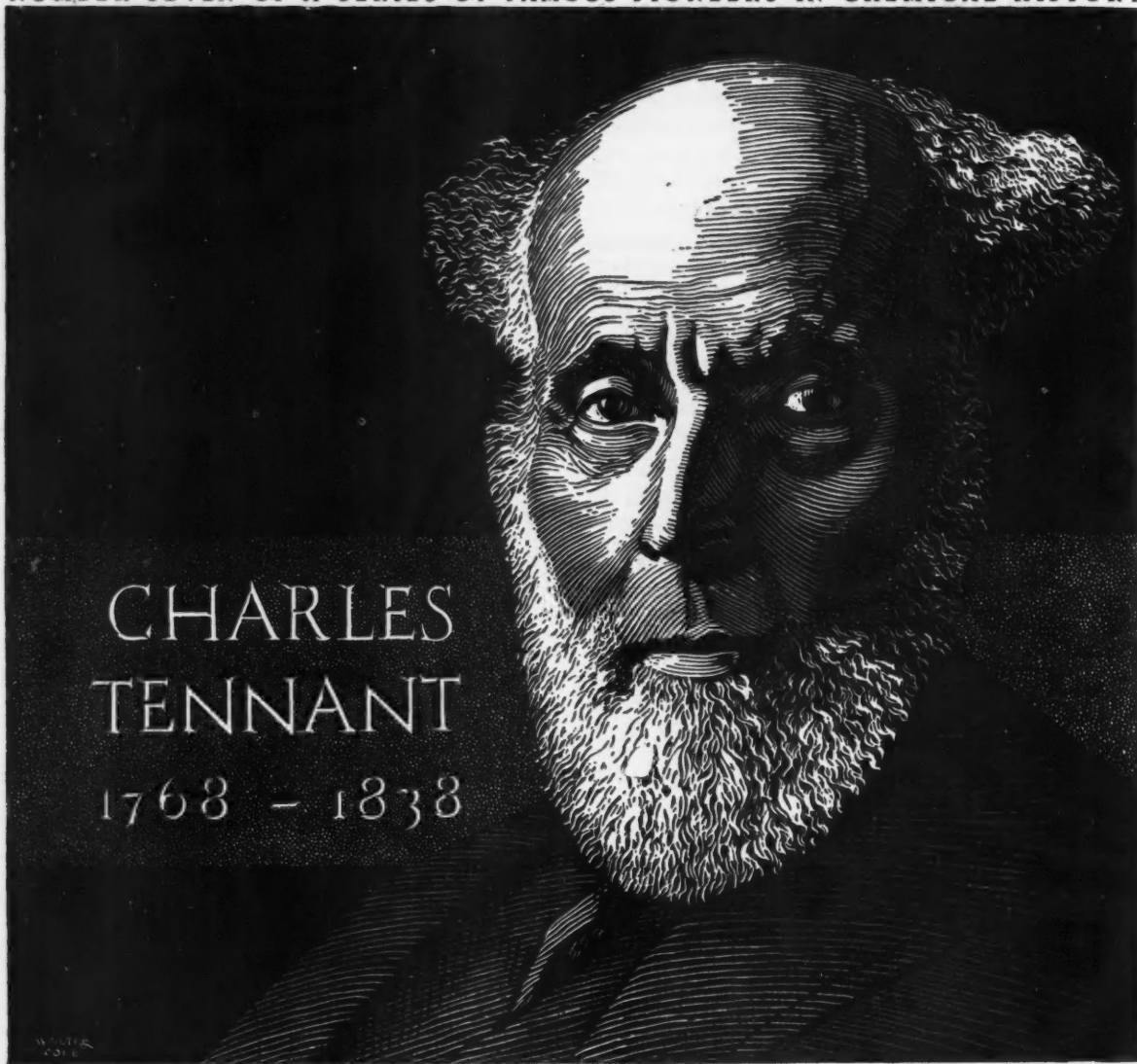
KALAMAZOO, Mich., December 19, 1936.—The Sutherland Paper Company moved into their new offices this week. They are located in the building formerly known as the D'Arcy Spring plant, the property being purchased by the company about a year ago. It is located across the street from the former offices and is now known as Plant Number Four Building. The traffic, purchasing and information departments are on the first floor, the accounting department, executive's private offices and director's room being on the second.

Extensive alterations have created one of the most attractive and efficient offices among the Kalamazoo's industrial plants. An art department is under construction on this same floor. It is well lighted by a modern system and is air conditioned and temperature controlled. The directors' room is finished in mahogany while the private offices of Messrs. Fred and Lewis Sutherland are in American walnut.

The space directly in front of the building comprises about half an acre and was the first landscaping project laid out in Kalamazoo, in connection with factory buildings.

The Sutherland Company will in the spring thoroughly renovate the grounds, remove a number of the trees and make it a colorful setting to the property. The company has enjoyed a profitable year and plans and preparations for an increased volume in 1937 are under way. In addition to the regularly used mediums of advertising, the company has contracted with Fortune and Time magazines.

NUMBER SEVEN OF A SERIES OF FAMOUS PIONEERS IN CHEMICAL HISTORY



**T**EXTILE bleaching was shortened from a matter of months to a matter of hours when Charles Tennant, an "eminent practical chemist" of Glasgow, produced the first bleaching powder by saturating lime with chlorine. Others had recognized the possibilities offered by the decolorizing action of chlorine upon fabrics, but Tennant made chlorine available in commercial quantities in a form that could be transported and readily applied. In the United States, the earliest production of bleaching powder was in 1895, when Mathieson placed the first domestic product on the market. Since this early pioneering venture, Mathieson has been in the forefront of new developments in the production and distribution of chlorine and chlorine products and in the efficient application of these products in textile bleaching, in paper and pulp bleaching, in petroleum refining, in water purification and in other important fields.

The MATHIESON ALKALI WORKS (Inc.), 60 East 42nd St., New York, N. Y.

In its Annual Proceedings of 1839, the Institution of Civil Engineers, London, said of Charles Tennant: "The great revolution in the practice of bleaching... was carried out by the discoveries made by him, first of the Solution of Chloride of Lime and afterwards of the dry Chloride of Lime, or bleaching powder—an inestimable gift to the arts with which the name of Mr. Tennant will always be associated. He... will long continue to be extensively known and associated with practical science."

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . .

*Mathieson Chemicals*

AMMONIA, ANHYDROUS AND AQUA . . . PH-FLUS (FUSED ALKALI) . . . SOLID CARBON DIOXIDE . . . CCH (INDUSTRIAL HYPOCHLORITE)



Section of the  
**Technical Association**  
 of the **Pulp and Paper Industry**

Edited by **Ronald G. Macdonald**, Secretary

# Grease Resistance of Paper\*

By **H. L. Mellen<sup>1</sup>**

During the past year and a half samples of various grades of greaseproof papers have been distributed to members of the TAPPI sub-committee on grease resistance for cooperative testing.

The papers were numbered as follows:

No.	Papers Tested	Basis Weight (24x36—500)
UB 1	Unbleached greaseproof	30 pound
B 2	Bleached greaseproof	30 pound
S 3	Supercalendered sulphite	25 pound
G 4	Bleached glassine	25 pound
V 11	Vegetable parchment	30 pound
V 12	Vegetable parchment	40 pound
V 13	Vegetable parchment	40 pound

These papers were tested for grease resistance with turpentine by the various laboratories using the following method:

### Grease Resistance by the Turpentine Transudation Method

The penetrating agent for this test shall be commercial spirits of turpentine prepared as follows:

To each 100 cc. of the turpentine add approximately 5 grams of anhydrous calcium chloride. Stopper the container, shake thoroughly and let stand for several hours, shaking from time to time. Then filter through a dry filter. Color the dehydrated turpentine a bright red by dissolving in it a sufficient amount of oil soluble red dye.

Cut 20 pieces of paper, uncreased, and about 2 inches square from the sample of paper. For each specimen provide a cylinder or ring, made by cutting a section about a half an inch long from a one-inch brass pipe, and facing the two ends in a lathe. Lay the square specimen to be tested on a piece of smooth white paper and center the ring on it. With a medicine dropper drawn out small at the end, run some corn syrup around the outside of the ring at its contact with the sample. This forms a seal against the turpentine. Pour small lead shot inside the ring to a depth of an eighth of an inch. Then, with another medicine dropper add enough of the colored turpentine to cover the shot, noting the time, and finally place a 35 mm. watch glass on top of the ring. Move the specimen to a new place from time to time, examining the uncovered area for staining. As soon as the first spot of color appears, note the elapsed time. After the test is completed the whole assembly can be dumped into a strong soap solution for cleaning.

Of the 20 specimens of paper, test 10 on the wire side, and 10 on the felt side.

The report should give the minimum, maximum, and average transudation time, in minutes, retaining two decimal places for values under ten minutes, for both wire and felt side, it being understood that the turpentine was applied to the side designated.

The laboratories were asked to condition the paper according to the Technical Association standard procedure and conduct the tests at 65 per cent r. h. and 70 deg. F.

### Results of Tests

The results of tests on each sample, reported as minimum, maximum, and average transudation times are

TABLE I  
 SAMPLE UB 1  
 Turpentine Transudation in Seconds

Observer		Maximum	Average	Minimum
Carson	a	540	324	120
	b	600	324	120
Dufford	wire	240	117	30
	felt	180	99	30
Wehmer	a	180	109	50
	b	180	101	45
Hammerlund	wire	60	38	24
	felt	90	42	15
McKinley	a	576	218	
Hoffman	a	576	172	40
	b	285	203	35
Mellen	wire	342	100	40
	felt	286	120	61

SAMPLE B 2  
 Turpentine Transudation in Minutes

Observer		Maximum	Average	Minimum
Carson	a	22 hrs.	..	10
	b	60	30	5
Dufford	wire	15	11	5
	felt	24	14	5
Wehmer	a	30	14.3	4.75
	b	27.5	13.4	5.25
Hammerlund	wire	9.5	4.1	24 sec.
	felt	16	6	1 sec.
McKinley	a	65	8+ hrs	2
Hoffman	a	113	18	36
	b	113	68	36
Mellen	wire	12	8.1	2
	felt	11	6.2	3

SAMPLE S 3  
 Turpentine Transudation in Seconds

Observer		Maximum	Average	Minimum
Carson	a	25	10	5
	b	10	7	5
Dufford	wire	Instantaneous transudation		
	felt	Instantaneous transudation		
Wehmer	a	5	1	1
	b	5	1	1
Hammerlund	wire	1	1	1
	felt	1	1	1
McKinley	a	Instantaneous transudation		
Hoffman	a	Instantaneous transudation		
	b	Instantaneous transudation		
Mellen	wire	Instantaneous transudation		
	felt	Instantaneous transudation		

\* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 22-25, 1937.

<sup>1</sup> Deerrild Glassine Co., Monroe Bridge, Mass., Chairman TAPPI Sub-committee on Grease Resistance of Paper (Paper Testing Committee).

SAMPLE G 4				
Observer	Turpentine Transudation in Hours or Minutes			Minimum
		Maximum	Average	
Carson	a	30	12.5	5
	b	30	12	1
Dufford	wire	3 hours	Over 24 hours	18 min.
	felt	24+ hours	Over 24 hours	75 min.
Wehmer	a	Over 24 hours	Over 24 hours	..
	b	Over 24 hours	Over 24 hours	..
Hammerlund	wire	36+ hours	..	19 min.
	felt	36+ hours	..	45 min.
McKinley	a	Over 8 hours	..	65 min.
Hoffman	b	6+ hours	..	345 min.
Mellen	wire	12+ hours	..	38 min.
	felt	12+ hours	..	71 min.

SAMPLE V 11				
Observer	Turpentine Transudation Time in Seconds			Minimum
		Maximum	Average	
Carson	a	30	12.5	5
	b	30	12	1
Dufford	wire	Instantaneous transudation	Instantaneous transudation	..
	felt	Instantaneous transudation	Instantaneous transudation	..
Wehmer	a	6	4	3
	b	6	4	3
Hammerlund	wire	1	1	1
	felt	72	15	1
McKinley	a	Instantaneous transudation	Instantaneous transudation	..
Hoffman	b	Instantaneous transudation	Instantaneous transudation	..
Mellen	wire	Instantaneous transudation	Instantaneous transudation	..
	felt	Instantaneous transudation	Instantaneous transudation	..

SAMPLE V 12				
Observer	Turpentine Transudation in Hours or Minutes			Minimum
		Maximum	Average	
Carson	a	18 hours	..	5 min.
	b	18 hours	..	3 min.
Dufford	wire	40 min.	8.3 min.	1 min.
	felt	50 min.	11.3 min.	1 min.
Wehmer	a	96+ hours	..	72 hrs.
	b	96+ hours	..	72 hrs.
Hammerlund	wire	1300 min.	274 min.	3 min.
	felt	185 min.	65 min.	2 min.
McKinley	a	Over 8 hours	..	55 sec.
Hoffman	b	90 min.	28.5 min.	2 min.
Mellen	wire	60 min.	22 min.	9 min.
	felt	12+ hours	..	32 min.

SAMPLE V 13				
Observer	Turpentine Transudation Time in Hours or Minutes			Minimum
		Maximum	Average	
Carson	a	Over 24 hours	..	Under 18 hours
	b	Over 24 hours	..	Under 18 hours
Dufford	wire	No penetration	..	1 min.
	felt	No penetration	..	10 min.
Wehmer	a	Over 24 hours	..	..
	b	Over 24 hours	..	..
Hammerlund	wire	36+ hours	..	200 min.
	felt	36+ hours	..	315 min.
McKinley	a	Over 8 hours	..	..
Hoffman	b	Over 65 minutes	..	..
Mellen	wire	Over 24 hours	..	..
	felt	Over 24 hours	..	..

shown in the table I. In some cases the observer was unable to differentiate between the felt and wire side and in these cases designated the sides as a and b.

#### Comments of Observers

Some of the observers commented on the tests as follows:

R. W. MCKINLEY: I was unable to conduct these tests at 65 per cent r.h. but did observe a temperature range of 70-73 deg. F. After examining the results it is my opinion that the work shows the method is workable and within certain limits, the best yet proposed. I have no fault to find as far as manipulation is concerned but I do question the advisability of submitting it as a tentative standard until our committee agrees on a grading of greaseproof papers. I suggest that any sample less than 1 hour be called poor, 1 to 8 hours fair and 8 hours or more excellent. Reporting minimum ranges would mean more than the exact time of penetration. I believe that the method should require an equal number of tests on each side of a given paper without attempting to designate the difference in penetration of the two sides, if any.

H. L. HAMMERLUND: Humidity in the testing room varied between 45 and 60 per cent r.h. but the temperature held very closely to 70 deg. I discontinued every

test running more than 36 hours because results after such a long time do not seem very reliable.

C. W. HOFFMAN: The question came up of definitely establishing the felt and wire side of some of the samples. We have recorded the transudation as from one side or the other and designated them as (a) and (b). Due to pressure of other work we were forced to discontinue several tests before completion.

P. F. WEHMERS: You will note that samples marked V 12, V 13, and G 4 are reported as some multiple of 24 hours. Sample V 12 was the first one tested and the first batch of specimens showed no penetration at the end of four days when the tests were discontinued. The tests of the balance of the specimens for this sample were discontinued at the end of three days. However three specimens were found having pinholes, which showed penetration in about five to ten seconds. These results were rejected and other specimens used. Sample G 4 was tested next and when the first lot showed no penetration at the end of four days, tests on the second set were discontinued after two days. Samples marked S 3 and V 11 were penetrated so rapidly that it was difficult to obtain the exact time. Three seconds is about the minimum time between the first contact of the turpentine and the first inspection and in the majority of tests the specimens showed penetration on the first inspection. The tests were made under standard conditions of 65 per cent r.h. and 70 deg. F. With respect to the tests of the really greaseproof papers, that is, those showing apparently no penetration of turpentine after several days, I wonder if it would not be advisable to put a time limit on the tests such as 12 or 24 hours. It would seem that a paper which showed no turpentine penetration at the end of this time could safely be assumed to be greaseproof. Also it seems that the case of pinholes should be taken care of. Sample V 12 showed no penetration in several days, but we found several specimens with pinholes in them.

F. T. CARSON: Since I could not certainly distinguish wire side and felt side I have designated the sides "a" and "b" the former being the side on which the designations were marked. In the case of V12 and V13 there was poor contact in spite of the weighting. These papers are very wavy and poor contact can scarcely be avoided. They had clearly stained through in those cases reported as under so many hours, although the underlying paper was not stained.

In view of the way the first stain often appears, namely as a very small dot, one does not know whether to accept it as the end point or not. There does not seem to be any significance in decimals of seconds or minutes. In fact only round numbers seem to me significant. I think I can see definite improvement in the method, but it is still far from ideal. Possibly it is good enough for the immediate needs. I believe the final method should specify groups having certain minimum ranges, rather than to try to report each sample to an exact time of transudation.

Although the method seems to be an improvement over previous efforts, the degree of agreement shown in the cooperative tests is not such as to allow one to get much excited about the method. I have tried to express the results in some way that would afford a better picture of the spread of the reported values and the relative ratings of the samples. The accompanying table is for this purpose. Although the table shows a fair degree of agreement in the order of rating, there is certainly not a unanimous opinion as to the best paper, or the next best, or the third and fourth choice. All seem to agree on the three poorest. It seems to me that a method that cannot unequivocally determine the relative rating of seven samples as widely different as those tested has not much



to recommend it. I feel sure that something like Scheller's suggestion, in Griffin's report of 1931, would more surely grade the papers in the same order in the hands of several observers, but as yet I see no way that such a method could be made to yield a numerical result without becoming rather complicated. In view of the fact that the turpentine method in some form similar to that studied by the subcommittee is rather extensively used, I suggest that the method be written up and submitted for inclusion in the newly created category of Suggested Methods.

For an official standard, however, we ought to wait until some method is available that could be at least depended on to rate unequivocally a series of greaseproof papers differing as widely as the seven reported upon. The rating follows in Table II.

TABLE II

Observer	Order of Rating of the Seven Samples						
	G-4	V-13	V-12	B-2	UB-1	V-11	S-3
Carson	1	2	3	4	5	6	7
Dufford	1	2	4	3	5	6	7
Wehmer	2	3	1	4	5	6	7
Hammerlund	2	1	3	4	5	6	7
McKinley	1	2	3	4	5	6	7
Hoffman	1	2	4	3	5	6	7
Mellen	2	1	3	4	5	6	7
Total	10	13	21	26	35	42	49
Composite Rating	1	2	3	4	5	6	7

After a study of these results and comments, the method has been revised to conform with TAPPI standards by P. F. Wehmer and is given herewith.

Upon agreement of the subcommittee this will be presented as a suggested method. Criticisms and suggestions will be gratefully accepted by the author.

**Suggested Method for Testing Paper for Grease Resistance**

This method standardizes the conditions of making the turpentine transudation test of grease resistant papers—a test widely used in the paper industry.

**APPARATUS**

Brass cylinders, made by cutting 1 inch brass pipe into section 0.5 inch long and facing the cut ends smooth. At least 20 such rings are required.

Lead shot, not over 1/16 inch diameter. (No. 11 shot, American Standard Table for Drop Shot is 0.06 inch diameter. A sheet of plate glass of sufficient size to hold the number of specimens to be tested at one time; two small medicine droppers; a supply of 16-lb. (basis weight 17x22—500) white machine-finish book paper, some commercial corn syrup and a 35-mm. watchglass for each ring.

**REAGENTS**

Colored water-free turpentine prepared as follows: To 100 cc. of commercial, pure gum turpentine add 5 grams of anhydrous calcium chloride. Stopper the container, shake well and let stand for at least 10 hours, shaking occasionally. Then filter through a dry filter paper. Add 0.5 gram of oil soluble red dye (Soudan III, Dupont Oil Red, etc.) to each 100 cc. of filtered turpentine and store in a well stoppered bottle.

**TEST SPECIMENS**

Cut 20 specimens, each 2 inches square, from the sample under test, so as to be representative of it.

**PROCEDURE**

The test specimens shall be conditioned according to TAPPI Standard T 402m-36 and the tests shall be made on the conditioned specimens in the standard atmosphere of 65 per cent r.h. and 70 deg. F. With the glass plate set level place each specimen on a piece of the book paper on the glass plate. Make an equal number of tests on each side of the paper. If possible note which is the felt side and which is the wire side. Place one brass ring on

each test specimen and seal it to the paper by running corn syrup from a medicine dropper around the outside junction of the ring and paper. Pour lead shot into each brass ring to a depth of about 1/8 inch (about 3.5 cc. of shot is usually sufficient). Add from a medicine dropper sufficient water-free colored turpentine to just cover the lead shot (1.5 to 2.0 cc. is usually sufficient) and note the time. Then place a 35-mm. watch glass on top of each brass ring.

At regular intervals move the test specimens to new positions on the book paper and examine the uncovered area of it for staining.

*Note 1.* In the absence of knowledge about the probable time of transudation it is advisable to make a few preliminary tests. According to the preliminary test results the examination intervals should be spaced as follows: Every 10 seconds for the first minute; every minute thereafter for the first fifteen minutes; every five minutes thereafter for the first hour; every ten minutes thereafter for the first five hours; every half hour thereafter for the first twenty-four hours; and thereafter every five hours. As soon as the first spot of color appears on the white book paper, note the time and the nature of the spot—whether from a pin hole or not etc. The time elapsed between the application of the turpentine and the appearance of the first definitely visible stain on the white paper shall be recorded as the transudation time.

*Note 2.* Some types of greaseproof paper have surfaces which are not smooth enough to give a good contact with the white book paper under the procedure detailed above. Occasionally this can be overcome by increasing the amount of shot in the brass ring, thereby applying more pressure to the test specimen. Or, 5 or 6 layers of facial tissue paper, having as smooth a surface as obtainable, can be substituted for the machine finish book paper. Such modifications of the test procedure should be noted in the report of test results.

**REPORT**

The report shall include the number of specimens tested, the number of pinholes indicated by the tests made, the maximum, minimum, and average time for the tests made. The average shall be rounded off to the number equal to the time interval of observation as listed in *Note 1*, and shall be reported (a) as average of all tests made, and (b) as average of the tests of specimens free from pinholes.

**Additional Information**

Following are listed sub-committee reports relating to the developments of this method:  
 Smith, H. A., Tech. Assoc. Papers, XI, No. 1; 23(1928).  
 Abrams, Allen, Tech. Assoc. Papers, XII, No. 1; 49(1929).  
 Griffin, R. C., Tech. Assoc. Papers, XIII, No. 1; 35(1930).  
 Griffin, R. C., Tech. Assoc. Papers, XIV, No. 1; 179(1931).

**V-Belt Drives With Pivoted Motor Bases**

The Rockwood Manufacturing Company of Indianapolis, has a complete line of V-belts, including cast iron and steel sheaves and rubber V-belts and is now bringing out its V-belt drives on their pivoted motor bases.

The pivoted motor bases improve V-belt performance as they maintain constant tension in the belts. V-belts stretch and when they stretch they slip and their efficiency falls off. This results in loss of machine output—and waste of power. Then the belt surfaces glaze, become hard, and wear out quicker—so that new belts are purchased more frequently. When these V-belts are used with Rockwood pivoted motor bases belt stretch is automatically taken up, and belt slip, with its resultant faster belt wear, is eliminated.

With these drives the tension is removed from the belts when the drive is not running. This permits the belts to "rest"—which is very good for any type of belt and prolongs its life. Used with Rockwood pivoted motor bases the belt wears much longer and drive maintenance is practically unknown. Users estimate that the use of Rockwood Bases increases V-belt life somewhere around fifty per cent.

While Rockwood sells the complete Rockwood drive with its own Rockwood V-belts, the bases can be purchased separately to use with existing V-belt drives. It is a simple matter to raise the present motor, slide the base into place, bolt the base to the floor and the motor to the base.

# Instrumentation Studies. II

## Definitions of Properties of Paper

By Otto Kress<sup>1</sup> and Howard Morgan<sup>2</sup>

Reference is made in the preceding paper to the discussion and definitions of paper property terms on which the properties included in this series of reports were based. These definitions are contained in this report. It is to be remembered that the development of a complete list of accurately defined paper properties is not a finished problem and cannot be until all of these properties have been thoroughly studied. These definitions represent our conception at the present stage of the study but undoubtedly will be subject to at least minor revisions as work on the program progresses.

### Fundamental Properties

In defining and discussing the properties of a heterogeneous material such as Paper, a real problem occurs in determining which properties can be classed as fundamental and which cannot. First, the meaning which is given to fundamental properties must be delineated. The definitions of the word *fundamental* give it a meaning synonymous to basic or primary. Fundamental properties might be defined as those which can be expressed in terms of basic physical laws. These laws can, however, be applied to structural units which make up the sheet, as well as to the sheet itself. If this application is attempted, we become involved in a discussion of properties which are exceedingly difficult, if not impossible to measure, and the relationships of the fundamental properties of the units of structure to the properties of the sheet are not definitely enough established to make them sufficient for defining the properties of the sheet. Instead we have chosen to consider a sheet of paper as an entity, and define as fundamental those properties which are definite, distinct properties that cannot be factored to component properties. The properties that have been so classed are:

Thickness	Light transmission
Weight	Light absorption
Apparent density	Reflectance
Expansion and contraction	Elasticity
Surface contour	Stretch
Formation	Compressibility
Porosity	Hardness
Wettability	Stiffness
Dielectric strength	Bending strength
Specific inductive capacity	Tensile strength
Electrical conductivity	Shearing strength
Thermal conductivity	

Further study may reveal inconsistencies in this classification but it should provide a good basis for the complete delineation of a sheet of paper and inject logical and orderly approach in a problem which has been fraught with contradiction and confusion. The definitions of some of these properties are already well established and more or less accepted, others need official definition. In the following paragraphs the properties listed are defined and briefly discussed according to the present conception of them.

**THICKNESS AND WEIGHT.** Self-explanatory. The values for these properties may be expressed in English units: thickness, thousandths of an inch; weight, pounds per ream (specifying the size of the ream); or in metric units, thickness in millimeters, and weight in grams per square meter.

<sup>1</sup> Member TAPPI, Technical Director, Institute of Paper Chemistry, Appleton, Wis.

<sup>2</sup> Member TAPPI, Research Associate, Institute of Paper Chemistry, Appleton, Wis.

**APPARENT DENSITY** (also expressed as apparent specific gravity). The weight per unit area per unit thickness, commonly calculated by dividing the basis weight by the caliper.

**EXPANSION AND CONTRACTION.** The change in the dimensions of length and width of a freely supported sheet, expressed as percentage increase or decrease. These measurements are commonly applied to changes resulting from a change in atmospheric conditions surrounding the sheet.

**SURFACE CONTOUR.** This property is synonymous with one concept of smoothness, but smoothness cannot be classed as a fundamental property because of the different existing conceptions of the property. Surface contour can be measured by determining topographical lines at predetermined spacings. Research equipment for doing this has been developed. The usefulness of this measurement is still open to discussion. Undoubtedly it does affect printing to a degree, but evidence that it does not to the extent once supposed has been established.

**FORMATION.** The degree of uniformity in light transmission over the sheet when it is visually examined. Formation is usually judged in two respects, compactness and uniformity. Compactness is a measure of the fine irregularities or "openness" of the sheet structure. Uniformity is a measure of the regularity with which these fine irregularities occur in the sheet. In observing formation visually, the ratio of the variation in light transmission to the average transmission has an important effect on the appearance of uniformity. That is, in a sheet of high transmission, the small variations produce a much greater visual effect than they do in sheets of low transmission.

**POROSITY.** The pore area per unit area of sheet. Practically, this measurement is defined in terms of air porosity and measured in terms of the volume of air passing through a unit area of the sheet in unit time under standardized conditions.

**WETTABILITY.** The degree of affinity of a paper surface for liquid in contact with it. It is not considered in respect to the penetration of the liquid into the sheet structure, but only to the holding of a surface film of the liquid. It is known to be directly related to the character of the paper and is recognized to be of importance to the satisfactory use performances of several grades of paper. Empirical methods have been used for its measurement, but the property needs considerable further study and the methods of measurement further development.

**DIELECTRIC STRENGTH.** The resistance to electrical spark discharge through the sheet. Specifically, it is the potential, in volts, at which a spark passes through a sample of specified thickness. In making the determination, the test sample is placed between two conducting plates of standard design, and an increasing potential difference is applied to the plates. The value of this potential at break-down is the dielectric strength. This is a property of primary importance in insulating papers for use with high voltage and in condenser papers.

**SPECIFIC INDUCTIVE CAPACITY.** The ratio of the capacitance of a two-plate electrical condenser when the space between the plates is filled with the test sample

to the capacitance of the same condenser when the space between the plates is filled with air.

**ELECTRICAL CONDUCTIVITY.** The conductivity of unit area of the sheet to an electric current flowing through the sheet. With the exception of a few special papers, this property is of relatively minor importance except as it is influenced by *conducting particles*. Conducting particles are foreign particles in the sheet which have a specific conductivity much greater than that of the paper. Their presence and the frequency of their occurrence is evidenced by abnormal rises in the electrical conductivity when the conductivity is measured from place to place in the sheet. Conductivity as influenced by conducting particles is of major importance in all insulating papers.

**THERMAL CONDUCTIVITY.** The time rate of heat transfer by conduction, through unit thickness, across unit area for unit temperature differences. It can be measured by common physical methods.

**LIGHT TRANSMISSION.** Light falling on a sheet of paper may be transmitted through the sheet and be emitted from the other side. It may be absorbed by the sheet and converted to other forms of energy (normally to heat), and it may be reflected from the surface of the sheet on which it falls. The ratio between the amount of light transmitted through a unit area of the sheet to the amount falling on the sheet is the light transmission of the paper.

**LIGHT ABSORPTION.** The ratio of the amount of light absorbed by a sheet to the amount falling on the sheet.

**REFLECTANCE.** The amount of light reflected by a sheet when backed by a black body in terms of the amount of light reflected by a standard reflecting surface. This measurement is commonly made by comparing the amount of light reflected by the sheet when placed in a specified optical system to the amount reflected by a standard reflecting surface.

These three optical properties can only be defined as a function of wave length of the incident light and for a specified method of illuminating and viewing the sample. When the diffuse reflectance of a sample is measured with monochromatic incident light at each of several wave lengths over the spectrum band, a measure of *color* is obtained. When the diffuse reflectance of a sample is measured first with the sample backed by a black body, then with the sample backed by a white body and the ratio calculated, a measure of *opacity* is obtained. When the parallel light reflection is measured at the angle of reflection (specular reflection), a measure of *gloss* is obtained. When the parallel transmittance (see report No. XVII) of a sheet is measured, an evaluation of *transparency* is obtained.

**ELASTICITY.** Defined as that property which causes a body to resist deformation and to wholly or partially recover to its original dimension from any distortion due to an applied stress. Elasticity as such is a property of paper seldom measured. It seems quite probable that it may be of importance in the printing of paper.

**STRETCH.** The distortion (strain) resulting from the application of a tensile stress. In evaluating paper, stretch is commonly determined simultaneously with the tensile strength and is measured as the strain produced by stressing to the point of rupture expressed as percentage. To be a strictly fundamental measurement, it would have to be calculated as stretch modulus.

**COMPRESSIBILITY.** The reciprocal of the bulk modulus, the bulk modulus being the ratio of pressure applied to change in volume produced. In evaluating paper for this property, the difference in thickness of the sheet when calipered under no pressure or light pressure and when cali-

pered under a heavier pressure expressed as a percentage is normally used. It is quite clear that the conditions of determining this have to be completely specified, and that the result be calculated in a specified manner if results are to be comparable.

**HARDNESS.** The property of materials which resist indentation of the material by another material. It is determined for a large number of materials in arbitrary units. Some of the methods in use have been adapted to paper. This property is of particular interest as it relates to the printability of paper and probably has an important effect on the manner in which the printing plate establishes contact with the paper surface.

**STIFFNESS.** The resistance to bending under stresses within the elastic limit. It is measured by determining the force required to produce a given deflection or by measuring the deflection produced by a given load.

**BENDING STRENGTH.** The ability to withstand deformation and breaking under bending stress. It is measured in terms of strain required to produce breaking. This property is of importance only in stiff papers or paper boards. The usual light weight papers do not break even when bent through an angle of 360 degrees.

**TENSILE STRENGTH.** The tensile stress required to rupture a sheet of unit cross sectional area. The commonly used methods of measurement determine this under arbitrarily chosen conditions of loading and size of sample and the results are not normally calculated in fundamental units.

**SHEARING STRENGTH.** The shearing stress required to exceed the elastic limit of the sheet and produce separation along the line of application of the stress. It is a property not commonly determined for paper in a strictly fundamental manner. But it is felt that it is a strength property of importance and one having an influence on "tearing strength" as arbitrarily determined by present methods.

#### Other Evaluations

There are several other evaluations commonly made on paper, evaluations which cannot be considered as measuring fundamental properties. These are closely associated with the use requirements of papers and the methods have, in the main, been developed by simulating use conditions, and they will be designated as "Use Properties." These are listed below. This should not be taken to mean that the properties listed as fundamental properties do not measure use properties. Each of the fundamental properties is a direct measure of the ability, in part at least, of a paper to meet some use requirement.

Bulking	Smoothness
Absorbency	Gloss
Degree of sizing	Transparency
Resistance to penetration by liquids	Opacity
Water vapor permeability	Fuzz
Resistance to wear	Curly
Erasability	Bursting strength
Rattle	Folding strength
Abrasiveness	Tearing strength
Finish	Creasing strength
	Permanence

**BULKING.** A measure of thickness of a pile of sheets when under a specified pressure. The approximate thickness of the pile and the exact pressure to be applied must be specified. Bulking is dependent on the caliper and compressibility of a sheet. It is of practical value in determining the volume a quantity of sheets will require when packaged and in specifying paper to give a required thickness in a bound volume.

**ABSORBENCY.** A measure of the rate at which a sheet will absorb liquid which is in contact with it. The result of this measurement is influenced by the wettability, apparent density, and porosity of the sheet being measured. It is measured by empirical methods either in terms of time

required to absorb a certain volume or in terms of area of paper wetted in a specified time.

**DEGREE OF SIZING.** A general term loosely used to express the resistance of a paper to permeability or penetration of liquids through the sheet. Paper is sized to prevent wetting and penetration by various liquids. Sizing was probably first employed to prevent a too rapid penetration of paper by writing ink. As other uses for paper developed, it was used to give resistance to other liquids. The early tests for the accomplishment of these objectives were made by applying the liquid under arbitrarily selected conditions and noting the time required for wetting or penetration. Since the majority of use conditions met required a resistance to penetration by water or water solutions, the term "degree of sizing" has acquired the meaning "resistance to water penetration." Even though a sheet may be manufactured to meet use requirements which involve resistance to penetration by other liquids but never involve resistance to water penetration, it is not uncommon to find its quality being evaluated by water penetration methods, and the degree of resistance to water penetration may have little correlation to its resistance to other liquids. A striking example of this is the frequent use of a water penetration test on some grades of printing paper which never meet water during their use, for determining the degree of resistance (or the reverse—receptivity) to printing ink penetration. Because of the confusion that is bound to exist when finished paper properties are defined in the nomenclature of paper making processes and because of the very broad meaning that has been given to the term "degree of sizing," a more accurate term would be "resistance to penetration (permeability) by liquids," specifying the test for each use condition in terms of the liquid encountered.

**RESISTANCE TO PENETRATION BY LIQUIDS.** The measurement of this property is entirely arbitrary and not only the liquid involved, but also the conditions of making the test must be specified. In many cases it may be possible to correlate the resistance to the specific liquid to the results obtained with another liquid, and thus the inconvenience of using a large number of liquids may be avoided. There still remains a great deal to be done in establishing the use requirements of different grades in this respect and in developing the arbitrary methods to give a reasonably accurate measure of the property.

**WATER VAPOR PERMEABILITY.** The property which allows the passage of air moisture from one side of a sheet to the other. In the more permeable sheets this property is closely related to porosity. However, the property is of major importance in the papers of low permeability, those commonly designated as moisture-proof, and with these papers it is felt that the differences existing between this property and porosity, and the differences between this property and the permeability of liquids are sufficient to warrant the classification as a separate property. Specifically, the property is defined as the time rate transfer of a unit weight of water through a unit area sheet for a specified differential in moisture content of the atmospheres on the two sides of the sheet.

**RESISTANCE TO WEAR.** The measurement of this property involves a reproduction of use conditions and a rating of the paper's durability under them. Probably the best known of these tests are the so-called "wet rub test" and erasure test.

**ERASABILITY.** Tests for erasability involve more than the resistance of the sheet to wear by erasing. The ease with which the sheet erases, as well as the degree to which the sheet is eroded by erasure, determine a paper's suitability in this respect. The accurate evaluation of the property

is difficult because of the difficulty in reproducing use conditions. There is the problem of obtaining a uniform and reproducible writing on the sheet and the problem of erasing in a uniform and reproducible manner. In connection with the latter problem, as far as is known, a standard reproducible erasing material has never been developed. A satisfactory measurement of erasability is one of the most urgently needed evaluations of paper quality.

**RATTLE.** The term is self-explanatory and the property is more of an appearance quality than an actual use quality. It is the product of at least two fundamental properties, hardness and stiffness. Caliper probably plays an important part also. It seems probable that it can be more accurately evaluated in terms of fundamental properties than by attempting an arbitrary use simulation method.

**ABRASIVENESS.** The property that some papers have of abrading other surfaces when rubbed against them. The degree of abrasiveness is largely dependent on the presence of hard foreign particles in the sheet and on the properties of filling or loading agents that the sheet may contain. It is of importance in printing papers because of its effect on the printing plates.

**FINISH.** A broad, general term used to describe the surface characteristics. It includes both smoothness and gloss. It is not a definite term referring to an individual property. In the subjective evaluation of it, other less clearly defined properties as well as the above mentioned probably enter in.

**SMOOTHNESS.** A property the concepts of which differ with individuals. The paper manufacturer and paper salesman evaluate it by the degree of roughness or smoothness of the paper to the touch and by the visual appearance produced by the surface contour. The printer evaluates it to a large extent in terms of the uniformity obtained in a printed area, and there is good evidence to indicate that the two concepts agree in only a very general way. Visual smoothness may be defined as the frequency and magnitude of the deviations of surface from a plane surface (surface contour). Printing smoothness depends not only on surface contour, but also on compressibility and formation. This property is covered in detail in a report "An Analysis of Smoothness." (See Instrumentation Studies VIII).

**GLOSS.** The property of a paper surface which causes light to be reflected from its surface at the angle of reflection in excess of the diffuse reflection at that angle. The measurement of the property is accomplished by measuring the specular reflection of the sample as compared to that of an arbitrarily chosen standard under arbitrarily selected conditions. The property is dependent to an appreciable extent on other surface conditions such as surface contour and uniformity, as well as on the reflecting power of the surface.

**TRANSPARENCY.** The property of transmitting light rays so that objects can be distinctly seen through the paper. It has been shown that a measure of the percentage small-angle transmission of a beam of parallel light striking the surface of the sheet gives a measure of the degree of transparency of the sheet which correlates with the visual appearance of transparency under use conditions. This property is discussed in detail in paper XVII of Instrumentation Studies.

**OPACITY.** The property which prevents dark objects on the back side of a sheet or in contact with the back side of the sheet from being seen when looking at the front. Technically, it is measured as the ratio of the reflectance of a sheet when backed by a light absorbing body to that when backed by a totally reflecting body. Practically, opacity is determined in two ways; as contrast ratio, the ratio of the reflectance when the paper is backed by a

totally absorbing black body to the reflectance when backed by magnesium carbonate, and as printing opacity, the ratio when backed by a pad of the same paper. These determinations duplicate very closely the use conditions of paper with respect to this property. The measurement as practically made in most cases must be specified in terms of the instrument used, since the result is a function of the conditions of illuminating and viewing which have been arbitrarily chosen.

**FUZZ.** A surface condition characterized by loose ends of fiber projecting from the surface of the paper. The term is used to designate both the condition where such fibers appear on the sheet as made, and the condition where they are produced by friction of the surface during use.

**CURL.** The condition resulting from the property some papers have of expanding or contracting unequally on the felt and wire sides with changes of moisture content. It may appear as tendency to curl around the across or machine direction of the paper or as an uneven warping of the edges of the sheet.

**BURSTING STRENGTH.** An empirical measure of strength designed to evaluate the strength of paper for certain use conditions. Experience has shown that it bears a general relation to the suitability of certain grades in regard to strength. The early development of the test and the ease with which it is carried out have resulted in its wide use as a method of evaluating strength. The assumption that this is a valid all-round measure of strength has resulted in many erroneous evaluations of paper, since the type of strength required for certain uses is quite a different property than that measured by this test. The result obtained is a function of the tensile strength and stretch of the paper and possibility of other fundamental properties.

**FOLDING STRENGTH.** Like bursting strength, an empirical test designed to duplicate use conditions. It measures the amount of folding or creasing to which a paper can be subjected before the tensile strength falls below a standard value (the tension under which the strip is held). The various instruments that have been designed for the test use different degrees of folding and varying degrees of creasing. One instrument folds the test specimen through an angle of 360 degrees, another through a smaller angle. One instrument compresses the folded crease with a standard pressure, another instrument uses no creasing pressure. Thus it is seen that folding strength can be defined only in terms of the instruments used.

**TEARING STRENGTH.** A value determined by mechanically tearing a test sample under standardized conditions in an instrument designed to duplicate in a general way the tearing encountered under use conditions. Like the previous two tests, it can be defined only in terms of the instrument used.

**CREASING STRENGTH.** A term assigned to a test which has been used to determine the degree of weakening caused by folding a sheet and creasing the edge of the fold under pressure. It has been carried out by folding a test specimen of the size used for the tensile strength test, with the crease of the fold at right angles to the long dimension of the strip. The weight is placed on the folded crease, then removed and the strip folded back so that the crease is reversed and the weight again applied. The tensile strength of the sample strip thus weakened is determined. The Clark folding tester accomplishes a similar effect mechanically, except that the measurement is taken in terms of the number of creasings required to reduce the tensile strength to given value.

**PERMANENCE.** The degrees of change in the several

properties of paper upon aging are interpreted as a measure of permanence. Folding strength, resistance to water penetration, water absorbency, and color are the properties most frequently measured for this purpose.

### List of Management Associations

Believing that a list of national associations in the Management field will prove to be useful to the paper industry, the Production Management Committee of TAPPI has prepared such a list.

The problem of selection hinges upon the purposes for which such a list is to be used. Production Management should use all the information available on any management problem. There are many highly specialized associations which touch on and have information that will be useful to management such as the Econometric Society or the American Economic Association.

This list does not purport to include all such organizations. It touches only those associations which are interested in management *per se* and those which specialize in some management function.

The Committee will welcome comments and criticisms of the list to the end that a better list may be published at a later date.

The first three associations listed are interested in the broad Management field. The others, as indicated by their titles, operate in more specialized fields.

Corrections or suggestions for the list should be mailed to the chairman of the above committee, Louis T. Stevenson, 60 East 42nd street, New York.

American Management Association, 330 West 42nd street, New York, N. Y.

American Society of Mechanical Engineers, 29 West 39th street, New York, N. Y.

Society for the Advancement of Management, Inc., 29 West 39th street, New York, N. Y.

American Institute of Consulting Engineers, 75 West street, New York, N. Y.

Association of Consulting Management Engineers, Inc., 347 Madison avenue, New York, N. Y.

National Association of Cost Accountants, 385 Madison avenue, New York, N. Y.

National Office Management Association, c/o Professor Robert P. Brecht, University of Pennsylvania, Philadelphia, Penna.

New York Branch, c/o J. W. Riedell, Recording & Statistical Corp., 102 Maiden Lane.

Personnel Research Federation, 29 West 39th street, New York, N. Y.

### French Paper Production Increases

WASHINGTON, D. C., December 21, 1936.—French production of all grades of paper was larger during the third quarter of the current year than in the preceding three months, and advanced sharply following devaluation of the franc, when orders increased owing to the fear of higher prices, according to a report to the Department of Commerce.

Paper production in mid October was very active although in some lines limited by the new social laws which involve higher labor costs and by the higher cost of raw materials purchased from foreign countries.

France relies upon foreign sources for 90 per cent of its wood pulp requirements. The local production of ground wood, kraft and unbleached sulphite pulp is reported constant, although no production figures are available. Imports of all grades of pulp increased to 371,785 metric tons in the first eight months of this year, as against 313,718 tons for the corresponding period of last year.

## New England TAPPI Discusses Lacquers

The New England Section of the Technical Association of the Pulp and Paper Industry met at the Nonotuck Hotel, Holyoke, Mass., Friday evening, December 18, 1936. Roger C. Griffin, of Arthur D. Little, Inc., presided as Chairman.

### Synthetic Resins for Paints

The first speaker was David Goldich of the New England Fabrics and Finishes Division of E. I. du Pont de Nemours & Company, Everett, Mass., who talked on "The Manufacture of Synthetic Resins and Their Application in Maintenance Paints."

All mechanical refrigerators that have a resin finish have an urea-formaldehyde base. This base is made by the condensation of urea and formaldehyde. The urea is made from ammonia and the formaldehyde is made by the oxidation of methyl alcohol.

A plastic having almost all of the properties of glass has been made which can be coated on metals as well as being cast. Old types of paints were made by pigments mixed with linseed oil. They all change color with aging and atmospheric conditions. With some new plastics a product that is unaffected by these conditions is possible. A number of prospective applications were mentioned.

### Lacquer Coated Papers

The next speaker was Walter Shearer of the Beveridge Marvellum Company, S. Hadley, Mass., who talked on "The Manufacture of Lacquer Coated Papers." Pyroxylin (nitrated cotton) is frequently used. When dissolved in such solvents as butyl acetate it looks like strained honey. It is suitable for paper coating because of its cheapness (40 cents a pound and up). Vinylite (Union Carbon and Carbide Co., 60-70 cents per pound) is useful for paper coating. Pliolite is used for moistureproof coating.

In lacquer coating great care is taken to prevent sparks since the organic solvent can form explosive mixtures. Special motors and wiring are required by law. Special arrangement must be made to recover the solvents by passing the vapors through activated carbon (charred coconut shells). The solvent is removed from the carbon with steam, the product is then condensed to separate the solvent from water.

Book type papers are used for lacquer coating. The surface of the paper must be smooth and level. Frequently casein coated sheets are used as a base. Lacquer coatings are washable and greaseproof. Metallic coatings are anti-dusting and non-tarnishable.

### Election of Officers

The following officers were elected for the coming year: Chairman—John B. Calkin, Dennison Manufacturing Company, Framingham, Mass.; Vice Chairman—Lewis K. Burnett, Gair Thames Containers Inc., New London, Conn.; Secretary—Helen U. Kiely, American Writing Paper Company, Holyoke, Mass.; Treasurer—W. O. Johnson, Westfield, Mass.; Executive Committee—Herman T. Barker, Bird & Son, E. Walpole, Mass.; Fred Schneider, Hampden Color and Chemical Company, Springfield, Mass.; Frederic C. Clark, Skinner & Sherman Inc., Boston, Mass.; Roger C. Griffin, Arthur D. Little, Inc., Cambridge, Mass.; and John P. Kennedy, American Writing Paper Co., Holyoke, Mass.

Those who attended were:

E. N. Wennberg, Moore & Thompson Company, Bel-lows Falls, Vt.; L. K. Burnett, Robert Gair Company, New London, Conn.; Con Stapley, Chemical Paper Company, Holyoke, Mass.; O. F. Neitzke, Bennett, Inc., Cambridge, Mass.; P. I. Knight, Bird & Son, East Walpole, Mass.; F. A. Abbiati, Merrimac Chemical Company, Boston, Mass.; Robert G. Vaeth, Robert Gair Company, New London, Conn.; L. F. Loutrel, Merrimac Chemical Company, Boston, Mass.

John M. McGarry, Crane & Co., Dalton, Mass.; W. A. Nivling, Huron Milling Company, Boston; William Glendon, Crane & Co., Dalton, Mass.; F. H. Jenks, Hercules Powder, Willimansett, Mass.; J. Collingwood, Parsons Paper Company, Holyoke, Mass.; J. M. Booth, Huron Milling Company, New York; J. E. Snell and L. A. Thompson, Hercules Powder Company, Willimansett, Mass.; C. H. Rieser, Parsons Paper Company, Holyoke, Mass.; Leon M. Yoerg, American Writing Paper Company, Holyoke, Mass.; John Calkin, Dennison Manufacturing Company, Framingham, Mass.; F. C. Clerk, Skinner & Sherman, Inc., Boston; J. J. Thomas, Rohm & Haas Company, Inc., Philadelphia, Pa.

A. F. Bailey, Du Pont Company, Providence, R. I.; S. G. Stapley, Chemical Paper Company, Holyoke, Mass.; R. H. Pattison and L. P. Taylor, American Writing Paper Company, Holyoke, Mass.; F. W. Schnieder, Hampden Color and Chemical Company, Springfield, Mass.; H. C. Heller, Wishnick-Tumpeer Company, Boston; R. W. McKinley and D. J. Macdonald, A. D. Little, Inc., Cambridge, Mass.; Frank W. Durgin, A. C. Lamoureux, E. G. Parker, E. L. Kallyender, and W. F. Drake, Dennison Manufacturing Company, Framingham, Mass.; W. L. Foote, B. F. Perkins & Sons Company, Holyoke, Mass.

W. L. Ege, W. & L. E. Gurley Company, Troy, N. Y.; L. B. Tucker, Crane & Co., Dalton, Mass.; Vernon, Woodside, Mathieson Alkali Works, New York, N. Y.; K. P. Coachman, Taylor Instrument Companies, Rochester, N. Y.; R. D. McKeefe and R. C. Charron, United States Envelope Company, Worcester, Mass.; D. E. Goldich, Du Pont Company, Boston; R. H. Doughty, Fitchburg Paper Company, Fitchburg, Mass.; R. C. Griffin, A. D. Little, Inc., Cambridge, Mass.; J. J. Burke, Bird & Sons, East Walpole, Mass.

R. G. Macdonald, Secretary of TAPPI, New York, N. Y.; W. J. Burke, General Dyestuff Corporation, Providence, R. I.; E. O. Reed, Crane & Co., Dalton, Mass.; J. A. Pollach, Fitchburg Paper Company, Fitchburg, Mass.; W. O. Johnson, Westfield, Mass.; Glendon A. Soule, Fitchburg Paper Company, Fitchburg, Mass.; Walter V. Shearer, Beveridge-Marvellum Company, Holyoke, Mass.; E. L. Connolly, Bird & Son, East Walpole, Mass.; J. F. Leacock, American Writing Paper Company, Holyoke, Mass.; L. W. Crouse, Penick & Ford, Ltd., New York; G. E. Mongsen, Fitchburg Paper Company, Fitchburg, Mass.

Frank Massey, and H. T. Barker, Bird & Son, East Walpole, Mass.; Helen U. Kiely, Lena E. Kelley, S. D. Hellberg and Claude Smith, American Writing Paper Company, Holyoke, Mass.; Marion Lunn, Valley Paper Company, Holyoke, Mass.; R. G. Loomis, Case Brothers, Manchester, Conn.; A. F. Cosby, J. P. Kennedy and W. J. Cassidy, American Writing Paper Company, Holyoke, Mass.; H. W. Lavallee, C. W. Backus and James Fitzgerald, Collins Manufacturing Company, North Wilbraham, Mass.; W. G. Hendrich, Byron Weston Company, Dalton, Mass.; James Merrill, Valley Paper Company,

Holyoke, Mass.; George Thompson, C. L. Reece and Charles Davidson, Jr., Whiting Paper Company, Holyoke, Mass.

Roy Frisbie, Westfield River Paper Company, Russell, Mass.; Andrew Jackson, American Writing Paper Company, Holyoke, Mass.; P. W. Ayers, Smith Paper Com-

pany, Lee, Mass.; Harry Keating, Smith Paper Company, Lee, Mass.; William Anderson, Stevens Paper Company, Westfield, Mass.; Thomas Flaherty, George Carroll, Francis Gillispie and Frank Barlen, American Writing Paper Company, Holyoke, Mass.; A. L. Perry, Krebs Pigment Company, Boston, Mass.

## Delaware Valley TAPPI Discusses Press Roll Drives

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers Club, Philadelphia, Friday evening, December 18th. H. C. Schwalbe presided as chairman.

### Top Press Roll Drives

The first speaker was Leon Smith of the Downingtown Manufacturing Company who discussed the developments in top press roll drives, pointing out the disadvantages of early mechanical compensating drives have been largely overcome through the use of electrical or somewhat lower cost improved mechanical units. Increased felt life and improved sheet characteristics are but two of many advantages of controlling the lag between the top and bottom press rolls, whether on board or fourdrinier. The lively discussion that followed brought forth much of interest from an operating viewpoint.

### Heat Transfer Problem

The second speaker was Dr. Chilton of the DuPont Research Laboratories who talked on, "The Current Developments of Heat Transfer." This was a technical discussion involving the various common heat transfer systems. Slides and cine-photographs illustrated the laboratory demonstrations of phenomena pertaining to heat transfer and convection, condensation and ebullition.

### Those Who Attended

Among those present were:—C. M. Connor, Valley Forge Laboratories, Inc., Conshohocken, Pa.; S. M. Bratton, Pusey & Jones Corporation, Wilmington, Del.; G. F. Hom, Messinger Bearings, Inc., Philadelphia; A. McInnes, Jr., Pusey & Jones Corporation; F. W. Varden, Barber Co., Inc., Philadelphia; J. Carl Schmidt, Dupont Company, Philadelphia; E. H. Niederauer, Dill & Collins, Inc., Philadelphia; J. F. Halladay, Container Corporation of America, Manayunk, Pa.; Leslie Justice, Valley Forge Laboratories, W. Conshohocken, Pa.; H. Y. Smith, Mason-Neilan Regulator Company, Philadelphia; W. T. Mayer, same company; H. L. Becher, Agasote Millboard Company, Trenton, N. J.; C. A. Shubert, Dill & Collins, Inc., Philadelphia; W. E. Brow, Container Corporation of America, Manayunk, Pa.; A. R. Boyd, F. C. Huyck & Sons, Albany, N. Y.; T. B. McConnell, Container Corporation of America; L. E. Smith, Downingtown Manufacturing Co., Downingtown, Pa.; G. L. Schwartz, Dupont Company, Wilmington; H. C. Schwalbe, Dill & Collins, Inc., Philadelphia; M. C. Maxwell, McDowell Paper Mills, Manayunk; E. A. Shallcross, Philadelphia; W. F. Mitchell, Pennsylvania Salt Manufacturing Company, Philadelphia; R. E. Bare, Elk Paper Manufacturing Company, Childs, Md.; A. M. Cooper, Westinghouse Electric and Manufacturing Co., Philadelphia; E. R. Feicht, Container Corporation of America; S. D. Reynolds, same company; G. B. Martin, General Dyestuffs Corporation, Philadelphia; J. G. Brooks, Scott Paper Company, Chester, Pa.; C. F.

Anderton, same company; Paul Hodges, same company; G. C. Walton, Downingtown Manufacturing Company, Downingtown, Pa.; C. J. Ryder, same company; W. J. Clopp, Link-Belt Company, Philadelphia; E. J. Albert, Thwing-Albert Instrument Company, Philadelphia; W. E. Snyder; H. F. Hoffmann, General Dyestuff Corporation, Philadelphia; W. D. Harrison, Riegel Paper Corporation, Milford, N. J.; Charles McDowell, McDowell Paper Mills, Manayunk, Pa.; J. H. Fritz, National Oil Products Company, Harrison, N. J.; A. W. Wickham, Mac Andrews & Forbes Company, Camden, N. J.; C. W. Rivise, Philadelphia, Pa.; C. W. Hoffman, Riegel Paper Corporation, Milford, N. J.; R. M. Bates, Thomas M. Royal & Company, Philadelphia; F. J. McAndrews, McDowell Paper Mills, Manayunk, Pa.; John Roslund, Moore & White Company, Philadelphia.

### Exhibit of Scientific Photography

Under the chairmanship of Gustave Fassin, of the Bausch & Lomb Scientific Bureau, Rochester, N. Y., a committee has been appointed to secure and arrange exhibits for the first International Exhibition of Applied and Scientific Photography ever held in the United States.

According to plans revealed by Mr. Fassin and Rowland S. Potter, national chairman of the Scientific and Technical Section of the Photographic Society of America and president of the local section of the society, which is sponsoring the exhibition, it will be held in the Rundell Memorial Building at Rochester, N. Y., in March 1937. This new and beautiful civic building has exceptional facilities for showing both pictures and apparatus.

Scientists all over the world are being contacted in an endeavor to make the exhibition fully representative of the many fields of applied and scientific photography. Scientists in any of the following fields are invited to send exhibits to the heads of the sections listed below, or to C. B. Neblette, Secretary of the Scientific Section at Rochester, who will supply entry blanks:

Dr. Walter Clark—Astronomy, meteorology, light sensitive substances.

Gustave Fassin—Photomicrography, metallography.

Dr. Brian O'Brien and Dr. Walter Clark—X-Ray Spectrography.

Dr. T. R. Wilkins—Cosmic ray photography and theoretical physics.

C. B. Neblette—Press photography.

Glenn Matthews—High speed photography.

Rowland S. Potter and John W. McFarlane—Technique of color photography.

John W. McFarlane—Photography by invisible radiation.

Glenn Matthews—Aerial photography.

Secretary, C. B. Neblette, F.R.P.S., Rochester Athenaeum and Mechanics Institute, Rochester, N. Y.

# Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

## Pulp Properties

**Supposed Effect of Hydrogen-ion Concentration on the Freeness of Wood Pulp.** F. H. Yorston. *Quart. Rev. Forest Products Lab. Can.* 22: 1-2 (1935)—It is believed that the effects noticed by Lary and Davis depend, not on the pH of the stock, but on the way in which the pH is adjusted. The observed increases in freeness are a function of the total positive-ion concentration and of the valency of the ions.—A.P.-C.

**Wood Pulp for the Rayon Industries.** L. Hebbs. *Textile Recorder* 54: 34-35 (June 15, 1936); *Silk J.* 13, No. 145: 25-26 (1936).—Cuprammonium and viscose viscosity values are given for three types of viscose pulp, and analytical values for commercial viscose pulps for "normal" grades and "refined" grades. The swelling factors are determined by weight and represent the ratios between the oven-dry weight of pulp and the total amount of mercerizing soda solution which is mechanically held under controlled conditions. The average resin content of the normal viscose pulp is 0.55 per cent. Much of the resin content in sulphite pulp is concentrated in the small sacs, medullary rays and short-fibered fraction. When fractional screening was used to separate the pulp into a succession of fractions classified according to fiber lengths, the results on cuprammonium viscosities at 1 per cent pulp concentration were: original pulp 22.4, fraction passing 80-mesh screen 9.1 and fraction retained on 20-mesh screen 35.5 centipoises.—A.P.-C.

## Pulp Purification

**The Purification and Chemical Conversion of Pulps.** B. Lieder. *Papier-Fabr.* 34, No. 17: 129-133 (April 26, 1936).—The article discusses various methods for producing highly purified celluloses and gives a general review of their different applications, such as nitro-cellulose for explosives, lacquers, and celluloid; viscose rayon; staple fiber; Cellophane for wrapping, decorative purposes and hats; sausage casings, etc. Developments which are still in the experimental stage are not listed.—C.J.W.

**Recent Developments in the Pulp Industry.** G. Jayme. *Wochbl. Papier fab.* 67, No. 27: 504-05 (July 4, 1936).—In order to get an alpha cellulose content of over 98 per cent, the pulp must be treated with concentrated liquor and at lower temperatures. In the manufacture of viscose silk, a pulp of not more than 92 per cent alpha is desirable. The author briefly describes the new developments taking place in North America.—J.F.O.

**Purifying Cellulose Fiber.** George A. Richter, assignor to Brown Co. U. S. pat. 1,041,958 (May 26, 1936).—The pulp is treated successively with a comparatively dilute hot alkaline solution and with a strong caustic soda solution at sufficiently high temperature to avoid appreciable mercerization of the fibers.—A.P.-C.

**Production of Cellulose.** H. Dreyfus. *Brit. pat.* 442,444 (Aug. 7, 1934).—Lignin-containing cellulosic material is treated with caustic alkali (more than 6 per cent) at

less than 150 deg. C. and under a pressure greater than the vapor pressure of the solution, the excess pressure being produced by means of an inert gas such as nitrogen.—A.P.-C.

**Purification or Refining of Sulphate or Soda Cellulose.** Uddeholms Aktiebolaget. *Brit. pat.* 440,965 (July 9, 1934).—The material is treated with not more than 60 per cent of the quantity of an oxidizing agent (bleaching powder) required for complete bleaching and then, with or without washing, with as much chlorine (gas or aqueous solution) as the cellulose will absorb. After dissolution and removal of the reaction products (chlorinated lignin), and before or after a second treatment with bleaching powder, it is further treated with alkali of mercerizing concentration and finally with acid.—A.P.-C.

## Pulp and Paper Testing

**Determination of Mannan in Wood Pulp and Wood.** E. Hägglund and L. C. Bratt. *Papier-Fabr.* 34, No. 13: 100-103 (March 29, 1936).—Existing methods for the determination of mannan in wood pulp and wood are reviewed and evaluated. By total hydrolysis with 72 per cent sulphuric acid, mannan can be converted quantitatively into mannose. The method according to Hägglund-Proffe (*Svensk Kem. Tid.* 45: 117-123 (1933)) is recommended for the determination of mannose.—C. J. W.

**Microbeater for Pulp.** G. Larocque. *Quart. Rev. Forest Products Lab. Can.* 20: 22-25 (1934).—A small single-rod mill capable of dealing with only 1 g. of pulp is described, and some typical beating curves are given.—A.P.-C.

**Fiber Classification Using Three Screens.** G. D. O. Jones, W. S. Morris and H. W. Johnston. *Quart. Rev. Forest Products Lab. Can.* 21: 34-36 (1936).—Fractionation of groundwood and beaten sulphite pulps with three screens (14-28- and 200-mesh) instead of five as previously advocated gives satisfactory fiber differentiation.—A.P.-C.

**The Essential Qualifications and Training of a Microscopist for the Pulp and Paper Industry.** John H. Graff. *Tech. Assoc. Papers* 19: 305-308 (June, 1936); *Paper Trade J.* 103, No. 5: 39-42 (July 30, 1936).—The various types of service which may be rendered to a pulp and paper mill by a thoroughly trained microscopist and the types of technique necessary to perform these services are described, and the training in fiber microscope and microphotography, as carried out at the Institute of Paper Chemistry, Appleton, Wis., in preparing capable technicians, is described.—A.P.-C.

**Improvements in Special Microscopes for the Examination of Paper Making Material.** A. Karsten. *Papeterie* 58: 578-586 (July 10, 1936).—A description of the metaphor, its operation and advantages for examining and photographing paper making fibers.—A.P.-C.

**Electrical Method for Determining the Concentration of Pulp in Water.** P. E. Gishler and O. Maass. *Quart. Rev. Forest Products Lab. Can.* 20: 1-7 (1934).—A simple apparatus has been constructed which is capable of making instantaneous determinations of pulp consistency. Between 0 and 1 per cent, differences of 0.02 per cent are detectable. Variations in temperature and con-



centration of dissolved salts do not interfere. The apparatus can readily be inserted in any system where circulation of pulp is taking place.—A.P.-C.

**Standard Method for Determining the Xanthate Viscosity.** Note No. 11. Faserstoff Analysenkommission. Papier-Fabr. 34, No. 8:57-59 (Feb. 23, 1936).—A description is given of the German standard method for determining the relative X-viscosity (xanthate viscosity) of cellulose by the Ost-Ostwald viscometer. The new Ubbelohde instrument with hanging level would have been preferable, in that it measures the absolute viscosity; its high price, however, made it unsuitable for routine tests, apart from the fact that only trained workers can operate it satisfactorily.—C.J.W.

**Standard Method for the Determination of the Cuprammonium Viscosity.** Note No. 12. Faserstoff-Kommission. Papier-Fabr. 34, No. 15: 113-117 (April 12, 1936).—An illustrated and detailed description is given of the apparatus and procedure used by the German standard method for determining the cuprammonium viscosity of cellulose. The method was originally developed by A. Noll and W. Beltz; it employs the relative viscometer of Ost-Ostwald. All details must be followed accurately in order to obtain reproducible results. The experimental error is about  $\pm 1$  per cent. Special emphasis is placed on the fact that no relationship whatever exists between the cuprammonium (K-) and xanthate (X-) viscosity, and that no factor can be employed for converting the values of one method into the other.—C.J.W.

**Rapid Determination of Viscosity of Unbleached Viscose Pulp.** N. I. Nikitin and I. A. Nagrodskii. Bumazhnaya Prom. 14, No. 12:13-19 (1935).—C. A. 30:5031.—Wash and separate a sample from an uncooked portion in a sieve, and press out by hand to a nearly constant weight. Determine the Bjorkman number on a separate sample. Place the prepared sample (corresponding to one gram of oven-dry pulp) in a 100 cc. flask containing 70 cc. water (55 deg.) and calcium hypochlorite in an amount corresponding to the Bjorkman number, bleach at 55 deg. for 10 minutes, with shaking at 30 second intervals, filter off the pulp in a Büchner funnel, wash with 300 cc. water (30 deg.), place in a glass tube and dry at 105 deg. in a drying oven while passing warm air through the tube. Treat 0.7 g. of the dry pulp with 20 per cent ammonium hydroxide for 3 minutes, dissolve it in 35 cc. of Schweitzers reagent in a 60 cc. brown-colored flask at 20 deg. for 10 minutes. Replace the glass stopper by a rubber stopper fitted with a viscometer pipet and a glass cock connected with an atomizer rubber bulb. Pump the solution into the pipet, open the cock and determine the viscosity. For the control of viscosity in the process of bleaching of viscose pulp the bleaching operation in the determination is omitted.—C.J.W.

**Interest for the Quick Determination of the Absolute Moisture Content of Samples of Stock in Sheet Form.** Walter Brell. Wochbl. Papierfabr. 67, Special Number: 51-52 (June, 1936).—Forced hot air with a low relative humidity is used for drying the test sheets. The apparatus is described along with the results obtained on tests made.—J.F.O.

**The Importance of the New Regulation Concerning the German Raw Material Testing for the German Pulp and Paper Industry.** E. Seidl, Papier-Fabr. 34, No. 1: 2-6 (Jan. 5, 1936).—A comprehensive discussion of the workings of the new regulation for the German testing bureau for raw materials for the German pulp and paper industry.—J.F.O.

**Testing of Fibers, Spun Yarn and Fabrics. Tentative Standard Method, DIN DVM E 3801 Textiles.** W.

Kumichel. Papier-Fabr. 34, No. 2: 9-14 (Jan. 12, 1936).—Tentative standard methods for the testing of textile fibers, spun yarn and fabrics are given in detail.—J.F.O.

**pH Measurement in the Paper and Pulp Industry.** Kurt Schwabe, Kriebstein, Wochbl. Papierfabr. 67, Special Number: 24-36 (June, 1936).—The most comprehensive discussion of pH, pH measurements and pH application in the pulp and paper industry, yet published. After discussing the theory of pH, the three methods of measuring pH are described in detail, namely; the colorimetric, electric potentiometer and the catalytic action on certain reactions which can be observed. As examples of the last method are: the inversion of raw sugar, the decomposition of diazo acetic ester, ester formation and ester hydrolysis. Among the ten electrodes used in the potentiometer method, are the calomel, hydrogen, quinhydrone, antimony, and glass electrode of which there are four types described. The application of pH measurements to mill raw water, boiler water, sulphite cooking process and waste liquor control, bleaching, white water control, sizing, etc., are described with the best methods given for their measurement.—J.F.O.

**A Study of Some Variables in the Test Sheet Making Operation.** F. G. Barber and F. C. Peterson. Tech. Assoc. Papers 19: 354-358 (June, 1936); Paper Trade J. 103, No. 4: 32-36 (July 23, 1936).—A study of the effect of decklebox consistency, size of wire mesh, varied substance, drainage time and fiber loss on the strength of pulp test sheets.—A.P.-C.

**Standardization of paper and paper testing methods.** R. Korn. Papier-Fabr. 34, No. 11:85-87 (March 15, 1936).—Korn discusses the value of paper specifications and the program of the German Standardization Committee of which he is chairman. Quality standards of paper have been used in Germany for a number of years; special emphasis is placed upon the fact that a distinct differentiation between two qualities must be possible in order to give satisfactory results. It is not possible, for example, to differentiate two qualities of paper by a groundwork content of 5 per cent, since the qualities of the different pulps can only be estimated with an accuracy of  $\pm 5$  per cent. In this case, at least 15 per cent should be allowed. The standardization of testing methods and equipment is a comparatively recent development. The committee plans to develop first the mechanical testing procedures, and work on tearing strength, folding endurance, and bursting pressure has already been started. Not much work has been done on the printability of paper; however, certain fundamental studies have been published in the technical press, and it is to be expected that further progress along this line will be possible.—C.J.W.

**Progress made in the testing of paper and pulp during the year 1935.** Korn. Zellstoff U. Papier, 16, No. 5: 173-76 (May, 1936).—Aids and improvements in fiber analysis including the detection of cotton linters and the testing for amyloid in genuine parchment paper; instruments for determining the printability of paper such as the Bekk porosity tester and a method for measuring the smoothness of newsprint; the Brecht-Imset apparatus for measuring the resistance of paper to tear, the stiffness tester; methods for determining the copper number and method for determining the amount of wood gum in pulp; and a kollergang method for testing the strength properties of pulp; are among the topics mentioned together with the original source in the literature.—J.F.O.

**Paper Judged by Easy Tests.** W. B. Wheelwright. Inland Printer 97, No. 4:27-31 (July, 1936).—This is a resume of simple and practical methods for evaluating paper without expensive testing apparatus, which appeared

in a series of articles in Paper and Printing Digest, January to May, 1936.—C.J.W.

**Grain in Paper.** F. W. Hoch. American Printer 102, No. 3:33-34; No. 7:36-37 (March, July, 1936).—The author explains in non-technical language what grain in paper means, as well as several simple methods for determining the machine direction of a sheet.—C.J.W.

**Progress in the Testing of Paper Through New Developments in the Technics of the Microscope.** A. Karsten, Wochbl. Papierfabr. 67, No. 19: 355-58 (May 9, 1936).—Description of several photo-microscopes, including auxiliary apparatus for performing special work. Uses for this type of microscope in the paper industry are elaborated upon.—J.F.O.

**The Determination of the Whiteness Content With the Differential Photometer System of Kondrazky.** A. M. Kaz, Zellstoff U. Papier, 16, No. 5: 179-80 (May, 1936).—The Kondrazky system is described by means of diagrams, its use in the determination of the whiteness of sulphite pulp, and its relation to values from the Pulfrich photometer and to the Ostwald photometer are briefly discussed.—J.F.O.

**Device for Measuring the Stiffness of Sheet Material.** Leonce Vaughan, Jr. U. S. pat. 2,044,411 (June 16, 1936).—The sheet to be tested is secured along one edge and the end of a weighting chain is attached to the opposite parallel edge of the sheet. Mechanism is provided for rapidly adding to or subtracting from that portion of the chain that is actually supported by the free edge of the test sheet to bring the latter to a predetermined position.—A.P.-C.

**Transparency Meter.** Stephen A. Staeger, assignor to Westinghouse Electric and Manufacturing Co. U. S. pat. 2,044,131 (June 16, 1936).—The instrument comprises a suitable source of light and a light-responsive element (preferably a disc of copper oxide activated by suitable heat treatment) and means for passing a web of paper between them. A recording or indicating device suitably connected to the photo-electric cell gives a measure of the light transmittance through the interposed material, and can therefore serve as an indirect measure of its thickness. The instrument can also be used to measure the turbidity of liquids.—A.P.-C.

**Apparatus for Determining the Surface Texture of Paper, Especially News Print.** John W. Barnhart, William Baumrucker, Jr., and William G. Dodge, assignors to News Syndicate Co., Inc. U. S. pat. 2,036,315 (April 7, 1936).—The apparatus is constructed to measure the contact pressure required to cause slippage between two contacting surfaces of the material under test with a predetermined torque the smoothness of the sample being measured as a function of the pressure exerted to prevent slippage.—A.P.-C.

**Measuring and Expressing Bulk.** Papier 39: 525-528 (June, 1936).—A brief discussion of the causes of divergences in results in the determination of the thickness of paper, with a description of the specifications adopted in the United States and in Germany for determining paper thickness. A plea is made for an international unification of the method of expressing bulk, and a monograph is given for converting results in any given method of expression into any other.—A.P.-C.

**An Application of Statistical Methods to the Determination of the Folding Endurance of Paper.** N. H. Carrier and James H. Young. World's Paper Trade Rev. 105: 1593-1602 (May 15, 1936).—An example is given and discussed of the statistical analysis of the results of folding endurance tests of a series of consignments of paper ostensibly of the same quality, showing the deductions that can be made therefrom.—A.P.-C.

**A Method for Determining Whiteness of Paper. II.** Deane B. Judd. Tech. Assoc. Papers 19: 359-365 (June, 1936); Paper Trade J. 103, No. 8: 38-44 (Aug. 20, 1936).—Thirty samples of paper, the colorimetric specifications of which were known, were submitted to 15 observers for grading as to visual whiteness on the basis of the degree of approach to the appearance of an ideal perfectly reflecting, perfectly diffusing surface. Analysis of the results showed that much of the trouble and disagreement heretofore encountered in whiteness grading is due to the existence among those expert in grading paper of at least two distinct bases for judging whiteness, one being a perfectly reflecting perfectly diffusing surface and the other ("natural paper whiteness") being paper made from good grade, well-bleached, undyed stock.—A.P.-C.

#### Printer and Paper

**Determining the Wire Side of Supercalendered Paper.** Papier-Ztg. 61, No. 48: 946 (June 13, 1936); Tech. Bull. Paper Makers' Assoc. Gt. Britain Ireland 13, No. 7:94 (July, 1936).—The usual textbook methods of determining the wire side on paper fail in the case of supercalendered paper, since this process makes the surface smoother and denser, and it becomes almost impossible to differentiate the two sides with the naked eye. However, the wire side can nearly always be ascertained by means of a magnifying glass. The importance of knowing the two sides apart is based on the fact that, wherever possible, the text is printed on the wire side and the illustrations on the felt side.—C.J.W.

**Electricity in Printing Paper.** J. Bekk. Papierfabr. 33, No. 32: 265-269 (Aug. 11, 1935).—Forces due to electrification of paper can be very troublesome on the various printing operations. While methods are known for nullifying the charge in paper, there is little specific knowledge on the origin of static electricity in paper. Paper is not only charged by friction or rubbing, but by varying pressure, extension, separation of surfaces, and escape of water vapor. Electrification may be produced at many places in the paper machine. The charge developed in rolls cannot be removed by any known method of discharging, and is possibly due to increasing pressure on inner layers during the winding of the roll. A roll may become charged in dry storage due to the increasing pressure on the inner layers resulting from contraction of the outer layers. Some charge may be developed by surface rubbing and vibration during transportation. Printing operations, like paper making operations, will account for the development of large charges. Paper may be discharged by the following methods: The common method of regulating water content, and use of hygroscopic salts in the paper are discussed; the use of earthed wires, chains, etc., is mentioned and the author points out that contacting conductors do not remove the charge completely; air surrounding the paper may be rendered conducting by ionizing it by such ionizing rays as those from radioactive substances, or by ionizing with flames, or by placing a set of earthed metal points near the paper; the charge may be neutralized by passing the paper through a high frequency brush discharge formed between two opposing sets of points between which the paper travels, if the paper is positively charged, it attracts the negative ions from the discharge region until the charge is neutralized, or, if negatively charged, positive ions are attracted. This method appears to be the most efficacious.—C.J.W.

**Paper.** G. B. Miliani. Ind. carta 3, No. 5:171-178 (May, 1936).—A general discussion of the subject is given from the historical, technical and economic viewpoints.—C.J.W.

**Paper Facts for Printers. The Paper Industry.** W. B.

Wheelwright. Paper and Printing Digest, June, 1936: 7-11; July, 1936:3-7.—A brief historical review is given in which the important developments of the industry are pointed out. Reference is made to the permanence and durability of rag and cheaper grades of paper, as well as to the enormous growth of the paper industry during the recent decades.—C.J.W.

**Newsprint and News Ink.** Printing and Printer's Digest, June, 1936: 12-14.—Reference is made to the Technical Bulletin No. 18, published by the Government Printing Office in 1932, and to certain results of this research which are also applicable to certain book papers. In all uncoated papers there is more or less difference in smoothness between the wire and felt sides. The felt side, in general, is the smoother, while the speed of ink absorption is faster from the wire side. This suggests that when printing from sheets it might be advisable to print first on the wire side, as this dries the quicker of the two sides and the sheets could sooner be backed up without danger of smudging.—C.J.W.

**New-filled English Finish.** E. K. Hunt. Graphic Arts Monthly 8, No. 6:32, 52 (June, 1936).—A new kind of English finish has been placed on the market with the two sides specially treated to make them print alike. Results, however, seem to indicate that in this case the wire side prints better than the felt side, which is the reverse of what it used to be. On a form which prints only one side of the paper, it is a good plan to print generally on the wire side instead of the felt side, as has been customary.—C.J.W.

**Better Illustrations in Newsprint.** Papier-Ztg. 61, No. 47:935 (June 10, 1936); Tech. Bull. Paper Makers' Assoc. Gt. Brit. Ireland 13, No. 7:93 (July, 1936).—Many newspapers obtain better illustrations by ordering their newsprint so reeled that the wire side of the paper is printed first with text, and then, on backing up, the felt side is printed with matter consisting chiefly of illustrations. The advantages of this procedure are explained.—C.J.W.

**Treatment of Offset Papers for Optimum Register.** C. G. Weber and M. N. V. Geib. J. Res. Nat. Bur. Standards. 16: 93-103 (1936).—The relation of the hygrometric condition of papers at the start of the first print to changes in moisture content during printing and to the register of prints has been investigated. Papers conditioned to equilibrium with the press-room air by the usual method expanded during the first few printings. Constant dimensions can be maintained by (a) conditioning the paper first at a very high relative humidity, then to equilibrium with the press-room atmosphere, or (b) conditioning to equilibrium with relative humidity 5 to per cent above the press-room condition.—A.P.-C.

**Recent Developments in the Technology of Lithographic Papers.** Robert F. Reed. Paper Trade J. 102, No. 23: 37-39 (June 4, 1936).—A brief review of the results obtained to date in the investigation of paper from the standpoint of use requirements in offset lithography at present under way at the U. S. Bureau of Standards.—A.P.-C.

**Lithography on Coated Paper.** Robert F. Reed. Paper Trade J. 102, No. 22: 37-39 (May 28, 1936); Tech. Assoc. Papers 19: 272-274 (June, 1936).—A discussion of the more important characteristic difficulties encountered in lithographing on coated papers.—A.P.-C.

**The Paper Maker and the Graphic Arts.** John F. Wance. Paper Trade J. 102, No. 22: 39-43 (May 28, 1936); Tech. Assoc. Papers 19: 274-278 (June, 1936).—An address discussing and explaining the nature of the cooperation which should exist between the paper maker and all others concerned in the production of a satisfactory finished product in the graphic arts.—A.P.-C.

**The Eternal Triangle: Paper, Ink and Printer.** H. H. Alway. World's Paper Trade Rev. 105: 1443-1446, 1484-1490 (May 1, 1936).—A general discussion.—A.P.-C.

**Air Conditioning of Paper and Printing Plants.** W. G. Schlichting. Paper Trade J. 103, No. 1: 113-114 (July 2, 1936).—A brief discussion of the troubles produced by moisture variations in paper and of the advantages of air-conditioning in the paper mill and printing plant to prevent moisture variations in paper and the troubles caused thereby.—A.P.-C.

#### Specialties

**Cigaret Paper.** L. A. Kantor. Bumazhnaya Prom. 15, No. 1: 67-73 (1936); C. A. 30:50355.—A satisfactory grade of cigarette paper weighing 16 g/sq. m. was obtained from a mixture of 40 per cent of third grade linen-hemp rag waste beaten for 13-14 hours to 88 deg. freeness and 60 per cent wood pulp beaten for 10-11 hours to 86 deg. freeness at a paper-machine speed of 65 m./min. Equally good results were obtained by beating a mixture of rags and wood pulp for 14 hours to 90-91 deg. freeness.—C.J.W.

**Cable and Telephone Papers From Sulphite Pulp.** A. G. Laube. Tzentral. Nauch.-Isseledovatel. Inst. Bumazhnoi Prom. Materialui 1935, No. 2:77-106; C. A. 30:5033.—Cable and telephone papers were prepared from sulphite pulps of medium hardness obtained by the methods of slow and rapid cooking and refined at the optimum conditions with eight per cent sodium hydroxide at 60 deg. on bleaching rolls. The common sulphite pulp is not suited for the production of low-voltage cable and telephone papers, because of its insufficient strength (chiefly breaking-length values) and poor thermal stability (tested at 135-140 deg. for 7 hours). The refined pulp obtained by slow cooking is superior to the refined common sulphite pulp, but is inferior to the similarly refined sulphate pulp in the thermal stability, in spite of the comparable mechanical strength (tearing strength and breaking-length value). Refined sulphate pulp, obtained by slow cooking, is recommended in place of common sulphite pulp for the production of bakelite insulation products.—C.J.W.

**Asphalt Papers With Cloth Lining.** Papier-Ztg. 61, No. 61:1153-1154 (July 29, 1936).—The manufacture of reinforced asphalt papers, made either from two paper webs with two layers of asphalt and one cloth lining in between, or from one paper web impregnated on one side with asphalt, the lining being pressed upon the coated side, is described. Good asphalt papers must be absolutely waterproof, strong and flexible; in the case of the two-ply material, the layers must adhere well to one another. They are chiefly used for transoceanic shipments.—C.J.W.

**Paraffining of Hard Paper Containers.** Papier-Ztg. 61, No. 58:1106-1107 (July 18, 1936).—Beakers, pails, and similar articles are usually dipped into the paraffin solution, the surplus being allowed to drip off and are then dried in one mechanical operation. The paraffin used should be colorless and odorless and be applied at low temperatures in order to avoid gasification. The drying should be carried out at raised temperature at first, during which procedure the articles should be turned and shaken to remove the surplus; the temperature should then be gradually lowered until drying is complete. The articles are moisture proof, but not heat resistant.—C.J.W.

**Water—and Air—Impermeable Sack Paper.** W. A. Grabovski. Material des Institutes (Russia) 1935, No. 1:106-138; Papier-Ztg. 61, No. 56:1073-1075 (July 11, 1935).—Russian experiments are described for impregnating kraft paper bags for the shipment of ammonium nitrate. Different impregnating agents were tried and the best water and air permeability was obtained with solutions

of bitumen in mineral oil; mixtures of equal parts gave the most satisfactory results. Kraft paper of 80 g./sq. m. was found the most suitable. C.J.W.

**Paper as an Electrical Insulating Material.** H. Stroll. *Papier-Fabr.* 34, No. 13:97-99; No. 14:105-109 (March 29, April 5, 1936).—Paper is used to an ever-increasing extent as electrical insulating material. The raw materials employed are mainly wood pulp and rags, the latter being used only for very high class and exacting work. The properties of greatest importance for the raw paper are basis weight, caliper, volumetric weight, tearing strength in both directions, stretch, surface properties (smoothness), kind of sizing, sizing strength absorptivity and air permeability, the two last mentioned properties being of special significance. The different types of non-impregnated and impregnated insulating papers and boards and their suitability for special applications are reviewed.—C.J.W.

**Influence of Spruce and Pine Wood Upon the Quality of Cable Paper.** J. A. Denisov. *Papier-Ztg.* 61, No. 40:790 (May 16, 1936).—Comparative experiments on a mill scale for checking previous laboratory tests showed that the delignification of spruce wood is not easier than that of pine; strong kraft pulps from spruce wood yield cable papers with higher breaking length and Mullen burst, and lower Elmendorf tearing strength; the ether and alcohol extracts from spruce kraft pulp are two to three times lower. These results are not in agreement with the previous laboratory experiments. Mixing spruce and pine chips was not found to offer any advantages.—C.J.W.

**Use of Nitrocellulose Lacquers in the Paper Industry.** A. Kraus. *Chem.-Ztg.* 60, No. 45:456 (June 3, 1936).—Reference is made to the increasing use of transparent nitrocellulose lacquers in the paper industry for waterproofing wrapping papers, cellulose films, maps, time tables, wall papers, etc. The paper lacquers are usually applied with machines and spread evenly by means of distribution rolls. Lacquered paper can be printed subsequently.—C.J.W.

**What Demands Are Placed Upon Condenser Papers by the Electrical Industry.** G. Nauk. *Papier-Ztg.* 61, No. 5:898-899 (June 3, 1936).—Condenser papers are lightweight tissues made from rags, soda or sulphite pulp. They are used in several layers for insulating purposes in electrical condensers. The paper is impregnated with wax or paraffin to reduce its hygroscopicity; on hardening, however, a harmful air enclosure is often formed. To prevent this occurrence a German patent suggested the drying of the impregnating substance under oil (transformer oil), which penetrates the hollow spaces and completely replaces the air in them.—C.J.W.

**Influence of Spruce Wood and Pine Wood on the Quality of Kraft Pulp for Cable Paper.** Zellstoff U. *Papier* 16, No. 7: 273 (July, 1936).—Under similar conditions the cooking of spruce wood is faster than the cooking of pine wood in the production of kraft pulp. Although the yield of pine wood is 1 to 1.5 per cent less than spruce, a digester can be filled with 12.5 per cent more chips from pine wood. The mechanical properties of pine pulp under the same conditions, are higher than spruce.—J.F.O.

**Sulphite Requirements for High Speed News Machines.** R. T. Steedman. *Pulp Paper Mag. Can.* 37:514 (Aug., 1936).—The average sulphite stock conditions in high speed news mills is cited and the necessity for uniformity of quality is stressed.—A.P.-C.

**Possibility of Substituting Kraft for Spruce Sulphite in Printing Papers.** P. Goldsmid. *Papier* 39:419-421 (May, 1936).—Laboratory tests indicated that substitution of kraft for spruce sulphite in printing papers containing groundwork permitted of reducing the chemical pulp

content without sacrificing strength and improved the printing qualities; on the other hand, it yielded a darker colored paper and the stuff drained slower on the machine wire, which would interfere with the operation of high-speed machines. Moreover, kraft hydrates slower than sulphite, which would increase the power consumption.—A.P.-C.

**Vulcanized Fiber Insulating Composition.** Artemy A. Horvath, assignor to Wilmington Fibre Specialty Co. U. S. pat. 2,045,468 (June 23, 1936).—A condensation product of formaldehyde and soy bean protein material is incorporated in vulcanized fiber, thereby rendering it resistant to the action of water.—A.P.-C.

**Oil-Impregnated Paper. Effect of Anhydrous Oxidation Products on Power Factor and Conductivity.** John D. Piper, D. E. F. Thomas and C. C. Smith. *Ind. Eng. Chem.* 28: 843-846 (July, 1936).—Power factor and conductivity measurements were made on oil-impregnated papers contaminated with each of ten compounds selected to represent common types of oxidation products formed by oxidation of hydrocarbons. The oil-soluble compounds of medium and high molecular weight caused very little increase in either the power factor or the conductivity of the impregnated paper. The acids of low molecular weight, however, caused large increases in the power factor but only small increases in the conductivity of the impregnated insulation.—A.P.-C.

**Manufacture of Newsprint Paper.** R. N. B. Norris. *J. S. African Inst. Engrs.* 34: 201-215 (1936).—An outline of the manufacture of newsprint from wood.—A.P.-C.

**The Mineral Constituents of Paper.** J. Edington Aitken. *World's Paper Trade Rev.* 105: 1036, 1038, 1076, 1078, 1161-1161-1164, 1195-1198, 1236, 1238 (March 27, April 3, 10, 1936).—An address discussing natural mineral material of fibers and the functions of mineral matter added for various purposes in the manufacture of paper.—A.P.-C.

**Mica in Coated Papers.** Maurice Dérivé. *Papier* 39:521-523 (June, 1936).—A brief outline of the properties of mica and of its use for obtaining decorative effects on coated papers.

**Fuzz in Newsprint Production.** O. M. Mohn. *Paper Industry* 18:194 (June, 1936).—A brief discussion of the causes of fuzz production in the manufacture of newsprint and of the means of avoiding it.—A.P.-C.

**Printing Paper.** Société pour l'Industrie Chimique à Bâle. *Brit. pat.* 443,394 (Feb. 27, 1936).—Fast prints on paper of water-soluble dyes containing one or more sulphonic and (or) carboxylic groups are obtained by use of the dyes in solution in diethylene glycol or one or more organic liquids miscible with diethylene glycol together with a water-soluble salt of an organic compound containing at least one basic nitrogen atom and an aliphatic residue comprising at least ten carbon atoms. In an example, paper is printed with a paste containing Cloth fast blue GTB or Xylene fast blue BL and para-stearylaminophenyltrimethylammonium methyl sulphate dissolved in a mixture of ethanol and glycerol or of ethanol, butylglycol, glycerol and water, and is dried to obtain a powerful dark blue print fast to light, water and rubbing.—A.P.-C.

**Process of Manufacture of Asphalt-Impregnated Boards.** Cartonneries Krantz Frères. *Fr. pat.* 791,537.—The fibrous material is ground with 15 to 20 per cent of bituminous material in presence of a small amount of water and of wet machine broke. The moist mixture is diluted with water and fed to the paper machine, and a further amount of bituminous material is incorporated into the sheet by delivering an aqueous suspension on to the sheet on the wire.—A.P.-C.



# IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

## NEW YORK IMPORTS

WEEK ENDING, DECEMBER 19, 1936

### CIGARETTE PAPER

De Mauduit Paper Corp., *Grand Terre*, Havre, 1 cs.;  
Champagne Paper Corp., *Grand Terre*, Havre, 778 cs.

### WALL PAPER

S. K. Lonegren, *Kungsholm*, Gothenburg, 24 bxs.; F. J.  
Emmerich, *Laconia*, Liverpool, 2 bls.

### WALL BOARD

Treetex Corp., *Kungsholm*, Gothenburg, 1,400 bds.

### NEWSPRINT

International Paper Co., *Humberarm*, Dalhousie, 1,612  
rolls; International Paper Sales Co., *Humberarm*, Dal-  
housie, 727 rolls; Jay Madden Corp., *Uddeholm*, Kotka,  
864 rolls; Lunham & Reeve, Inc., *Uddeholm*, Kotka, 290  
rolls; H. Reeve Angel & Co. Inc., *Uddeholm*, Kotka, 191  
rolls; Walker, Goulard Plehn Co., *Uddeholm*, Kotka, 75  
bls.; Gilman Paper Co., *Uddeholm*, Norrkoeping, 870 rolls;  
Brooklyn Daily Times, *Uddeholm*, Norrkoeping, 379 rolls;  
N. Y. Tribune, Inc., *Markland*, Liverpool, N. S., 2,192  
rolls; World Telegram, *Markland*, Liverpool, N. S., 619  
rolls; Brooklyn Daily Eagle, *Markland*, Liverpool, N. S.,  
894 rolls; Westchester Newspapers, Inc., *Markland*, Liver-  
pool, N. S., 90 rolls; South Norwalk Sentinel, *Markland*,  
Liverpool, N. S., 71 rolls; Parsons & Whittemore, Inc.,  
*Markland*, Liverpool, N. S., 322 rolls; Perkins Goodwin  
& Co., *Vancouver*, Hamburg, 275 rolls; Jay Madden Corp.,  
*City of Fairbury*, Wiborg, 312 rolls.

### PRINTING PAPER

Jay Madden Corp., *Uddeholm*, Kotka, 130 pkgs.; Roh-  
ner Gehrig & Co., *Spaarndam*, Rotterdam, 2 cs.

### WRAPPING PAPER

Blauvelt Wiley Paper Manfg. Co., *Uddeholm*, Gothen-  
burg, 17 rolls, 117 bls.; Guaranty Trust Co., *Uddeholm*,  
Gothenburg, 1,285 rolls; Chase National Bank, *Uddeholm*,  
Gothenburg, 1,425 rolls; F. C. Strype, *Black Gull*, Ant-  
werp, 9 cs.; Guaranty Trust Co., *Kungsholm*, Gothenburg,  
4,372 rolls, 237 bds., 20 bls.; H. Reeve Angel & Co. Inc.,  
*Kungsholm*, Gothenburg, 8 cs., 46 rolls; National Pulp &  
Paper Co., Inc., *Kungsholm*, Gothenburg, 312 rolls; T.  
Barrett & Son, *Kungsholm*, Gothenburg, 23 bls.; Wilkin-  
son Grey & Co., *Kungsholm*, Gothenburg, 36 bls.

### KRAFT PAPER

Parsons & Whittemore, Inc., *Uddeholm*, Gothenburg,  
1,287 rolls.

### FILTER PAPER

E. H. Sargent & Co., *Uddeholm*, Gothenburg, 9 cs.

### PHOTO PAPER

Medo Photo-Supply Co., *Britannic*, Southampton, 1 cs.

### TISSUE PAPER

W. J. Byrnes, *Britannic*, Southampton, 2 cs.; Standard  
Products Corp., *Britannic*, Southampton, 24 cs.; Meadows  
Wye & Co., *Laconia*, Liverpool, 2 cs.

### STRAW BOARD

—, *Spaarndam*, Rotterdam, 68 rolls.

### BOARDS

Miller Paper Co., *Uddeholm*, Gothenburg, 52 bls.; Sal-  
wen Paper Co., *Kungsholm*, Gothenburg, 49 bls.

### MISCELLANEOUS PAPER

—, *Uddeholm*, Gothenburg, 51 bls., 8 rolls; Japan  
Paper Co., *Anna Maersk*, Kobe, 125 cs.; The Borregaard  
Co. Inc., *Kungsholm*, Gothenburg, 82 bls., 859 rolls; F. L.  
Kramer & Co., *Kungsholm*, Gothenburg, 12 rolls; —,  
*Kungsholm*, Gothenburg, 143 rolls, 271 bds.

### RAGS, BAGGINGS, ETC.

Harris Goldman & Co., *Orizaba*, Vera Cruz, 56 bls. rags;  
W. Steck & Co., *Haukefjell*, Antwerp, 249 bls. flax waste;  
R. Blank, *Haukefjell*, Antwerp, 52 bls. rags; Loumar Tex-  
tile By-Products Co., *Haukefjell*, Antwerp, 107 bls. jute  
waste; Van Oppen & Co., *Haukefjell*, Antwerp, 106 bls.  
rags; Great Eastern Packing & Paperstock Co., *Hauke-  
fjell*, London, 39 bls. rags; —, *Augvald*, Hamburg, 100  
bls. rags; Castle & Overton, Inc., *Augvald*, Hamburg, 81  
bls. flax waste; D. Benedetto, Inc., *Exchange*, Tunis, 77  
bls. rags; —, *Exchange*, Tunis, 38 bls. rags; E. J.  
Keller Co. Inc., *Exchange*, —, 213 bls. rags; New  
England Waste Co., *Anna Maersk*, Shanghai, 830 bls. cot-  
ton waste; J. J. Ryan & Son, *Anna Maersk*, Shanghai, 50  
bls. cotton waste; O. Smith & Sons Co., *Anna Maersk*,  
Shanghai, 50 bls. cotton waste; Brandwein Mazur Co.,  
*Anna Maersk*, Shanghai, 200 bls. cotton waste; O'Brien  
Padawer Co., *Anna Maersk*, Shanghai, 100 bls. cotton  
waste; Royal Manufacturing Co., *Anna Maersk*, Shanghai,  
43 bls. cotton waste; E. J. Keller Co. Inc., *Anna Maersk*,  
—, 100 bls. rags; New England Waste Co., *Anna  
Maersk*, Kobe, 400 bls. cotton waste; —, *Anna  
Maersk*, Kobe, 280 bls. rags; Chase National Bank, *Anna  
Maersk*, Kobe, 50 bls. rags; Royal Manufacturing Co.,  
*Pr. Adams*, Bombay, 50 bls. cotton waste; O'Brien Pada-  
wer Co., *Pr. Adams*, Bombay, 100 bls. cotton waste;  
—, *Pr. Adams*, Bombay, 77 bls. cotton waste; E. J.  
Keller Co. Inc., *Vancouver*, —, 81 bls. cotton waste;  
Bank of N. Y. Trust Co., *Vancouver*, Hamburg, 110 bls.  
rags; Darmstadt Scott & Courtney, *Black Gull*, Antwerp,  
98 bls. rags, 41 bls. thread waste; —, *Black Gull*, Ant-  
werp, 84 bls. rags, 112 bls. bagging; Boger Cotton Pro-  
ducts Co., *Black Gull*, Antwerp, 65 bls. cotton waste; D.  
Galloway, *Black Gull*, Antwerp, 18 bls. cotton waste; D.  
Benedetto, Inc., *Black Gull*, Antwerp, 132 bls. rags; R.  
Blank, *Black Gull*, Antwerp, 24 bls. rags; Irving Trust Co.,  
*Black Gull*, Antwerp, 55 bls. rags; E. J. Keller Co. Inc.,  
*Black Gull*, —, 329 bls. bagging; E. J. Keller Co. Inc.,  
*Burgerdyk*, —, 107 bls. paper stock; —, *Lehigh*,  
Manchester, 35 bls. old canvas; —, *Lehigh*, Man-  
chester, 42 bls. cotton waste; Royal Manufacturing Co.,  
*Lehigh*, Manchester, 32 bls. cotton waste; Great Eastern  
Packing & Paperstock Co., *Lehigh*, Dublin, 60 bls. paper

stock; Darmstadt Scott & Courtney, *Lehigh*, Dublin, 70 bls. paper stock; M. Snedeker Corp., *Lehigh*, Belfast, 173 bls. paper stock; J. Cohen & Son Co. Inc., *Lehigh*, Glasgow, 18 bls. paper stock; Great Eastern Packing & Paperstock Co., *Lehigh*, Glasgow, 75 bls. bagging; ———, *Statendam*, Rotterdam, 10 bls. rags; Darmstadt Scott & Courtney, *Statendam*, Rotterdam, 191 bls. bagging; J. Eisenberg Co. Inc., *Kungsholm*, Gothenburg, 9 bls. rags; R. & V. Miller, Inc., *Kungsholm*, Gothenburg, 4 bls. rags; ———, *City of Fairbury*, Gdynia, 49 bls. rags; ———, *Laconia*, Liverpool, 236 bls. rags; S. Shapiro & Sons, *Spaarndam*, Rotterdam, 6 bls. rags; Irving Trust Co., *Spaarndam*, Rotterdam, 47 bls. rags; Great Eastern Packing & Paperstock Co., *Spaarndam*, Rotterdam, 105 bls. bagging; R. Blank, *Spaarndam*, Rotterdam, 56 bls. old cottons; E. J. Keller Co. Inc., *Spaarndam*, ———, 86 bls. bagging; E. J. Keller Co. Inc., *McKeesport*, ———, 247 bls. paper stock; E. J. Keller Co. Inc., *Cold Harbor*, ———, 12 bls. paper stock.

**BONE GLUE**

National Adhesive Corp., *Statendam*, Rotterdam, 200 bags.

**OLD ROPE**

E. J. Keller Co. Inc., *Lehigh*, ———, 18 coils; W. Steck & Co., *Haukefjell*, London, 65 coils.

**CASEIN**

American British Chemical Supplies, *American Legion*, Buenos Ayres, 417 bags; ———, *Grand Terre*, Havre, 999 bags.

**WOOD PULP BOARDS**

Jay Madden Corp., *Uddeholm*, Kotka, 166 rolls, 235 bls.; H. Fuchs & Son, *Uddeholm*, Gothenburg, 28 crates, 1 cs.; Jay Madden Corp., *City of Fairbury*, Wiborg, 63 bls., 78 rolls.

**WOOD PULP**

Lagerloef Trading Co., *Uddeholm*, Kotka, 260 bls. sulphate, 599 bls. sulphite; J. Anderson & Co., *Uddeholm*, Gothenburg, 250 bls. sulphite; Perkins Goodwin & Co., *Uddeholm*, Gothenburg, 153 bls. sulphite; Johaneson Wales & Sparre, Inc., *Clara*, Trieste, 260 bls. wood pulp; Guaranty Trust Co., *Clara*, Trieste, 159 bls. wood pulp; M. Sone, *Vancouver*, Hamburg, 1,315 bls. wood pulp, 197 tons; A. Giese & Son, *Statendam*, Rotterdam, 20 bls. wood pulp; Gottesman & Co. Inc., *Kungsholm*, Gothenburg, 3,600 bls. sulphate; Guaranty Trust Co., *City of Fairbury*, Gdynia, 504 bls. wood pulp, 101 tons; Lagerloef Trading Co., *City of Fairbury*, Wiborg, 1,521 bls. sulphite, 286 tons; Castle & Overton, Inc., *City of Fairbury*, Wiborg, 1,780 bls. wood pulp, 352 tons; Parsons & Whittemore, Inc., *Pr. Harding*, 328 bls. wood pulp.

**ALBANY IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Lagerloef Trading Co., *Betta*, Rauma, 3,261 bls. sulphite, 538 tons; Lagerloef Trading Co., *Betta*, Kotka, 9,714 bls. sulphite, 1,650 tons; Lagerloef Trading Co., *Betta*, Kotka, 156 bls. sulphate, 26 tons.

**PORTLAND IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Gottesman & Co. Inc., *Einvik*, Sweden, 7,200 bls. wood pulp.

**BOSTON IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

———, *Anna Maersk*, Shanghai, 200 bls. rags; Chase National Bank, *Anna Maersk*, Kobe, 334 bls. rgs; Gottesman & Co. Inc., *Marissa Thorden*, Finland, 500 bls. wood pulp.

**PHILADELPHIA IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Philadelphia Inquirer Co., *Uddeholm*, Norrkoeping, 459 rolls newsprint; Union Waste Co., *Uddeholm*, Gothenburg, 64 bls. thread waste; Johaneson Wales & Sparre, Inc., *Uddeholm*, Gothenburg, 125 bls. sulphate; Perkins Goodwin & Co., *Uddeholm*, Gothenburg, 508 bls. sulphate; ———, *Uddeholm*, Gothenburg, 419 bls. sulphate, 208 bls. sulphite; The Borregaard Co. Inc., *Uddeholm*, Gothenburg, 39 pkgs., 101 bls., 890 rolls paper; Gottesman & Co., Inc., *Uddeholm*, Gothenburg, 920 bls. chemical pulp; Jay Madden Corp., *Uddeholm*, Kotka, 199 rolls newsprint; J. W. Hampton, Jr. Co., *Uddeholm*, Kotka, 465 rolls newsprint; Lagerloef Trading Co., *Uddeholm*, Kotka, 915 rolls wood pulp boards; E. J. Keller Co. Inc., *Anna Maersk*, ———, 400 bls. rags; National Waste Co., *Anna Maersk*, Kobe, 55 bls. rags; ———, *Anna Maersk*, Kobe, 464 bls. rags; Chase National Bank, *Anna Maersk*, Kobe, 334 bls. rags; ———, *Clara*, Trieste, 1,025 bls. wood pulp; ———, *Clara*, Trieste, 29 bls. rags; National City Bank, *Lehigh*, Liverpool, 48 bls. rags; ———, *Lehigh*, Liverpool, 70 coils old rope; Parsons & Whittemore, Inc., *Bordvik*, ———, 3,000 bls. wood pulp.

**CAMDEN IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Pagel Horton & Co. Inc., *Arna*, Sweden, 1,500 bls. kraft pulp.

**WILMINGTON IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Pagel Horton & Co. Inc., *Tancred*, Sweden, 3,000 bls. sulphite.

**BALTIMORE IMPORTS**

WEEK ENDING DECEMBER 19, 1936

G. A. Henshaw & Son, *Haukefjell*, London, 72 coils old rope; S. Shapiro & Son, *Haukefjell*, Antwerp, 123 bls. rags, 69 bls. bagging; Congoleum Nairn Co., *Haukefjell*, Antwerp, 354 bls. rags; Guaranty Trust Co., *Clara*, Trieste, 2,550 bls. wood pulp; S. Shapiro & Son, *Lehigh*, Manchester, 15 bls. new cuttings; Congoleum Nairn Co., *Spaarndam*, Rotterdam, 173 bls. rags; M. M. Morris, *Spaarndam*, Rotterdam, 100 bls. wood pulp boards; Gottesman & Co. Inc., *City of Fairbury*, Sweden, 600 bls. wood pulp; Gottesman & Co. Inc., *Milos*, Sweden, 3,000 bls. wood pulp; Price & Pierce, Ltd., *Milos*, Sweden, 3,000 bls. unbleached kraft; Price & Pierce, Ltd., *Milos*, Sweden, 7,350 bls. unbleached sulphite.

**NORFOLK IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

———, *Lehigh*, Belfast, 88 coils old rope; Darmstadt Scott & Courtney, *Spaarndam*, Rotterdam, 106 bls. bagging.

**NEWPORT NEWS IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Parsons & Whittemore, Inc., *City of Norfolk*, ———, 750 bls. wood pulp.

**SAVANNAH IMPORTS**

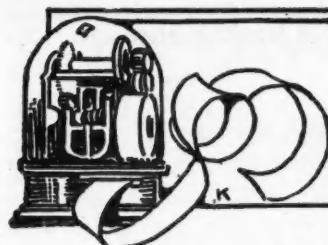
WEEK ENDING, DECEMBER 19, 1936

J. J. Ryan & Son, *Anna Maersk*, Kobe, 210 bls. cotton waste; Riverside Mills, Inc., *Anna Maersk*, Kobe, 60 bls. thread waste.

**NEW ORLEANS IMPORTS**

WEEK ENDING, DECEMBER 19, 1936

Jay Madden Corp., *Uddeholm*, Kotka, 632 rolls newsprint; G. W. Rueff, Inc., *Uddeholm*, Kotka, 687 rolls newsprint; Johaneson Wales & Sparre, Inc., *Clara*, Trieste, 1,000 bls. wood pulp; Parsons & Whittemore, Inc., *Hagen*, ———, 600 bls. wood pulp.



# LATEST MARKET REVIEW

## New York Market Review

Office of the PAPER TRADE JOURNAL,  
Wednesday, December 23, 1936.

Sentiment in the local paper market continues optimistic. Demand for the various grades of paper is more active than usual at this season. Sales forces of the leading paper organizations are anticipating another good year in 1937. Rising quotations are generally looked for, due to higher production costs.

The newsprint paper market is in a better position than for some time past. Circulations of the leading newspapers are increasing and the volume of advertising lineage is running away ahead of the past several years. The higher quotations recently announced will become effective on January 1 next.

Steadiness prevails in the fine paper market. Demand for bond, ledger, book and cover papers is holding up well. Prices are firm. Tissues are moving freely. The coarse paper market is exhibiting a strong undertone. Due to the unusually large volume of business done this month paper board manufacturers have withdrawn prices.

### Mechanical Pulp

The ground wood pulp market is displaying strength. Production in the United States, Canada and abroad is keyed to consumption, as far as possible, and the industry is considered in a sound position. The contract movement is well up to average. Prices are holding to formerly quoted levels, without difficulty.

### Chemical Pulp

Trading in the chemical pulp market is brisk. Orders for 1937 and 1938 are being booked in good volume. Bleached sulphite, bleachable grades of unbleached sulphite, and kraft pulp continue particularly firm, due to scarcity of offerings. The trend of prices continues upward.

### Old Rope and Bagging

The position of the old rope market is practically unchanged. Demand for domestic and imported old manila rope is fairly active. Old rope quotations are steady. The bagging market is stronger. Demand for scrap and gunny bagging is persistent. Roofing bagging is sharing the general improvement.

### Rags

Some improvement is noticed in the domestic rag market. Demand for new and old cotton rags is well sustained. No. 1 white shirt cuttings are in good request for both domestic and export account. Roofing grades are fairly steady. No radical changes have been reported in the imported rag market of late.

### Waste Paper

The paper stock market is more lively than for some time past. Board mill demand for the lower grades is persistent. Prices are firmer. Interest in book stock is growing. Prices are higher. Stitchless flat stock and over

issue magazine are now quoted at from .90 to .95. Quotations on white envelope cuttings are firmer.

### Twine

Business in the local twine market is surprisingly active considering the near approach of the Christmas holidays, when a seasonal lull in buying is generally experienced. Quotations on hard fiber twines have advanced. Soft fiber twine prices continue strong.

### Solution of Metal Problems

A new booklet describing the solution to scores of actual metal problems as encountered by the engineer has just been issued by The International Nickel Company. Containing 48 pages, illustrated throughout, this booklet has been prepared primarily as a guide book to Monel and other non-ferrous nickel alloys in the fields of engineering applications. It also covers the corrosion resistance and other properties of these metals.

The booklet includes 20 sub-divisions, each devoted to specific problems in fields from hydroelectric and steam power plants to highway maintenance, refrigeration and automobiles.

Besides going into details of standard Monel the booklet describes some of the newer forms of this alloy, including "K" Monel, "S" Monel and the like. The non-magnetic forms of the metal are also covered in a special section devoted to airplanes and the like. Inconel, the high nickel-chromium alloy, is another subject covered.

Special items included are those dealing with meters and other regulating equipment, sewage disposal, pump maintenance and other items of general interest. The booklet is available without charge to members of all branches of the engineering profession.

### Pejepscot To Make Improvements

Edgar Rickard, president of the Pejepscot Paper Company, has just returned to New York office from his company's mills at Brunswick and Pejepscot Mills, Maine.

Mr. Rickard reports the volume of business excellent, and has authorized putting into effect immediately plans for mill improvements which have been in process of preparation for some time. The plans call for additional warehouse facilities, considerable new equipment, etc., all of which is in line with the Pejepscot Paper Company's policy of improving its facilities for the manufacture and handling its quality products.

### Mansaver Grabs

The J. B. Engineering Sales Company, New Haven, Conn., has just issued an interesting bulletin entitled "Mansaver Grabs for the Paper Industry." The bulletin contains various illustrations showing how Mansaver Grabs may be used to effect economies in time and money in the various departments of the paper mill. Copies of the bulletin may be had gratis on application to the company at New Haven, Conn.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,  
Wednesday, December 23, 1936.

**BLANC FIXE**—Trading in the blanc fixe market is fairly active. Prices are holding to formerly quoted levels. The pulp is quoted at from \$42.50 to \$45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

**BLEACHING POWDER**—The position of the bleaching powder market is practically unchanged. Contract shipments are moving with seasonal regularity. Prices continue steady. Bleaching powder is quoted at from \$2 to \$2.25 per 100 pounds, in drums, at works.

**CASEIN**—The casein market is stronger. Domestic standard ground is now quoted at 19½ and finely ground at 20 cents; while French and Argentine standard ground are selling at 19 and finely ground at 20 cents per pound, all in bags, car lot quantities.

**CAUSTIC SODA**—Steadiness prevails in the caustic soda market. The contract movement is well up to average. Solid caustic soda is quoted at from \$2.55 to \$2.60; while the flake and ground are selling at from \$2.95 to \$3 per 100 pounds, in drums, at works.

**CHINA CLAY**—The china clay market is exhibiting a strong undertone. Contract shipments are moving freely. Imported china clay is quoted at from \$13 to \$21 per ton, ship side; while domestic paper making clay is selling at from \$6.50 to \$12 per ton, at works.

**CHLORINE**—Paper mill demand for chlorine is brisk. Contracts for the forthcoming year are being booked in good volume. Supplies are moving into consumption regularly. Chlorine is quoted at from \$2.15 to \$2.25 per 100 pounds, in car lots, at works.

**ROSIN**—The rosin market continues firm. Paper making gum rosin is now quoted at \$9.80 and wood rosin at \$10.05 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at \$4.12 per 100 pounds, in tank cars, at works.

**SALT CAKE**—Business in the salt cake market is holding up well. Prices are steady. Salt cake is quoted at from \$12 to \$13; chrome salt cake at from \$11 to \$12 per ton, at works; while imported salt cake is selling at from \$12 to \$13 per ton, ship side.

**SODA ASH**—The soda ash market is fairly active. Contract shipments are moving at a steady pace. Prices remain unchanged. Quotations on soda ash, in car lots, at works, are as follows: in bulk, \$1.05; in bags, \$1.20; and in barrels, \$1.50.

**STARCH**—No radical changes transpired in the starch market. The contract movement is normal. Prices are holding to schedule. Special paper making starch is quoted at \$4 per 100 pounds, in bags; and at \$4.27 per 100 pounds, in barrels, at works.

**SULPHATE OF ALUMINA**—The sulphate of alumina market is fairly buoyant. Prices remain steady and unchanged. Commercial grades are quoted at from \$1.35 to \$1.60; while iron free is selling at from \$2 to \$2.25 per 100 pounds, in barrels, at works.

**SULPHUR**—The sulphur market is steady. Yearly contracts are quoted at \$18 per long ton, on orders of 1,000 tons, or over \$20 on smaller quantities. On spot and near by car loads, the quotation is \$21 per ton. All quotations are in car lots, at works.

**TALC**—Demand for talc is fairly persistent. Contract shipments are going forward in good volume. Prices are unchanged. Domestic talc is quoted at from \$16 to \$18 per ton, at eastern mines; while imported talc is selling at from \$23 to \$30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers— Delivered Zone 1			
	Bonds	Ledgers	
100% Rag Ext. No. 1	.36	.37	
100% Rag	.29	.30	
75% Rag	.22	.23	
65% Rag	.19	.20	
50% Rag	.15¼	.16¼	
25% Rag	.13	.14	

Sulphite Bond & Ledgers— Delivered Zone 1			
	Bonds	Ledgers	
No. 1 Sulphite	7.30	8.50	
No. 2 Sulphite	6.50	7.50	
No. 3 Sulphite	6.00	7.00	
No. 4 Sulphite	5.50	6.50	

Book, B Grade, Cases			
S. & S. C.	6.10	6.85	
S. & S. C. Litho.	6.35	7.10	
M. F.	5.95	6.60	
Coated and Enamel	7.15	8.00	
Coated Litho.	7.15	8.00	

Tissues—Per Ream—			
White No. 1	.82½	—	
White No. 1 M. G.	.77½	—	
White No. 1½	.62½	—	
White No. 2	.60	—	
Anti-Tarnish M. G.	.67½	—	
Colored	.80	—	
Kraft	.67½	—	
Manila	.60	—	
Unbleached Toilet	2.60	3.30	
Bleached Toilet	3.94	5.26	

Paper Towels—			
Unbleached	2.10	3.35	
Bleached	3.30	3.70	

Manila—			
No. 1 Jute	9.00	9.25	
No. 2 Jute	7.75	8.50	
No. 1 Wood	4.00	5.25	
No. 2 Wood	3.50	4.00	

Fibre Papers—			
No. 1 Fibre	4.25	5.50	
No. 2 Fibre	4.00	4.75	

(Delivered New York)

News, per ton—			
Roll, contract	41.00	—	
Sheets	46.00	—	

Kraft—			
No. 1 Northern	4.25	4.75	
Standard	4.12½	4.25	
Southern	4.00	—	
Glazed	4.50	—	
Striped	4.75	—	

Boards, per ton—			
News	37.50	40.00	
Chip	35.00	37.50	
Sgl. Mia. Ll. Chip	50.00	52.50	
Jute Lined Chip	50.00	52.50	
Kraft Liners	65.00	67.50	
White Pat. Coated	60.00	62.50	
Binders Boards	67.00	75.00	

Domestic Rags

New Rags (Prices to Mill f. o. b. N. Y.)			
Shirt Cuttings—			
New White, No. 1	8.00	8.25	
Sileasias No. 1	6.25	6.50	
New Unbleached	8.25	8.50	
New Soft Blacks	3.75	4.00	
Blue Overall	6.75	7.00	
Fancy	3.00	3.25	
Washables	2.25	2.50	
Mixed Khaki Cuttings	3.50	3.75	
O. D. Khaki Cuttings	4.25	4.50	

Old Rags			
White, No. 1—			
Repacked	3.25	3.50	
Miscellaneous	2.75	3.00	
White, No. 2—			
Repacked	2.25	2.50	
Miscellaneous	1.75	2.00	
Thirds and Blues—			
Repacked	2.00	2.25	
Miscellaneous	1.90	2.00	

Roofing Rags—			
No. 1	Nominal		
No. 2	1.65	1.70	
No. 3 (bagging)	1.50	1.55	
No. 4	1.50	1.60	
No. 5A	1.40	1.50	

Foreign Rags			
New Rags			
New Dark Cuttings	2.25	2.50	
New Mixed Cuttings	2.00	2.25	
New Light Sileasias	5.50	5.75	
Light Flannelettes	5.50	5.75	
New White Cuttings	7.00	7.50	
New Light Oxfords	4.00	4.50	
New Light Prints	3.00	3.25	

Old Rags			
No. 1 White Linens	7.50	8.00	
No. 2 White Linens	6.50	7.00	
No. 3 White Linens	4.50	5.00	
No. 4 White Linens	2.25	2.50	
No. 1 White Cotton	4.25	4.75	
No. 2 White Cotton	3.25	3.75	
No. 3 White Cotton	2.50	2.75	
No. 4 White Cotton	1.90	2.15	
Extra Light Prints	2.00	2.25	
Ord. Light Prints	1.75	1.85	
Med. Light Prints	1.55	1.65	
Dutch Blue Cottons	2.25	2.50	
French Blue Linens	3.50	4.00	
German Blue Linens	2.50	2.75	
German Blue Cottons	2.00	2.25	
Checks and Blues	2.00	2.25	
Linen Garments	2.15	2.25	
Dark Cottons	1.90	2.18	
Old Shopperies	1.75	2.00	
New Shopperies	1.75	2.00	
French Blues	2.25	2.50	

Old Rope and Bagging (Prices to Mill f. o. b. N. Y.)			
Gunny No. 1—			
Foreign	2.20	2.30	
Domestic	2.15	2.25	
Wool Tares, light	1.50	1.75	
Wool Tares, heavy	1.85	2.05	
Bright Bagging	1.70	1.75	
Manila Rope—			
Foreign	2.75	3.00	
Domestic	3.00	3.25	
Jute Strings	2.75	3.00	
Sisal Strings	2.60	2.75	
Mixed Strings	Nominal		

Old Waste Papers (F. o. b. New York)			
Shavings—			
White Envelope			
Cuttings	2.65	2.75	
Ordinary Hard			
White No. 1	2.25	2.35	
Hard White No. 2	2.10	2.20	
Soft White No. 1	2.00	2.10	
Flat Stock—			
Stitchless	.90	.95	
Over issue Mag.	.90	.95	
Solid Flat Book	.90	.95	
Crumpled No. 1	.50	.55	
Ledger Stock	.95	1.00	
New B. B. Chips	.30	.35	
Manilas—			
New Env. Cut.	1.75	1.85	
New Cuttings	1.35	1.45	
Old Kraft Machine—			
Compressed bales	1.20	1.30	
News—			
No. 1 White News	1.25	1.35	
Strictly Overissue	.60	.70	
Strictly Folded	.50	.55	
No. 1 Mixed Paper	.45	.50	



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## ENGLISH



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- SLITTERS FOR VULCANIZED FIBRE

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Phila., Penna.

**Twines**  
(F. o. b. Mill)  
(Soft Fibre)  
**Coarse Polished—**  
India ..... 14% @ .17 1/4  
Belg. White Hemp ..... 15 1/4 @ .19 1/4  
India Compress ..... 15 1/4 @ .15 3/4  
**Fine Polished—**  
Fine India ..... .21 @ .23

**Unpolished—**  
Box ..... 10% @ .11 1/4  
Paper Makers ..... 10% @ .12 1/4  
Tube Rope ..... 11 1/2 @ .14  
Wall Paper ..... 12 1/2 @ .13 1/4  
Wrapping ..... 16 @ .20  
Soft Fiber Rope ..... 13 1/4 @ .14 1/4  
(Hard Fibre)  
Bond ..... 13 1/2 @ .22  
Anchor ..... 13 @ .14 1/4  
Manila ..... 21 @ .28

**BOSTON**

**Paper**  
**Rag Content Bond & Ledgers—**  
Delivered Zone 1  
Bonds Ledgers  
100% Rag Ext. No. 1 ..... 36 .37  
100% Rag ..... 28 .29  
75% Rag ..... 21 .22  
65% Rag ..... 18 .19  
50% Rag ..... 15 .16  
25% Rag ..... 12 1/2 .13 1/2

**Bagging**  
(F. o. b. Boston)  
**Manila Rope—**  
Foreign ..... 3.00 @ —  
Domestic ..... 2.87 1/2 @ —  
Transmission Rope ..... 1.25 @ 1.35  
Jute Rope ..... 2.12 1/2 @ 2.25  
Jute Carpet Threads. 1.75 @ 2.00  
Gunny No. 1—  
Foreign ..... 2.20 @ 2.25  
Domestic ..... 2.00 @ 2.05  
Bleachery Burlap..... 4.25 @ 4.50  
Scrap Burlap—  
Foreign ..... 2.10 @ 2.15  
Domestic ..... 2.00 @ 2.05  
Scrap Sisal..... 2.10 @ 2.15  
Scrap Sisal for Shred  
ding ..... 2.25 @ 2.35  
Wool Tares, heavy. 2.00 @ 2.10  
New Burlap Cuttings 2.25 @ 2.50  
Australian Wool  
Fouches ..... 2.75 @ 3.00  
Heavy Baling Bagging 2.25 @ 2.65  
Paper Mill Bagging. 1.75 @ 1.80  
Bagging No. 2 ..... 1.30 @ 1.35

**CHICAGO**

**Paper**  
(F. o. b. Mill)  
Rag Bond..... .12 @ .40  
Water Marked Sulphite Bond ..... 0.63 @ .11  
Sulphite Bond ..... 0.55 @ .07 1/4  
Superfine Writing ..... .75 @ .24  
No. 1 M. F. Book ..... 0.6 1/2 @ .07 3/4  
No. 2 M. F. Book ..... 0.5 1/2 @ .06 1/4  
No. 1 S.S.C. Book ..... 0.6 1/4 @ .07 3/4  
No. 2 S.S.C. Book ..... 0.5 1/4 @ .06 1/2  
Coated Label ..... .07 @ .12  
Coated Label ..... .07 @ .08 1/2  
No. 1 Manila ..... 0.4 @ .05 1/4  
No. 1 Fibre ..... 0.4 1/4 @ .05 1/4  
No. 2 Manila ..... 0.4 1/2 @ .04 3/4  
Butcher's Manila ..... 0.3 1/4 @ .03 1/4  
No. 1 Kraft ..... 4.75 @ 5.00  
Southern Kraft ..... 3.88 @ 4.25  
No. 2 Kraft ..... 3.88 @ 4.25  
Wood Tag Boards ..... .04 1/4 @ .06 1/4  
Sulphite Screenings ..... .03 @ .03 1/4  
Manila Tissue ..... 0.5 1/4 @ .07  
White Tissue ..... .07 @ .09  
(Delivered Central Territory)  
News, per ton—  
Rolls, contract ..... 42.00 @ —  
Sheets, open ..... 47.00 @ —  
Boards, per ton—  
Plain Chip ..... 46.50 @ —  
Solid News ..... 50.00 @ —

Manila Lined Chip ..... 55.00 @ —  
Patent Coated ..... 65.00 @ —  
Container Lined—  
85 Test, per 1000 sq. ft. .... 1.70  
100 Test, per 1000 sq. ft. .... 1.85  
**Old Papers**  
(F. o. b. Chicago)  
**Shavings—**  
No. 1 White Envelope Cuttings ..... 1.70 @ 2.00  
No. 1 Hard White. 1.40 @ 1.65  
No. 1 Soft White. 1.25 @ 1.50  
Ledger & Writings. .60 @ .70  
Solid Books ..... .50 @ .60  
Blanks ..... 1.00 @ 1.05  
New Kraft Cuts ..... .80 @ .90  
Manila Env. Cuts ..... 1.25 @ 1.30  
Ex. No. 1 Manila. .90 @ 1.00  
Print Manila ..... .40 @ .50  
Overissue News ..... .40 @ .45  
**Old Newspapers—**  
No. 1 Folded News ..... 42 1/2 @ .45  
No. 1 Mixed Paper ..... 25 @ .30  
**Roofing Stocks—**  
No. 1 ..... 30.00 @ —  
No. 2 ..... 28.00 @ —

**Sulphite Bond & Ledgers—**  
Delivered Zone 1  
Bonds Ledgers  
No. 1 Sulphite ..... 7.50 8.50  
No. 2 Sulphite ..... 6.50 7.50  
No. 3 Sulphite ..... 6.00 7.00  
No. 4 Sulphite ..... 5.50 6.50  
**F.o.b. Mill**  
Book, Super ..... .06 @ .09  
Book, M. F. .... 0.5 1/2 @ .08 1/2  
Book, Coated ..... 0.8 1/2 @ .18  
Coated Litho ..... .09 @ .12  
Jute Manila No. 1. .11 @ .13  
Manila, Sul. No. 1. 0.4 1/4 @ 0.6 1/4  
Manila, Sul. No. 2. 0.3 1/4 @ 0.4 1/2  
No. 1 Kraft ..... 0.4 1/4 @ —  
No. 2 Kraft ..... 0.4 1/4 @ —  
(Delivered New England points)  
Southern Kraft ..... .04 @ —  
News Print Rolls ..... 39.50 @ —  
Sew Board, rolls, 009 ..... @ 35.00  
Filled News Board. 42.50 @ 45.00  
Chip Board ..... 40.00 @ 42.50  
Single Manila Lined  
Chip ..... 50.00 @ 55.00  
Single White, Patent  
Coated News Board  
(Bender) ..... 60.00 @ 65.00  
Wood Pulp Board ..... 70.00 @ 75.00  
Binder Boards (Standard Grade) ..... 67.00 @ 75.00

**Domestic Rags (New)**  
(F. o. b. Boston)  
**Shirt Cuttings**  
New Light Prints. .03 1/2 @ .03 1/4  
New White No. 1. .07 1/2 @ .08 1/4  
New White No. 2. .05 @ .05 1/4  
Silecias No. 1. .06 1/4 @ .07  
New Black Silecias .04 @ .04 1/4  
Soft Unbleached. .08 1/2 @ .09 1/4  
Blue Chevoit ..... .07 @ .07 1/4  
Fancy ..... .03 1/4 @ .03 1/2  
Washable ..... .02 1/4 @ .03  
Cottons—According to grades—  
Blue Overalls ..... 0.6 1/4 @ .07  
New Black. suit. .14 @ .14 1/2  
Khaki Cuttings. .04 @ .04 1/4  
O. D. Khaki ..... 0.4 1/2 @ .04 3/4  
Corduroy ..... .03 @ .03 1/4  
New Canvas. .08 @ .10  
B.V.D. Cuttings ..... .08 @ .08 1/4

**PHILADELPHIA**

**Paper**  
**Rag Content Bond & Ledgers—**  
Delivered Zone 1  
Bonds Ledgers  
100% Rag Ext. No. 1 ..... 36 .37  
100% Rag ..... 28 .29  
75% Rag ..... 21 .22  
65% Rag ..... 18 .19  
50% Rag ..... 15 .16  
25% Rag ..... 12 1/2 .13 1/2  
**Sulphite Bond & Ledgers—**  
Delivered Zone 1  
Bonds Ledgers  
No. 1 Sulphite ..... 7.75 8.75  
No. 2 Sulphite ..... 6.75 7.75  
No. 3 Sulphite ..... 6.00 7.00  
No. 4 Sulphite ..... 5.50 6.50  
**F.o.b. Mill**  
Book, M. F. .... 5.00 @ —  
Book, S. S. & C. .... 5.25 @ —  
Book, Coated ..... 6.15 @ —  
Coated Lithograph ..... 6.15 @ —  
Manila Sul., No. 1. .... 6.75 @ —  
Manila No. 2 ..... 4.25 @ —  
No. 1 Kraft ..... 6.00 @ —  
Southern Kraft ..... 5.00 @ —  
News Print Rolls ..... 40.00 @ —  
Sew Board ..... 40.00 @ —  
Chip Board ..... 37.50 @ —  
Wood Pulp Board ..... 70.00 @ 85.00  
Binder Boards—  
No. 1, per ton ..... 75.00 @ 80.00  
No. 2, per ton ..... 70.00 @ 75.00  
Carload lots ..... 65.00 @ 70.00  
Tarred Felts—  
Regular ..... 52.25 @ 54.25  
Slaters (per roll) ..... .84 @ .94

Khaki Cuttings—  
No. 1 O. D. .... .04 @ .04 1/4  
No. 2 Mixed ..... 0.3 1/4 @ .04  
Corduroy ..... .02 @ .02 1/4  
New Canvas ..... .04 @ .04 1/2  
New Black Mixed. .02 @ .02 1/4  
**Domestic Rags (Old)**  
White No. 1—  
Repacked ..... 4.00 @ 4.50  
Miscellaneous ..... 3.00 @ 3.50  
Thirds and Blues—  
Repacked ..... 2.00 @ 2.25  
Repacked ..... 2.50 @ 2.75  
Black Stockings (Export) ..... 4.50 @ 5.00  
**Roofing Stock—**  
Foreign No. 1. .... 2.20 @ 2.25  
Domestic No. 1. .... 1.50 @ 1.60  
Domestic No. 2. .... 1.40 @ 1.50  
Roofing bagging. .... 1.10 @ 1.20  
**Bagging**  
(F. o. b. Phila.)  
Gunny, No. 1—  
Foreign ..... 2.00 @ —  
Domestic ..... 2.25 @ —  
Manila Rope ..... 2.75 @ —  
Sisal Rope ..... 2.25 @ 2.35  
Mixed Rope ..... 1.00 @ 1.10  
**Scrap Burlaps—**  
No. 1 ..... 2.25 @ 2.50  
No. 2 ..... 1.00 @ 1.10  
Wool Tares, heavy. 3.25 @ 3.50  
Mixed Strings ..... 1.00 @ 1.10  
No. 1 New Light  
Burlap ..... 3.00 @ 3.50  
New Burlap Cuttings 2.50 @ 2.75  
**Old Papers**  
(F. o. b. Phila.)  
**Shavings—**  
No. 1 Hard White. 2.30 @ 2.40  
No. 2 Hard White. 2.10 @ 2.20  
No. 1 Soft White. 1.90 @ 2.00  
No. 2 Soft White. 1.40 @ 1.45  
No. 1 Mixed ..... .85 @ .85  
Solid Ledger Stock. 1.50 @ 1.60  
Ledger Stock, white. 1.15 @ 1.20  
Ledger Stock, colored. 85 @ .90  
No. 1 Books, heavy. .70 @ .75  
Manila Cuttings ..... 1.80 @ 1.90  
Print Manila ..... .55 @ .60  
Container Manila ..... .55 @ .60  
Kraft Paper ..... 1.10 @ 1.20  
No. 1 Mixed Paper. .45 @ .50  
Sew Board Chip. .40 @ —  
Binders Board Chip. .40 @ —  
Corrugated Board. .60 @ .65  
Overissue News ..... .70 @ .75  
Old Newspapers ..... .50 @ .55

**Old Papers**  
(F. o. b. Boston)  
**Shavings—**  
No. 1 Hard White. 2.20 @ 2.35  
No. 1 Soft White. 1.85 @ 2.15  
No. 2 Mixed ..... .75 @ .80  
Solid Ledger Books. 1.50 @ 1.75  
Overissue Ledger ..... 1.15 @ 1.30  
Stock ..... .85 @ .90  
Mixed Ledgers ..... .85 @ .90  
No. 1 Books, heavy. .80 @ .90  
No. 1 Books, light. .50 @ .60  
Crumpled Stitchless  
Book Stock ..... .50 @ .60  
Manila Env. Cuttings 1.50 @ 1.60  
Stock quality ..... 1.75 @ 1.85  
No. 1 Old Manila. .60 @ .65  
White Blank News. 1.10 @ 1.15  
No. 1 Kraft ..... 1.35 @ —  
Mixed Papers ..... 42 1/2 @ .47 1/2  
Print Manila ..... .60 @ .70  
Container Manilas. .27 1/2 @ —  
Old Newspapers ..... .50 @ .55  
Overissue News ..... .50 @ .65  
Box Board Chips ..... 40 @ 45  
Corrugated Boxes ..... .95 @ .60  
Kraft corrugated boxes .50 @ 1.00  
Screening Wrappers. .55 @ .60

**Domestic Rags (Old)**  
(F. o. b. Boston)  
Canvas ..... 0.4 1/2 @ —  
White No. 1—  
Repacked ..... @ 2.75  
Miscellaneous ..... 2.50 @ 2.75  
White No. 2—  
Repacked ..... 1.90 @ 2.00  
Miscellaneous ..... 1.75 @ 2.25  
Two and Blues ..... 1.75 @ 2.00  
Repacked ..... 1.37 1/2 @ 1.75  
Miscellaneous ..... 1.25 @ 1.62 1/2  
Black Stockings ..... 3.90 @ 4.00  
**Roofing Stock—**  
No. 1 ..... 1.75 @ 1.80  
No. 2 ..... 1.65 @ 1.70  
No. 3 ..... 1.30 @ 1.35  
**Foreign Rags**  
(F. o. b. Boston) @ 2.10  
Dark Cottons ..... 1.95 @ 2.10  
New White Shirt  
Cuttings ..... 6.50 @ 6.75  
Dutch Blue ..... 2.25 @ 2.50  
New Checks & Blues 2.50 @ 3.00  
Old Fustians ..... 2.05 @ 2.25  
Old Linsey Garments 2.25 @ 2.50  
New Silecias ..... 5.75 @ 6.00

**TORONTO**

**Domestic Rags (New)**  
(Price to Mill, f. o. b. Phila.)  
**Shirt Cuttings—**  
New White, No. 1. .08 @ .08 1/4  
New White, No. 2. 0.4 1/4 @ .05  
Light Silecias ..... 0.5 1/2 @ —  
Silecias No. 1. .... 0.4 1/4 @ .05  
Black Silecias, soft. 0.3 1/4 @ .04  
New Unbleached. .06 @ —  
Washable, No. 1. .02 @ .02 1/4  
Blue Overall ..... .07 @ .07 1/2  
Cottons—According to grades—  
Washable, No. 2. .02 1/2 @ .04 1/2  
New Blue ..... .02 @ .02 1/4  
Fancy ..... .03 @ —  
New Black Soft. .... .04 @ .04 1/2  
New Light Seconds 0.3 1/4 @ .04  
New Dark Seconds 2.00 @ 2.25

**Book—Delivered—**  
No. 5 White ..... 10 1/4 @ —  
No. 6 White ..... 10 @ —  
No. 5 Tints ..... 11 1/4 @ —  
No. 6 Tints ..... 10 1/2 @ —  
No. 5 Golden Rod. 12 1/4 @ —  
No. 6 Golden Rod. 12 @ —  
**Ledgers—**  
Ledgers, No. 1 ..... 34 1/2 @ —  
Ledgers, No. 2 ..... 25 1/2 @ —  
Writing ..... .09 @ .09 1/2  
**Book—**  
No. 1 M. F. .... 6.50 @ 6.75  
No. 2 M. F. .... 6.25 @ 6.50  
No. 3 M. F. .... 5.00 @ 5.35  
No. 2 S. C. .... 6.50 @ 7.00  
No. 3 S. C. .... 5.50 @ 6.00  
No. 1 Coated and  
Litho ..... 12.00 @ —  
No. 2 Coated and  
Litho ..... 10.50 @ —  
No. 3 Coated and  
Litho ..... 9.50 @ —  
Coated tinted ..... 13.00 @ —  
**Wrapping—delivered—**  
Rag Brown ..... 4.75 @ —  
White Wrap ..... 3.50 @ —  
"B" Manila ..... 4.80 @ —  
No. 1 Manila ..... 3.40 @ —  
Fibre ..... 3.40 @ —  
Kraft, M. F. .... 5.90 @ —  
Kraft, No. 2 ..... 5.40 @ —

**Paper**  
**Bond—Delivered—**  
No. 5 White ..... 10 1/4 @ —  
No. 6 White ..... 10 @ —  
No. 5 Tints ..... 11 1/4 @ —  
No. 6 Tints ..... 10 1/2 @ —  
No. 5 Golden Rod. 12 1/4 @ —  
No. 6 Golden Rod. 12 @ —  
**Ledgers—**  
Ledgers, No. 1 ..... 34 1/2 @ —  
Ledgers, No. 2 ..... 25 1/2 @ —  
Writing ..... .09 @ .09 1/2  
**Book—**  
No. 1 M. F. .... 6.50 @ 6.75  
No. 2 M. F. .... 6.25 @ 6.50  
No. 3 M. F. .... 5.00 @ 5.35  
No. 2 S. C. .... 6.50 @ 7.00  
No. 3 S. C. .... 5.50 @ 6.00  
No. 1 Coated and  
Litho ..... 12.00 @ —  
No. 2 Coated and  
Litho ..... 10.50 @ —  
No. 3 Coated and  
Litho ..... 9.50 @ —  
Coated tinted ..... 13.00 @ —  
**Wrapping—delivered—**  
Rag Brown ..... 4.75 @ —  
White Wrap ..... 3.50 @ —  
"B" Manila ..... 4.80 @ —  
No. 1 Manila ..... 3.40 @ —  
Fibre ..... 3.40 @ —  
Kraft, M. F. .... 5.90 @ —  
Kraft, No. 2 ..... 5.40 @ —

**Pulp**  
Ground wood ..... 27.00 @ —  
Unbleached Sulphite. 42.00 @ —  
Book (Class 1) ..... 59.00 @ —  
Writing (Class 2) ..... 59.00 @ —  
Select (Class 3) ..... 60.00 @ —  
**Old Waste Paper**  
(In carload lots, f. o. b. Toronto)  
**Shavings—**  
White Env. Cut. . 2.00 @ 2.25  
Soft White ..... 1.60 @ 1.90  
White Bk. News. . 1.25 @ 1.40  
**Book and Ledger—**  
Flat Magazine and  
Book Stock (old) .80 @ .90  
Light and Crum-  
pled Book Stock. .70 @ .80  
Ledgers and Writ-  
ings ..... .90 @ 1.00  
**Manilas—**  
New Manila Cut. . 1.20 @ 1.40  
Printed Manilas. . 55 @ 1.60  
Kraft ..... 1.00 @ 1.60  
**News and Scrap—**  
Strictly Overissue. . 55 @ .60  
Strictly Folded. . 50 @ .55  
No. 1 Mixed Paper. . 40 @ .45  
**Domestic Rags**  
(Price to mills, f. o. b. Toronto)  
No. 1 White Shirt  
Cuttings ..... .07 @ .08 1/4  
Fancy Shirt Cuttings .03 @ .03 1/4

# PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD President JOSEPH F. HORGAN Secretary

Published at 34 No. Crystal St., East Stroudsburg, Pa.  
Executive and Editorial Office: 15 West 47th Street, New York  
Chicago Office: 123 West Madison St.

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## FOR PUMPS HANDLING CAUSTIC SODA USE



It withstands the washing-out tendency of Caustic and kindred alkalis because it carries a lubricating compound to resist these liquids.

## Pump Failures would be less frequent IF

the proper packing were selected to resist the destroying action of the liquids pumped.

Each strand separately lubricated before braiding, keeping the packing soft and pliable, with no scoring of pump shafts, or the necessity of frequent renewals.



## ALKALIS WILL NOT SAPONIFY THE LUBRICANT IN "CUTNO" PACKING.

Our ABC chart of services shows which is the proper packing to use. Ask for it.

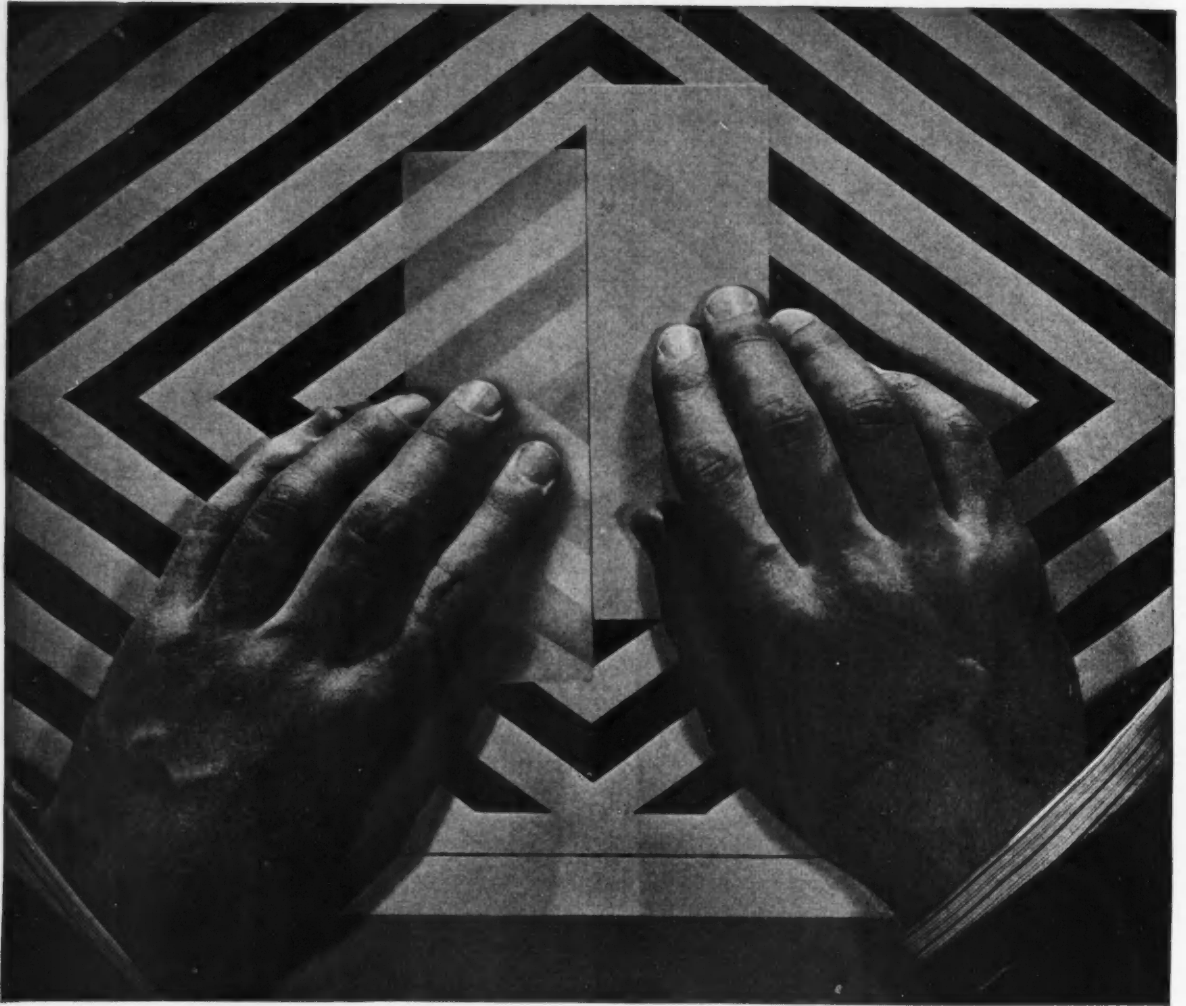


Send for free working sample for test. State size of packing used.

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