

PULP AND PAPER OF

EVERY DESCRIPTION

HUDSON TRADING COMPANY

300 Madison Avenue
NEW YORK

ESTABLISHED 1884

CABLE ADDRESS: "HUDTRACO," NEW YORK

DANA T. McIVER

High Grade Printing Paper

116 So. Michigan Avenue
CHICAGO

BOOK AND COATED PAPER

Car Lot and Tonnage Contracts

STEARNS WOOD TANKS

STORAGE TANKS ACID TOWERS
BLOW PITS PENSTOCKS
ETC.

*Our Engineering
Department is
at your Service*



The A. T. Stearns Lumber Company

Established 1849

125 Taylor St., Neponset, Boston, Mass.

Cutting Dies



The success of cutting Dies requires skilful workmanship. We believe we can guarantee you this class of *Quality and Service*.

We specialize on Dies for all classes of particular work.

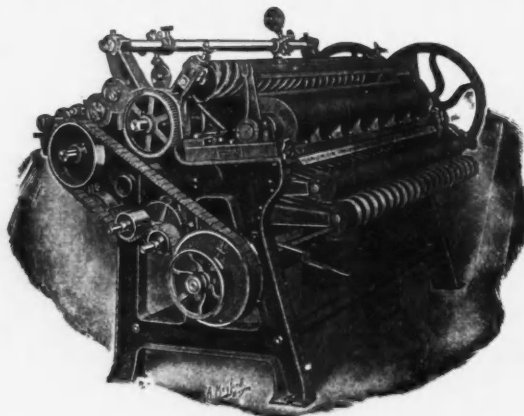
Send us your specifications.

The Hoggson & Pettis Mfg. Co.

New Haven, Conn., U. S. A.

Paper Cutters

Single, Duplex and Diagonal



Cutter Knives Patent Top Slitters

HAMBLET MACHINE CO.

Lawrence, Mass.

CASEIN

**Standard Quality
Lowest Prices**

**The Casein Manufacturing
Company**

15 Park Row New York

Uniformity

Hercules Wood Rosin is uniform in color and quality. It is clean, free from dirt, sticks, and other foreign substances. The supply is dependable. For sizing all but the very white papers it is equal or superior to gum rosin.

The production of Hercules Wood Rosin in our three big plants is under the strictest chemical control. This insures adherence to your specifications and no variation from one lot to another.

If your requirements are of a special nature, our technical staff will be glad to co-operate with you.

HERCULES POWDER CO.
Wilmington Delaware

SALES OFFICES:

New York, N. Y.	St. Louis, Mo.
Chicago, Ill.	Louisville, Ky.
San Francisco, Cal.	Buffalo, N. Y.
Chattanooga, Tenn.	Duluth, Minn.



**HERCULES
Naval Stores**
Produced Under Chemical Control

ALVAH MILLER, Pres. TOM T. WALLER, Vice-Pres.
NATH'L L. MILLER, Secy-Treas.

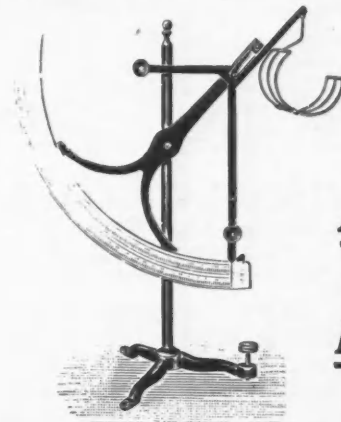
Craig-Becker Company

INC.

**Domestic and Foreign
Ground Wood and
Sulphite**

**52 VANDERBILT AVE.
NEW YORK CITY**

SCHOPPER STANDARD PAPER TESTERS



**Are
the
Best**

Full Sheet Paper Scale

Standard Scale for telling actual weight per ream of 480 and 500 sheets in the size of the sheet that is weighed. Graduated $\frac{1}{4}$ to 125 lbs. Brass weight comes with the Scale to double its capacity.

FOREIGN PAPER MILLS, Inc.

U. S. A. Sole Agents CANADA
72 Duane Street New York, N. Y.

The Pulp and Paper Trading Co.
21 East 40th Street New York City

**DEALERS IN DOMESTIC CHEMICAL AND
MECHANICAL PULPS AND PAPER**

AGENTS FOR

J. & J. Rogers Company, Ausable Forks, N. Y.

Ware Coated Paper Company, Ware, Mass.

Procter & Gamble Distributing Co.

Mills at Augusta, Georgia, and Memphis, Tenn.

Canadian Kraft Limited, Three Rivers, Canada

Dealers in Wayagamack Kraft Pulp

EASTERN AGENTS of Sulphite Pulp. Made by
Port Huron Sulphite & Paper Co., Port Huron, Mich.

J. ANDERSEN & CO.

FREDERICK BERTUCH, SPECIAL PARTNER

21 East 40th Street, New York City

**Importers of Chemical Pulp
BLEACHED AND UNBLEACHED**

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edavilla, Sweden;
Bergvik and Ala Nya Aktiebolag, Soderhamn, Sweden
Scandinavian Export Agents

TEXAS GULF SULPHUR CO., TEXAS CITY, TEXAS



Best way to assure your-
self of Jenkins Service

is to use genuine Jenkins Valves.

The Jenkins "Diamond" and signa-
ture are cast on the body of Jenkins
Valves. It is your protection from
imitations and Jenkins Bros. guarantee
of dependability and service.

Valves of brass, iron, and steel in
types and sizes to meet all require-
ments.

JENKINS BROS.

New York Boston Philadelphia Chicago
Montreal London



Jenkins Valves
SINCE 1864 2428-J

**LOBDELL
CALENDERS**

Equipped with Electric Motor Lift, Hydraulic
Lift or Ratchet Lift all operated from the floor.

Chilled Iron
Rolls
of all sizes

Roll
Grinding
Machines

Micrometer
Calipers



LOBDELL CAR WHEEL CO.
Wilmington, Del., U. S. A.

The White Tar Aniline Corp.

56 Vesey Street, New York


Works: Kearny, N. J.

MANUFACTURERS OF

WHITAR
TRADE MARK. RE-ILL'S PAT. OFF.

COLORS FOR PAPER

OUR COLORS ARE OF HIGHEST CONCENTRATION
AND ENTIRE UNIFORMITY



TOILETS-TOWELS-NAPKINS
 All Varieties Rolls and Interfolded Flat and Folded

Backing up the Jobber
With Our Quality Service

The first order may be sold by the salesman. Successive purchases are made because of satisfactory conditions surrounding the first sale. Our aim is to supply the Jobber with goods and service that will not only assist the salesman in selling, but in keeping the customer sold.

Fort Howard Paper Co.
 Green Bay, Wisconsin

**Box Board
 Paper Board Specialties**

Every Grade
 Every Kind
 Every Requirement

Most Reasonable Prices

The C. L. LaBoiteaux Co.

Cincinnati Cleveland Chicago New York

Daily Capacity of 600 Air-Dry Tons

The extent
 of our production of
**High Grade
 BLEACHED
 Sulphite Fibre**
 insures uniform quality, prompt
 shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY CHICAGO
 Woolworth Bldg. 110 So. Dearborn St.

**West Virginia Pulp
 and Paper Company**

Manufacturers of

**Supercalendered and Machine
 Finished Book and
 Lithographic Papers**

Offset, Envelope and Music
 Paper, High Grade Coated
 Book and Label Papers

also

Bleached Spruce Sulphite and Soda Pulp

200 Fifth Avenue
 New York

732 Sherman Street
 Chicago

The
St. Regis Paper Company
 and the
Hanna Paper Corporation

Daily Capacity, 425 Tons

Newsprint
 Catalog
 Butchers' Manila
 Packers' Oiled Manila
 Jute Container Board
 Ground Wood and Unbleached Sulphite

Manufacturers of
TARZAN Fibre Shipping Cases

General Sales Office:
 30 East 42nd St. New York

TEXAS GULF SULPHUR

99½ Per Cent. Pure.

Produced from one
 of the largest known
 deposits in the world.

Texas Gulf Sulphur Company

General Offices
 41 East 42nd Street, New York, N. Y.

*Sulphur Deposit and Plant, Matagorda
 County, Texas*

COLLINS MANUFACTURING COMPANY

SAMUEL R. WHITING, Pres. and Treas.

Manufacturers of
LOFT DRIED PAPERS
LEDGERS
BONDS
WRITING PAPERS

Mill: North Wilbraham, Mass.
Main Office:
 208 Race Street
 Holyoke, Mass.

Starch

Paper manufacturers generally recognize the value of starch in the manufacture and coating of paper.

To obtain definite results in any desired direction in the preparation of paper, not merely a difference of grade, but a difference of kind or variety of starch is required.

Our carefully controlled and thoroughly standardized processes enable us to produce exactly the various starches which the paper industry has found economical and efficient.

Corn Products Refining Company
 17 Battery Place New York

Starch

Tower Permanence



Invest in a Caldwell Structural Tower and you have the permanence of a sky-scraper. It will serve you without depreciation and the need of costly repairs for a life-time.

The same latticed steel construction used in sky-scrappers and bridges—the highest type of steel construction known—is used in this tower. It is designed by engineers and constructed according to engineering principles. It is the tower for those who realize the economy of a permanent investment.

Send for catalog

W. E. Caldwell Co.
Incorporated
2040 Brook St., Louisville, Ky.

Caldwell
TANKS
AND
TOWERS

1864

1922

“EXCELSIOR” FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
atin Style felts for finish.
pecial felts to meet every condition.
end us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY

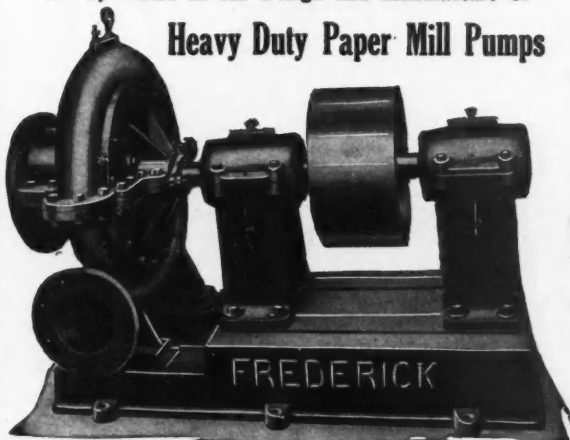
75-77 Duane St., N. Y., and direct

FREDERICK

Pulp and Paper Mill Pumps

We Specialize in the Design and Manufacture of

Heavy Duty Paper Mill Pumps



The Frederick Iron & Steel Co.
FREDERICK—MARYLAND—U. S. A.

Offices in principal cities.

POTDEVIN'S

20

PAPER BAG MACHINES

TUBERS and BOTTOMERS for

Printed Glacine Bags,
Printed Garment Tubes,
Nail Bags, Sacks & all other types.

POTDEVIN MACHINE CO.

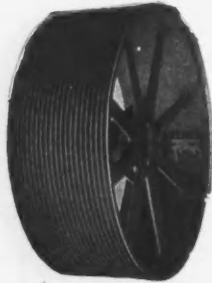
1223—38th Street

Brooklyn, N. Y.

THE HILL CLUTCH CO.

Hill Clutch Equipment

should not be confused with the lighter lines of power transmission machinery as ordinarily carried in stock by supply houses.



Standard Cast-iron
Rope Sheave

We build equipment fitted for the job and not for the shelves.

Put your transmission problems up to the Hill Clutch Company's engineers. This service is absolutely free and places you under no obligation.

We manufacture a complete line of efficient power transmission machinery, including the well known Hill Friction Clutch (Smith Type) and Hill Collar Oiling Bearing.

Catalog and Bulletins upon request

THE HILL CLUTCH CO.

General Office and Plant
Cleveland, Ohio

New York Office
50 Church St.

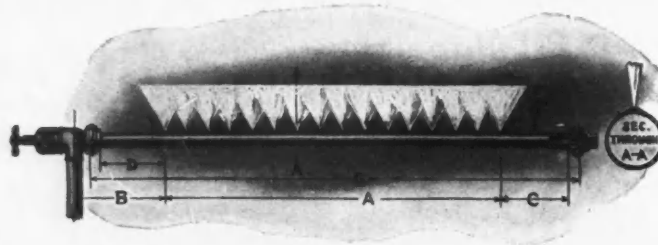
**APPLETON
FELTS**

**Quality
Service**

**APPLETON
Felts and Jackets**

**APPLETON WOOLEN
MILLS**

APPLETON, WIS.

THE VEDDER "RAINSTORM" SHOWER PIPE

MANUFACTURED BY

THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

ESTABLISHED 1828

*A Complete Line of
Paper Bag Making
Machinery.*

**BUILDERS OF
DEPENDABLE MACHINERY
FOR
THE PAPER MILL**

*Undercut and Overcut
Trimmers.
Die Cutting Presses.*

BOLTON QUALITY

If you have ever used *any* of the Bolton products, Fly Bars, Bed Plates, Jordan Fillings, or Knives of any kind, you found them *HIGH GRADE* in quality and finish and economical in cost.

You can order any of the Bolton Quality line and know that you will find same equally *High Grade*, equally *well finished*, and equally *economical*.

JOHN W. BOLTON & SONS, Inc.
LAWRENCE, MASS.

*High Grade Fly Bars, Bed Plates, Jordan
Fillings and Knives*

HELICOID CONVEYOR

CONTINUOUS flights (without laps or rivets), and heavier flights on larger pipe, make Caldwell Helicoid Conveyor by far the best on the market. It is the recognized standard conveyor of this type.

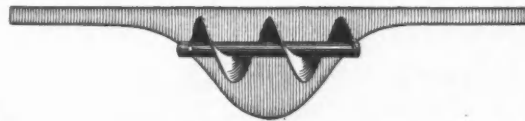
The price is no more than for ordinary screw conveyor.

H. W. CALDWELL & SON CO.

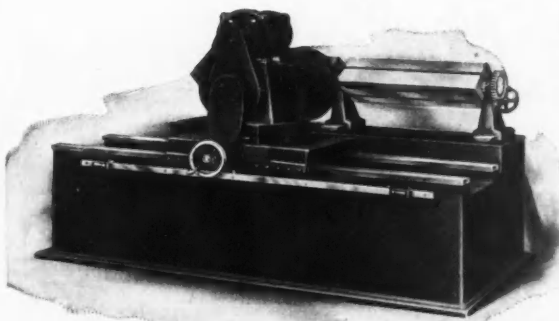
LINK-BELT COMPANY, OWNER

Dallas, Texas, 709 Main Street—Chicago, 17th Street and
Western Ave.—New York, Woolworth Bldg.

CALDWELL



IMPROVED PAPER KNIFE GRINDING



A matter of consistent, constant, longtime development from many years of experience in perfecting automatic grinding constructions,—the survival of the fittest.

Economy in expense and space, rapidity, accuracy, and durability of service, full automatic grinders only half as long as the older type machines, compact, massive design, simple construction, few parts to wear, yet full automatic in every respect, and accurate to the 1/1000 of an inch, are outstanding features of our latest developments in paper knife grinding.

Full Automatic Grinder—Stationary Knife

Write for catalog and prices.

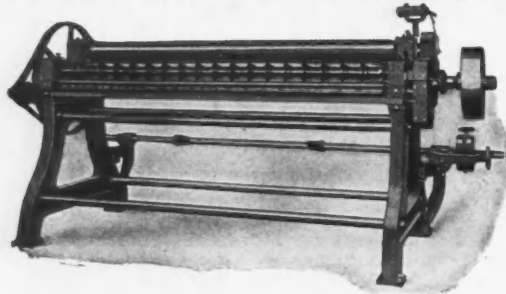
MACHINERY COMPANY OF AMERICA

BIG RAPIDS, MICH., U. S. A.

534 First Ave., South, Seattle, Wash.

The "Dietz" Toilet Paper Machines

For making Toilet Paper Rolls with or without perforations



Self-Adjusting—Easy to Operate
WE ALSO MANUFACTURE

AUTOMATIC TUBE MACHINES

FOR MAKING TUBES FOR TOILET PAPER ROLLS
CAPABLE OF PRODUCING 3,600 WIRE STITCHED
TUBES PER HOUR

Also machines for making Sanitary Crepe Paper Towels, Slitting and Rewinding Machines, Drop Roll Slitters, Side and Center Seam Merchandise Envelope Machines, Photo Mount Beveling Machines, Candy Bag Machines, Punch Presses for Playing Cards, Rotary Card Cutting and Collating Machines, Etc. CORRESPONDENCE SOLICITED.

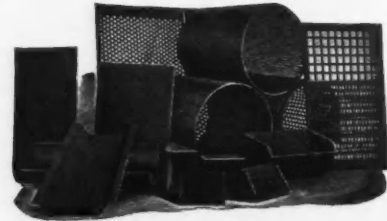
DIETZ MACHINE WORKS

126-128 Fountain St., Philadelphia, Pa.
Corner Waterloo St., Below Diamond St., Bet. Front and 2nd Sts.

PERFORATED METAL SCREENS

IN STEEL AND ALLOYED METALS

For Pulp and Paper Mills



Elevator Buckets, Conveyor Flights
and Troughs, General Sheet and
Light Structural Work

Light and Heavy Steel Plate Construction

HENDRICK MANUFACTURING CO.

75 Dundaff Street, Carbondale, Pa.
New York Office, 30 Church St.
Pittsburgh Office, 544 Union Arcade Building

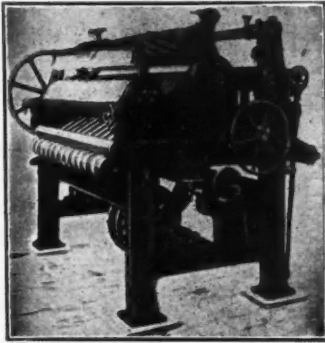
The Sandy Hill Iron & Brass Works

Hudson Falls, N. Y.

Manufacturers of **Paper and Pulp
Mill Machinery**

THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.
PAPER MILL MACHINERY
LEE, MASS.



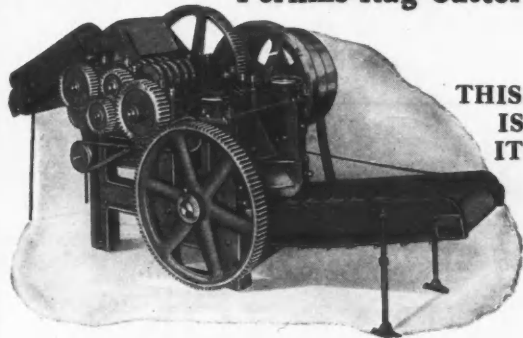
Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—

Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

If You *are cutting your rags by hand, the PERKINS RAG CUTTER will cut your payroll in half.*

And IF YOU are using some other machine for cutting rags, we will guarantee to show you how to make a great saving in waste products and also in cost of power with the

Perkins Rag Cutter



THIS IS IT

Write for Full Information

about the Perkins Rag Cutter, Perkins Fans, Perkins Rolls, the Mullen Paper Tester, and the new Perkins Tensile Tester for paper to Dept. P6.

B. F. Perkins & Son, Inc., Holyoke, Mass.

If you have trouble from wear
Trouble from clogging
Trouble from felt impressions

try the felt that has been developed through scientific methods of research and testing, the—

KENWOOD TISSUE FELT

A long series of experiments and tests has designed and woven these felts

- to run with the minimum of clogging, either from stock, from chemicals, or from impurities in water
- to give long wear
- to eliminate felt marks.



Kenwood Tissue Felts give satisfaction because these important factors have been worked out in a harmonious balance.

Users find that Kenwood Tissue Felts require less beating, less pressure on rolls and lower gauge on suction boxes.

F. C. HUYCK & SONS
Kenwood Mills, Albany, N. Y.

Manufacturers of Felts and Tan Jackets for All Papers, Boards and Paper Machines.

WANS LAGERLOEF, Pres. and Treas.
ORVAR HYLIN, Vice-President
MAURICE LONDON, Secretary

Telephones
 Murray Hill 4246
 4247



Lagerloef Trading Company, Inc.

52 VANDERBILT AVENUE, NEW YORK, N. Y.

Sole Agents in U. S. A., Canada, Mexico and Cuba for

FINNISH CELLULOSE ASSOCIATION, HELSINGFORS, FINLAND
 AND
FINNISH WOOD PULP UNION, HELSINGFORS, FINLAND



BLEACHED SULPHITE

FOR

Writing, Book and Tissue Papers

PARSONS
Pulp and Lumber Co.

EDWIN J. DEWEY, Manager Pulp Sales

Office, 1207-1210 Finance Bldg.,
 PHILADELPHIA, PA.

Mills at
 PARSONS, WEST VA.

E. J. KELLER COMPANY
 INCORPORATED

200 FIFTH AVENUE
 NEW YORK

FOREIGN AND DOMESTIC
 PAPER MAKERS' SUPPLIES
 CHEMICAL AND MECHANICAL PULPS
 COTTON, JUTE AND FLAX WASTES
 EAST INDIA MERCHANDISE

Blotting Paper of the Best Quality

MANUFACTURED BY

THE EATON-DIKEMAN COMPANY

LEE, MASS.

Manufacturers of Blotting, Matrix, Filter and all other grades of absorbent papers.

Registered brands Magnet and Columbian, also Lenox and Arlington.

SEND FOR SAMPLES AND PRICES

ESTABLISHED 1851

IRA L. BEEBE

CYRUS E. JONES

IRA L. BEEBE & CO.

132 Nassau St., New York

IMPORTERS AND DEALERS IN



WOOD PULP

GREASEPROOF PARCHMENT PAPERS

OF STANDARD QUALITY

Purity

Quality Plus

Ashmere

Equally Fine

Berkshire

Stands the Test

OUR PAPERS ARE EXCELLENT FOR MEAT MARKETS, GROCERS AND GENERAL PACKING HOUSE REQUIREMENTS

Mountain Mill Paper Co.

(Write for Samples and Quotations)
 MILLS AND GENERAL OFFICES
 125 Forest Street, Lee, Mass.

We offer a full line of

COLOURS

and furnish precise directions on application for

Beater Dyeing, Staining and Coating

Half a century's experience enables us to furnish goods answering requirements
and to give reliable service

THE HELLER & MERZ CO.

BOSTON

CHICAGO

NEW YORK

PHILADELPHIA

SPRINGFIELD, MASS.

REMEMBER

HYDE

ACID RESISTING

BRONZE

C A S T I N G S

WILL SHOW BY ANALYSIS THE EXACT MIXTURE
YOUR ORDER CALLS FOR

MANUFACTURED BY

HYDE WINDLASS CO., Bath, Maine



MAKING THINGS EASY

for the Machine Crew.

Can be done with our

Metal Savealls.

They are stiff, light and very
easily handled.

Made of acid resisting material.



Enquire of

BELOIT IRON WORKS

BELOIT, WIS.



MEMBER OF THE A. B. C.

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

FIFTIETH YEAR

PUBLISHED EVERY THURSDAY BY THE

LOCKWOOD TRADE JOURNAL COMPANY, INC.

LESLIE R. PALMER, President

J. W. VAN GORDON, Vice-President

Telephone { 2380 }
 { 2381 } Vanderbilt
 { 2382 }

10 EAST 39TH ST., N. Y., U. S. A.

Cable Address Catchow, New York

Western Publication Office—431 S. Dearborn Street, Chicago
New England Office—Room 46, 127 Federal Street Boston

Washington Office—L. M. Lamm, 63 Home Life Bldg.
Western New England News Office—Michael Connor, Holyoke
London Office—Stonhill & Gillis, 58 Shoe Lane

THE PAPER TRADE JOURNAL is the pioneer publication in its field, and has for many years been the recognized Organ of the Paper and Pulp Industry. Its circulation is greater than the combined circulation of all other publications in the field. Entered at New York Post Office as second-class mail matter.

Terms of Subscription

UNITED STATES AND MEXICO.....Per year, \$4; 6 months, \$2; 3 months, \$1
CANADA AND FOREIGN COUNTRIES IN POSTAL UNION.....Per year, \$6
SINGLE COPIES10 cents

Other Publications of Lockwood Trade Journal Company, Inc.

AMERICAN STATIONER AND OFFICE OUTFITTER (Weekly).....Per year, \$3
LOCKWOOD'S DIRECTORY OF THE PAPER STATIONERY AND ALLIED TRADES (Annual) }Per copy, \$7

Vol. LXXIV. No. 22

NEW YORK AND CHICAGO

Thursday, June 1, 1922

Table of Contents

News of the Trade:

	PAGE
Production of all Paper for April	16
Howard Paper Co. Makes Improvements	17
Atlas Paper Co. Formed at San Francisco	17
Summer Quiet Comes to Philadelphia	18
Paper Trade Assn. Elects	18
Kalamazoo Ready for Meeting	20
New York and New England Salesmen to Meet	20
Protest Against Swedish Kraft	20
Boston Merchants Hustle for Business	22
Maine Superintendents Hold Successful Meeting	24
Canadian Industry Sound Financially	30
Canada's Pulp and Paper Exports	30
New York Trade Jottings	34
Bagley & Sewell May Make Screens	34
Oppose Duty on Casein	34
Hammond Paper & Bag Co. Formed	34
Paper Men Show Lines at Candy Exhibit	34
Program for Cost Assn. Convention	36
Price of Brass Fourdrinier Wires	36
Conditions in Chicago Improve	36
Charleston Paper Co. Buys Nitro Plant	41
Paper Mill Employment and Wages	41
Spanish River Mills To Use Hydro Plane	41
Kimberly-Clark Co. Orders Textbooks	41
Production of News Print for April	56
News Print Production Loss	56
Publishers' Tonnage of News Print	56
Jobbers' Tonnage of News Print	56
Recent Incorporations	58
Bids and Awards for Government Paper	58
Imports and Exports of Paper and Paper Stock	64

Editorial:

	PAGE
The Need for Enterprise	40
Foreign Trade Recommendations	40

Technical Section:

Waste in the Pulp and Paper Industry	43
Use of Continuous Centrifugal in Soda Pulp Mill	44
Computing the Pulp Furnish	45
A Dictionary of Paper Terms	46
Current Paper Trade Literature	50
Beet Pulp as a Substitute for Wood Pulp	50
Handling Liquid Chlorine	51
Coating Paper with Metals or Mica	52
Volume of Air Required in Air Drying	53
Improving Performance of Steam Boilers	54
Methods of Furnishing Stock	55

General Section:

Better Paper for Money and Bonds	54
China to Operate Mill on Government Basis	54
Join Paper Men in Opposing Casein Tariff	55

Obituary:

George F. Hewitt	32
J. Howard Welch	32

Market Review:

New York Market Review	62
Market Quotations	63
Miscellaneous Markets	66

Want and For Sale Advertisements, Pages 68 and 69

PRODUCTIONS OF ALL PAPERS DURING THE MONTH OF APRIL

According to Statistics Just Furnished by the Federal Trade Commission, Stocks of All Grades Except Wrapping, Fine and Hanging, Increased During the Month—Mill Stocks of News Print at the End of the Month Equaled Six Days' Average Output, of Book Paper Equaled Thirteen Days' Average Output and of Paper Board Eleven Days' Average Output.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 1, 1922.—The attached tabulation is a summary of production, shipments, and stocks of paper mills in the United States as reported to the Federal Trade Commission for the month of April, 1922. This summary is compared with the month of April, 1918 to 1921, inclusive.

The average production for all grades, except Boxboard, is based upon the production for the years 1917 to 1921, inclusive, and the average stocks are based upon the stocks carried for the years 1918 to 1921, inclusive.

Figures for Boxboard prior to March, 1920, were included in Paperboard. The average production and stocks for Boxboard are based upon the figures tabulated during the period March, 1920, to December 31, 1921.

The production has been classified for convenience into 12 grades, according to the grades of paper manufactured by the reporting mills. Some mills making several grades appear in more than one group which causes duplication in the body of the tonnage tables in the number of mills.

For each grade the number of mills includes all mills commonly operating on that grade, regardless of whether they produced any tonnage of that particular grade during the month. In other words, it includes all mills reporting either production or merely stocks or shipments of that grade.

The stocks of paper carried by different mills depend not only upon the condition of the market but also upon the kind of paper made, trade customs, etc.

Tonnage Summary

Production, Shipments and Stocks of Paper, by Grades, for the month of April, 1922, compared with April, 1921, 1920, 1919 and 1918, together with average production and stocks.

Grade	Number of mills	Stocks on hand first of month Net tons	Production Net tons	Shipments Net tons	Stocks on hand end of month Net tons
News Print (Standard and Special Grade of News):					
April, 1922.....	79	28,180	111,861	115,167	24,874
April, 1921.....	88	41,789	115,408	122,091	35,106
April, 1920.....	89	27,564	128,269	134,160	21,673
April, 1919.....	70	31,932	116,278	111,825	36,385
April, 1918.....	66	26,984	111,480	113,600	24,864
Average.....	...	...	110,000	...	25,307
Standard News:					
April, 1922.....	65	23,298	105,079	108,276	20,101
April, 1921.....	67	35,517	105,855	111,792	29,580
April, 1920.....	75	25,104	118,917	124,936	19,085
April, 1919.....	51	24,869	107,445	101,078	31,236
April, 1918.....	50	20,699	101,497	103,305	18,891
Average.....	...	...	99,700	...	20,900
Book (M. F. S. S. C. and Coated):					
April, 1922.....	91	38,367	70,507	71,507	37,367
April, 1921.....	92	37,721	51,380	50,846	38,255
April, 1920.....	95	24,496	95,251	92,746	27,001
April, 1919.....	88	32,823	67,628	65,306	35,145
April, 1918.....	90	27,654	76,702	75,505	28,851
Average.....	...	...	73,325	...	30,305

Grade	Number of mills	Stocks on hand first of month Net tons	Production Net tons	Shipments Net tons	Stocks on hand end of month Net tons
Paperboard—Total (Straw Fiber, Leather, Chip, etc.):					
April, 1922.....	229	71,986	164,327	166,557	69,756
April, 1921.....	236	67,394	128,186	124,800	70,780
April, 1920.....	242	39,441	199,395	191,898	46,938
April, 1919.....	234	60,387	138,802	136,927	62,262
April, 1918.....	227	35,312	162,836	159,754	38,394
Average.....	...	...	157,850	...	49,989
Boxboard:					
April, 1922.....	136	33,563	121,398	122,238	32,723
April, 1921.....	135	32,305	90,637	87,709	35,233
April, 1920.....	141	17,852	148,063	144,360	21,555
Average.....	...	...	111,425	...	26,048
Wrapping (Kraft, Manila, Fiber, etc.):					
April, 1922.....	150	64,931	61,562	58,092	68,401
April, 1921.....	144	57,536	51,713	50,627	58,622
April, 1920.....	150	30,291	75,347	74,602	31,036
April, 1919.....	159	71,238	48,158	43,414	75,982
April, 1918.....	133	35,343	61,859	57,148	40,054
Average.....	...	...	59,150	...	43,482
Bags (All Kinds):					
April, 1922.....	46	3,714	17,194	17,507	3,401
April, 1921.....	39	3,792	7,954	8,314	3,432
April, 1920.....	43	2,829	19,745	18,979	3,595
April, 1919.....	40	5,309	9,435	9,192	5,552
April, 1918.....	24	2,883	14,197	15,065	2,015
Average.....	...	...	13,275	...	3,362
Fine (Writing, Bonds, Ledgers, etc.):					
April, 1922.....	103	35,123	27,420	26,737	35,806
April, 1921.....	107	39,355	15,631	14,903	40,083
April, 1920.....	116	30,211	33,493	31,486	32,218
April, 1919.....	112	37,819	22,470	22,550	38,239
April, 1918.....	88	23,527	27,823	16,689	34,661
Average.....	...	...	26,675	...	33,192
Tissue (Toilet, Crepe, Fruit Wrappers, etc.):					
April, 1922.....	97	8,634	15,486	15,591	8,529
April, 1921.....	93	8,725	9,686	10,665	7,746
April, 1920.....	101	5,997	16,572	15,730	6,839
April, 1919.....	89	8,141	10,900	9,673	9,368
April, 1918.....	72	4,400	11,830	10,235	5,995
Average.....	...	...	12,275	...	6,737
Hanging (No. 2 Blank, Oatmeal, Tile, etc.):					
April, 1922.....	25	5,321	6,809	6,807	5,323
April, 1921.....	20	9,314	3,862	3,089	10,087
April, 1920.....	23	1,281	8,550	8,660	1,171
April, 1919.....	20	3,219	7,326	6,465	4,080
April, 1918.....	15	4,925	4,358	3,459	5,824
Average.....	...	...	6,950	...	4,693
Felts and Building (Roofing, Sheathing, etc.):					
April, 1922.....	47	12,337	28,986	29,739	11,584
April, 1921.....	51	11,629	22,131	24,091	9,669
April, 1920.....	54	7,604	33,587	31,220	9,971
April, 1919.....	45	7,828	17,844	17,934	7,738
April, 1918.....	34	7,902	26,407	29,728	4,581
Average.....	...	...	25,025	...	8,853
Other Grades (Specialties not Otherwise Classified):					
April, 1922.....	107	20,930	24,309	25,418	19,821
April, 1921.....	95	20,082	16,061	16,158	19,985
April, 1920.....	86	15,030	24,193	23,432	15,791
April, 1919.....	64	13,169	13,048	12,974	15,243
April, 1918.....	61	8,395	22,648	24,515	6,528
Average.....	...	...	19,650	...	14,466
Total—all grades:					
April, 1922.....	...	289,523	528,461	533,122	284,862
April, 1921.....	...	297,357	422,012	425,584	293,765
April, 1920.....	...	184,744	634,402	622,913	196,233
April, 1919.....	...	271,865	451,889	435,760	287,994
April, 1918.....	...	177,325	520,140	505,698	191,767
Average.....	...	...	504,175	...	220,386

The following stocks were reported on hand at terminal and delivery points on April 30, in addition to the mill stocks shown in the tabulation: News print, 348 tons; book paper, 3,155 tons; fine 186 tons; paper board, 100 tons; wrapping, 40 tons; and "other grades," 247 tons.

Stocks of all grades, except wrapping, fine, and hanging decreased during the month. Stocks of all grades reported by manufacturers at the end of April amounted to 288,938 tons, including the stocks at terminal and delivery points. In addition to these stocks, jobbers and publishers reported news print stock and tonnage in transit aggregating 187,553 tons.

Ratio of Stocks to Average Production

Comparing the stocks on hand at the domestic mills on April 30, with their average daily production, based upon the combined production for 1918 to 1921, inclusive, the figures show that:

- News print paper mill stocks equal 6 days' average output.
- Book paper mill stocks equal 13 days' average output.
- Paper board mill stocks equal 11 days' average output.
- Wrapping paper mill stocks equal 29 days' average output.
- Bag paper mill stocks equal 6 days' average output.
- Fine paper mill stocks equal 34 days' average output.
- Tissue paper mill stocks equal 17 days' average output.
- Hanging paper mill stocks equal 19 days' average output.
- Felts and building paper mill stocks equal 12 days' average output.
- Miscellaneous paper mill stocks equal 25 days' average output.
- Total paper mill stocks of all grades equal about 14 days' average output.

Imports and Exports

The imports and exports of all grades of paper for March, 1922, compared with March, 1921, as shown by the records of the Department of Commerce were as follows:

	March, 1922		March, 1921	
	Pounds	Value	Pounds	Value
Imports:				
News print.....	156,062,992	\$5,455,889	133,581,913	\$8,300,695
Book paper.....	19,600	2,267	250,721	25,812
Wrapping.....	3,834,392	139,707	496,804	37,630
Hanging.....	.....	63,228	.....	51,737
All other grades (a).....	.....	280,794	.....	338,077
Exports:				
News print.....	5,581,681	246,275	2,191,874	169,847
Book paper.....	1,726,890	185,535	4,489,628	644,289
Paper board.....	.....	219,201	.....	291,221
Wrapping.....	3,714,454	222,945	1,417,687	134,143
Bag.....	.....	98,592	.....	55,530
Fine.....	.....	141,981	.....	374,521
Tissue.....	.....	109,800	.....	79,996
Hanging.....	.....	64,479	.....	92,627
All other grades (a).....	.....	354,663	.....	490,158
Total imports.....	.....	\$5,941,885	.....	\$8,753,951
Total exports.....	.....	1,642,571	.....	2,352,332

(a) Includes some paper already converted into commercial articles.

News print is the only grade of which the United States is a heavy importer. The bulk of this tonnage is imported from Canada.

The value of the exports of News Print, for March, 1922, was about 5 per cent of the imports.

The value of the total imports of all grades was about 2 per cent less than for February.

The value of the total exports for March, 1922, was less than

the imports, by \$4,299,314 and was \$709,761 less than the exports for March, 1921.

News Print, Book, Wrapping, and Paper board were the principal grades exported, as to value.

Loss of Production

The idle machine time reported to the commission for April, 1922, is shown by grades in the attached tabulation.

The number of machines includes only those machines for which idle time was reported during the month. It does not include the machines in 28 mills that were closed down completely for the month.

The total number of machines may include duplications because the reports may count the same machine twice if idle for different reasons during different parts of the month, or if idle part of the time on one grade and part of the time on another.

The reasons tabulated for lost time are "lack of orders" and "repairs." "Other reasons" include "lack of material," "lack of water power," etc.

The time lost in April, 1921, is given by grades and reasons for purposes of comparison.

Howard Paper Co. Make Improvements

URBANA, Ohio, May 29, 1922.—The Howard Paper Company has just completed extensive improvements at its Urbana mills, at the same time installing new screens, savealls, suction rolls, and drying equipment. The company is now enabled to improve still further its present high standard of quality, and is in position to give its agents everything to be had in the way of quality and service.

The Howard Company reports a strong and growing demand for its papers and its agents for Howard Bond and Howard Ledger all over the country are having great success with these water-marked lines.

Atlas Paper Co. Formed at San Francisco

[FROM OUR REGULAR CORRESPONDENT]

SAN FRANCISCO, Cal., May 18, 1922.—The Atlas Paper Company has been formed by J. Friedman and William Rothschild to carry on a paper merchandising business at 1122 McAllister street. The new concern will continue the business on an enlarged scale of J. Friedman who has been established in the paper business in San Francisco, for the past twenty years. William Rothschild, the new partner, has been connected for the past fourteen years with the San Francisco division of the Zellerbach Paper Company.

Grade	Lack of Orders		Repairs		Other Reasons		Total	
	1922	1921	1922	1921	1922	1921	1922	1921
News Print:								
Number of machines.....	10	16	9	12	13	9	32	37
Total hours idle.....	2,324	4,218	319	1,991	512	1,348	3,155	7,557
Book Paper:								
Number of machines.....	107	146	4	17	38	17	149	180
Total hours idle.....	12,692	36,902	25	4,743	3,199	2,071	15,916	43,716
Paperboard:								
Number of machines.....	154	212	49	26	99	59	302	297
Total hours idle.....	27,869	58,614	3,372	3,115	15,820	20,273	47,061	82,002
Wrapping:								
Number of machines.....	43	101	35	24	55	39	133	174
Total hours idle.....	7,661	22,583	2,235	4,292	4,483	15,104	14,379	41,979
Bag:								
Number of machines.....	15	11	8	1	9	11	32	23
Total hours idle.....	2,344	3,245	1,047	25	533	2,200	3,924	5,470
Fine:								
Number of machines.....	47	104	16	21	73	19	136	144
Total hours idle.....	12,220	33,638	1,244	9,459	8,142	4,372	21,606	47,469
Tissue:								
Number of machines.....	38	66	43	25	36	11	117	102
Total hours idle.....	6,026	17,394	3,359	4,623	4,585	2,008	13,970	24,025
Hanging:								
Number of machines.....	30	9	2	1	5	4	10	14
Total hours idle.....	1,088	2,921	146	17	438	391	1,672	3,329
Felts and Building:								
Number of machines.....	33	41	10	3	16	13	59	57
Total hours idle.....	8,178	8,767	678	114	1,661	2,413	10,517	11,294
Other Grades:								
Number of machines.....	3	63	8	11	32	11	70	85
Total hours idle.....	4,413	16,793	767	2,122	5,048	2,688	10,228	21,603
Total number of machines.....	480	769	184	141	376	203	1,040	1,113
Total hours idle.....	84,815	205,075	13,192	33,501	44,421	52,868	142,428	288,444

SIGNS OF SUMMER QUIETUDE IN PHILADELPHIA MARKET

Trade, However, Shows No Concern Over the Seasonal Decline in Demand But Considers That Business Is Now on a Sound Basis and Believes That Improvement Will Continue—Arthur B. Sherrill, of Riegel & Co., Elected President of the Philadelphia Paper Trade Association—Paper Men Consider Cost of Doing Business on Small Orders—D. L. Ward Co. Moves.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, May 30, 1922.—A test of the confidence which the trade has been expressing in the satisfactory condition of the paper business that is to come has been afforded by the experience of the last week or more, and the trade has been equal to it. Unquestionably demand in all the lines of fine paper fell off considerably, but just what the reason for this decline was is not yet evident. Nearly all the large printers cut down their usual requirements very markedly, although among the medium size and smaller shops the loss was not as great. The trade, however, without wasting time to ascertain the exact cause of the comparatively quiet times is not at all alarmed and regards the dullness largely as of a temporary character. Allowance was made at the time of the burst of activity some weeks ago for the extra printing incident to the very lively gubernatorial primary campaigns that were on. And the fact that the dull summer season also is approaching is given its proper importance. But underneath all the trade sees a sound condition in all industrial and commercial life and it recognizes evidence of undisputable character that permanent improvement has set in, and for these reasons it is not the least bit concerned over the slight loss experienced during the last week or so.

In the coarse paper division of the trade there still continues the rather dull times which have been noted for several weeks, but hereto there is the same confidence in the future as there is in the fine paper division.

The market for stock both old paper and rags still is virtually non-existent, there being hardly enough movements to establish prices. Mixed and commons are still in small supply because it does not pay to take them into the warehouses, and the meager mill demands easily can be filled from such supplies as the packers are compelled to take in largely to accommodate old customers. There is a little more activity in the fine market for the better grades.

Consider Cost of Doing Business

But though the trade is not at all concerned over business condition there were developments of great import during the week and these engage very close attention. They concern principally the fine paper distributors, but the interests of the coarse paper dealers is by no means inconsiderable, for the problem involved is the one brought vividly to the attention of the entire Paper Trade Association some time ago through the address of Mr. Schoenbuecher—the heavy cost and actual loss of doing a small order business. Because of the importance of the problem Allen E. Whiting, as late president of the Paper Trade Association appointed a special committee of representative members of the trade to work out some plan that will solve the problem and in doing so preserve the equities of both paper dealers and their largest customers, the printers. This committee consists of George W. Ward of the D. L. Ward Company, chairman; Morgan H. Thomas, of the Garrett-Buchanan Company; Harry F. Donahue, of the Molten Paper Company; Leon Beck, of the Beck Paper Company; Harvey E. Platt, of the J. L. N. Smythe Company, and Allen E. Whiting of the Whiting Patterson Company. Its appointment was the last official act of Mr. Whiting and the membership was announced at the annual meeting of the

Paper Trade Association held during the week. The basic facts with regard to the situation have been well established. For months members of the association individually have been keeping accurate records of their sales and of the cost of doing business, and there was a surprising uniformity in the returns from the several firms which participated. For this reason it was possible to compile an approximately accurate statement covering the conditions in the entire industry in Philadelphia. It was shown that forty per cent of the number of orders filled were for amounts which averaged but \$2.66 per order, and that the next twenty per cent of the number of orders were for an average of but \$7.35, showing thus that sixty per cent of all the orders taken were for amounts considerably under \$10.00. But the committee also found that the actual cost of handling these small orders in overhead, bookkeeping, and delivery charges, and other incidentals actually ran to between 90 per cent and 100 per cent on all orders involving \$5.00 or less; in other words it was an absolutely demonstrable fact that on a very large percentage of the small order business, and to be specific on all small orders up to about \$5.00 there was a cost of the entire amount involved and that goods absolutely were being given away for nothing.

The trade realized that it is axiomatic that no business firm can continue unless it makes profit and that under the conditions set forth it is logical to draw the deductions that the actual loss sustained on the orders of say \$7.35 and less and constituting in number 60 per cent of all the business done must be made up and the legitimate profit on the entire business be sustained by the remaining 40 per cent of number of orders involving amounts of over \$7.35 each.

Confident That Question Can Be Solved

There is conviction that if these facts can be established, as the trade is confident they can be to the satisfaction of the fine paper buyers, a solution of the very important question now pending can be found. There is belief too that the present is the most auspicious time in recent years to have the question which equally concerns the paper sellers and the paper buyers fairly and considerably discussed. That fact lies in the circumstance that more harmonious relations now exist between the printer and the paper distributors than for years past. The contention which threatened amicable relations between the two, over the long price list is a matter of the past, with happy solution reported in these columns recently having been found. The conferences which preceded the agreement now in force gave printers a better understanding of the position of the paper men, and paper men a keener insight into the position of the printer with the result that each understand the other's point of view better than ever before. The trade believes that no great argument will be required to impress upon the printers the fact that the loss on small order business as it is now being done is being made up on the large orders. Printers every day come into contact with this problem, an analogous condition being that of course one hundred circulars cannot be sold at one-fifth the price of five hundred, nor can a one thousand edition of a catalog be produced at one-tenth the cost of a ten thousand run. The paper trade has, of course, no desire to take advantage of the situation and it believes that frank presentation of all the facts will make possible some change whether in the manner of doing business or of charges which will cut out the unprofitable business and perhaps tend to lessen charges for such orders as now perhaps bear a disproportionately large share of the cost of doing business.

Paper Trade Association Elects Officers

The Paper Trade Association at its meeting elected these officers: President, Arthur B. Sherrill of Riegel & Co., Vice-President, Harry F. Donahue of the Molten Paper Company, Secretary, Norbert A. Considine of the Paper House of Pennsylvania, and Treasurer, Harvey E. Platt of the J. L. Smythe Company. But it required nominations by the entire membership before the election

(Continued on page 20)

May We Quote?

We are now booking tonnage for first open water shipment as well as for shipments for balance of the year 1922

WELL KNOWN SCANDINAVIAN

Unbleached and Easy Bleaching

SULPHATES

Unbleached—Easy Bleaching—Bleached
ALSO

MITSCHERLICH

SULPHITES

Let Us Quote You Our Prices!

A. J. PAGEL & CO., Inc.

347 Madison Avenue

New York City

SIGNS OF SUMMER QUIETUDE IN PHILADELPHIA MARKET

(Continued from page 18)

could take place. Mr. Sherrill for years has been chairman of the nominations committee, and of course thereby escaped possibility of serving as head of the association. But this year the committee got away from the chairman and insisted that he run. He refused. And so the committee brought back a report that they could not agree. The association sent them back a second time. And again there was no result. Thereupon nominations were made on the floor, Mr. Sherrill was overwhelmed and overwhelmingly was elected and all the other members of the nominating committee were chosen to fill offices which previously they had selected others to fill.

Ward Co. Moves

A large force of artisans have been assigned to the old home of the D. L. Ward Company at the N. W. corner of 6th and Ransstead streets, to get everything in readiness for the removal of the company into it from the warehouse at Front and Washington avenue, occupied for several months, on Wednesday of this week so that business can be done as of old on Thursday morning and without the least interference during removal. During the week there returned to the Ward organization, Arthur S. MacNair, who was a member of it for about two years previous to some six months ago when he left to go to the local office of the Whitaker Paper Company in the Crozer Building. Vice-President Roger D. Smith, of the S. D. Warren Company spent part of the week in Philadelphia, as the guest of President Ward.

Grissinger Machine Co. Moves

The Grissinger Machine Company, of Philadelphia, Pa., manufacturers of Slitters and Rewinders, whose plant for many years has been located at 904 Quarry street has moved to larger quarters at 236 Quarry street the same city.

To Job Blottings

Clyde A. Cobaugh, who for several years has been acting as advertising manager for the Paper House Of Pennsylvania, on June 1, will establish himself in business and on what he believes to be a unique line. He will deal exclusively in a jobbing way in blotting papers. He has secured quarters at 825 Walnut street and there will carry a complete stock of the products of the Standard Manufacturing Company, of Richmond, Va. There will always be on hand a large enough supply of the eight grades manufactured by this company to meet all requirements. Mr. Cobaugh before serving with the colors, during the course of the war falling a prisoner to the Germans, for more than five years served as advertising manager for the Beck Paper Company. Afterwards he represented in this city, Walden, Mott & Co., Inc., of New York. There was added to the sales force of the Paper House of Pennsylvania during the week, Leonard A. Peck, well known in the trade, long experienced and for several years associated with the C. H. Clinton Paper Company.

Arrangements for Graphic Arts Exposition

The paper trade is being appealed to for participation either individually or as a body, in the Philadelphia Graphic Arts Exposition to be held in the Commercial Museum, the largest exposition building in the United States. In September 25 to 30, inclusive. It has the endorsement of the Typotheta of Philadelphia, and its purpose as suggested by the title also was expressed in the slogan "Good equipment, good craftsmanship, good ink, good paper, and by all means good printed matter." The exposition is being conducted by J. H. Goodwin, formerly advertising manager of the *Kansas City Post* and now publisher of a textile trade journal. Announcement is made that one-fourth of the 100,000 square feet of exposition space already has been contracted for, although detailed prospects are not yet available.

Alfred M. Watt, for some time engaged in the specialty business at 218 Chancellor street has been appointed the Philadelphia distributor for the Peerless Manufacturing Company, of Norristown, Pa., succeeding Andrew Robinson who lately established himself in business as distributor for tissue toiles and paper towelings.

General News of the Trade

The Beck Paper Company has just stocked up a complete line of the new Damascan Cover, made by the A. M. Collins Manufacturing Company and regarded by the firm as one of the most exquisite pieces of cover paper every produced. It is manufactured in but one grade and two sizes, 20 x 26 and 23 x 33. It is produced in six colors all with a lustrous metallic finish and the samples which the firm now has available show that it lends itself most admirably to high class printing plain and in color and to embossing, and makes a striking cover for quality catalog and other high-grade work.

Proposals for the supply of paper for the Board of Education will be opened by the Committee on Property at the headquarters, 19th above Chestnut at noon Thursday, June 8.

The Scott Paper Company, of Chester is making a public offering of the unsold portion of its \$700,000 7 per cent cumulative preferred stock. Of this there is outstanding \$520,800. Thus far there have been paid on such of the stock as has been issued twenty-one semi-annual dividends of 3½ per cent.

In commemoration of a fifty year membership in the Masonic Order President John H. Sinex recently presented to the Merchantville Lodge of which he was a pioneer member, a set of mahogany furniture, including rostrum, stations and desks. Present at the ceremonies were almost a hundred members of the Masonic Order who are engaged in the paper, printing, stationery and allied trade. In recognition of services the members of the Garrett-Buchanan organization who are Masons, gave to Mr. Sinex a gold headed cane.

Salesmen of Hammermill Agents Meet

ERIE, Pa., May 25, 1922.—Paper salesmen from more than half a hundred cities of the United States are in Erie today for the meeting of the salesmen of Hammermill agents, being held at the Lawrence Hotel. This morning was given over to the registration of the visitors, and to the inspection of an extensive display of the Hammermill manufacturing process and the various lines of paper produced by the local company. This afternoon is being devoted to the preliminary business session, an address of welcome being made by E. R. Behrend, president of the Hammermill Paper Company. Other speakers on the afternoon's program are N. W. Wilson, vice-president of the company, who outlines the purposes of the meeting, and W. S. Epply, manager of sales, who speaks on the peculiar advantages of Hammermill methods and products that count in the sale of the Erie made paper.

During the afternoon the salesmen will inspect the Hammermill plant, returning to the Lawrence in the evening for a group dinner.

Protest Against Swedish Kraft Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1922.—It is understood that the American Paper and Pulp Association has filed a protest with the Customs Service of the Treasury Department in connection with the importation into the United States of Swedish kraft paper at prices which are said to be exceedingly low. It is probable that the Customs Service will institute investigation as a result of the association's communication.

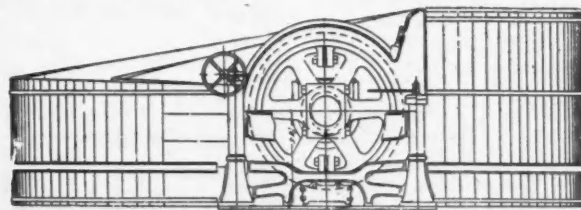
The Niagara Beater Gives Increased Production *at a Lower Cost*

The use of worn out or obsolete equipment under present conditions means operating at a loss. Replace your old beaters with Niagaras

ONE NIAGARA BEATER *Produces as Much as Three Holland Type Beaters*

The Niagara Saves in Beating Time, Floor Space
Installation Cost, Motors, Power, Belting and Labor

Write for further information. We can give
you convincing proof of the above statements.



"Ask the mill that owns one"

THE VALLEY IRON WORKS COMPANY

Appleton, Wisconsin

New York Office: 350 Madison Ave.

PAPER MERCHANTS OF BOSTON GOING AFTER BUSINESS HARD

John Andrew, of Stone & Andrew, Says Salesforces Must Be Reorganized and Taught to Go After Business Instead of Waiting for It to Come to Them.—While Business at Present Is Rather Slow, Boston Paper Merchants Are Making the Best of the Situation and Are Optimistic Regarding the Future—Boston Paper Trade Association to Hold Annual Summer Outing.

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., May 31, 1922.—There is business in Boston and other cities in New England in the paper trade if you can only educate the salesmen to go after it, John Andrew of the firm of Stone & Andrew, paper merchants on Devonshire street, said today. "We must reorganize our salesforces and teach them to get down to hard pan and go after the business instead of waiting for it to come to them," Mr. Andrew continued. Practically all of the orders being received by the Boston paper merchants have been small ones this year and while they total up in volume to even more than those of last year they mean considerable more work for the forces in the different houses to handle, more clerks in the shipping rooms, and therefore more expense.

Mr. Andrew stated that he had just returned from a trip through the northern New York territory and found things quiet at the mills because the orders were not coming in as fast as the paper was being turned out.

However, Boston merchants are optimistic and are making the best of the situation and going out after the business. They expect hard times during the summer months when the other people are thinking of vacations instead of buying merchandise and they feel that there must be a decided change for the better within a few months. Practically all of the men in the trade are working hard at the game this spring. The vacations have been cut down somewhat in some of the houses and the men are sticking closer to their business which in the end is bound to bring in the business and bring back the general condition of prosperity to the trade.

To Make Paper Umbrellas

Word has been received in Boston of the manufacture of paper umbrellas which will be taken up by the new company formed in Bethel, Maine, with Frank Berry of New York, as president, and F. E. Pullman of Rumford, Maine, as secretary and treasurer. Paper parasols as well as umbrellas will be manufactured, and Tyler's Mill on Summer street, Bethel, Maine, will be used for this new enterprise. The principal office of the concern will be in New York City. The umbrellas will be waterproofed and made of a special paper. Plans are under way for the manufacture of ice cream packages by the same concern. It is expected that about two hundred umbrellas will be turned out per day.

Boston Paper Trade Outing

The Boston Paper Trade Association, one of the liveliest paper trade organizations in the United States, will hold its annual summer outing at the Vesper Country Club, Lowell, Mass., this year on Wednesday, June 7. It is expected that a large number of the members will attend this year because of the interest which has been shown in the work of the association. Most of the members will make the trip by automobile through Harvard Square, Cambridge, North Cambridge, Arlington, Burlington, Billerica, Lowell and to the Country Club which is about five miles from the center of the city.

A prospectus which Joseph D. Snell, secretary of the organization, and a member of the firm of Von-Olker-Snell Paper Com-

pany on Pearl street, has sent all of the members of the association, gives detailed directions for reaching the Vesper Club by auto, train, trolleys, as well as by hydroplane (the water of the Merrimac being "soft") and by aeroplane. (Permission is given to land anywhere but not any nearer than one mile from the 19th hole.

An interesting program of events has been arranged by the committee which includes tennis, golf, baseball, and various kinds of races including a pipe and cigarette lighting race, a tape cutting contest, a three legged race, balloon, shoe and paper races, and quoits, bridge and other indoor sports. Dinner will be served at the Country Club. During the forenoon a buffet luncheon will be served in the Locker House.

The golf tournament will include a handicap medal play of 18 holes with Massachusetts or Home Golf Club handicaps accepted and foresomes with the groups arranged by the committee. A silver cup is being presented for the first time this year to be known as the Boston Paper Trade Golf Championship Cup and on being won three times by a member becomes his permanent property.

Old "grievances" between the manufacturers and merchants will be worked off in the fast ball game arranged between those two groups for that afternoon. Five innings will be played unless the players go on strike and the ball to be used will be soft enough to please the "gentlemen" players and large enough for the near-sighted stars.

General News of the Trade

The American Writing Paper Co., of Holyoke, Mass., has issued a booklet on Eagle A papers which is being distributed in Boston by its agents, The Arnold Roberts Company, of Congress street, John Carter & Co., Inc., of Atlantic avenue, and The Whittaker Paper Company, of Shawmut avenue, the Eagle A Service Houses, of Boston. The booklet is entitled "The Correct Use of Bond Papers for Business Purposes" and in this valuable new office handbook the Paper Service Manufacturing Institute, as the American company is called, shows how to measure the right grade of bond paper for each business need. It thus enables the firms to put paper buying on a firm basis and gives an intelligent standard for selection of their papers. All of the various grades of bond papers for business are "boiled down" into 9 standard papers, known as the Eagle A bond papers.

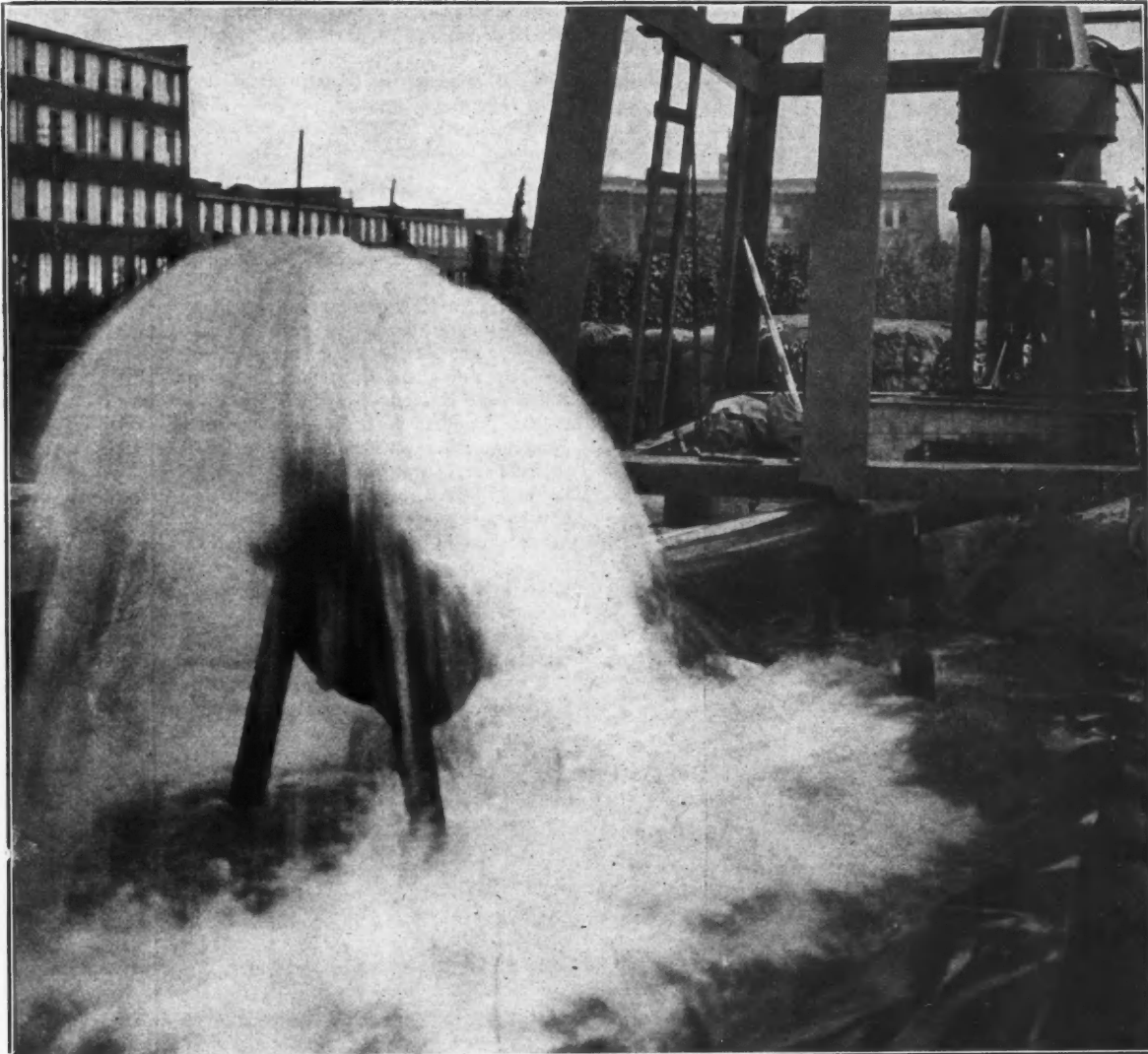
Paul M. Jones, of Melrose, Mass., salesman for the A. Storrs & Bement Company, whose district is Essex county, Massachusetts and the state of Vermont, and Mrs. Jones are the proud parents of a young son.

The Powers Paper Company, of Springfield, Mass., manufacturing stationer for nearly sixty-five years, is making a drive on Shetland Linen which it claims has always been priced way below stationery of similar quality even during the period of high prices. This linen is offered in many sizes and styles and in white and five tints.

Among the Boston paper men at the annual meeting of the Strathmore Mill and Merchants' Association held at Mittineague, Mass., last Thursday and Friday were Mr. Palmer of Carter, Rice & Co.; H. W. Morgan, sales manager of the same firm, and John C. Hurd, advertising manager of the A. Storrs & Bement Company and J. H. Brewer, announcement department manager of the same firm.

Address of James P. Franklin Requested

The PAPER TRADE JOURNAL has been requested for the address of James P. Franklin who was formerly a salesman for one of the New York paper houses. He left Philadelphia about fifteen years ago. If living he would now be about seventy-five years old. If Mr. Franklin or his relatives will communicate with the PAPER TRADE JOURNAL they may learn something to their advantage.



The above cut shows one of two wells recently constructed by us for The Richardson Company, Lockland, Cincinnati, Ohio, which are furnishing over 7,000,000 gallons of water per day. In a recent letter, Mr. J. M. Richardson, President, said "All of our other present wells are now obsolete"; also, "Our new wells have, in our judgment, added hundreds of thousands of dollars to the value of our property and ended for all time to come the old problem of a plentiful supply of good water."

Our Slogan:

"WATER OR NO PAY"

We construct and equip

Large Capacity Water Wells

Using the Layne Screen
and

Layne Vertical Turbine Pumps

*Sole Selling Agent for Layne
Products in Ohio and Indiana*

THE LAYNE-OHIO COMPANY

WATER WELL CONTRACTORS

837 Dixie Terminal Bldg.
CINCINNATI, OHIO

MAINE SUPERINTENDENTS HOLD SUCCESSFUL MEETING

B. M. Petrie of the Eastern Mfg. Co. Is Elected Chairman of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association at Meeting of the Organization at Elmwood Hotel, Waterville—Next Meeting to Be Held at Lincoln, N. H., in October—Robert B. Wolf of Robert B. Wolf Co. Delivers Interesting Address on Bleaching at High Density.

[FROM OUR REGULAR CORRESPONDENT]

WATERVILLE, Me., May 29, 1922.—The Northeastern Division of American Pulp and Paper Mill Superintendents' Association held a very successful meeting at the Elmwood Hotel here on Thursday



B. N. PETRIE, CHAIRMAN-ELECT

of last week. The meeting was presided over by Nelson R. Davis of the S. W. Warren Company.

The New Officers

The following officers were elected:

Chairman, B. N. Petrie, Eastern Manufacturing Company.

First Vice-President, Fred P. Sall, Pejepsco Paper Company.

Second Vice-Chairman, Eugene Sullivan, Orono Pulp and Paper Company.

Cooking Time Hours.	Cooking Acid		Maximum Cooking Temp. °F	Pounds Sulphur per Ton	Pounds Bleached Pulp per Cord Wood	Percent Yield by Weight	Percent Tar.
	% Free	% Comb.					
10 1/2	2.50	1.30	315	300	1000	40	
10 1/2	6.00	.95	285	250	1176	47.1	17.6

Note: The wood averaged about 70% Spruce & 30% Fir.

FIG. 1

Third Vice-Chairman, A. B. Larcher, Penobscot Chemical Fibre Company.

Secretary-Treasurer, B. T. Larrabee, S. D. Warren Company.

It was decided to hold the next meeting at Lincoln, N. H., early in October, 1922, the exact date to be fixed by Chairman-elect Petrie.

The following new members were elected:

J. S. Schamaker, Parker Young Company.

George W. Verron, Lincoln Mill, Eastern Manufacturing Company.

W. D. Summerville, Eastern Manufacturing Company.

After luncheon the superintendents visited the plant of the Keyes Fibre Company at Fairfield, Me.; the Keyes Pulp Mill at Shawmut, and the Waterville Iron Works.

Address by R. B. Wolf

At the conclusion of an enjoyable banquet Robert B. Wolf, head of the Robert B. Wolf Company, New York, delivered the following interesting address on "Advantages of Bleaching Pulp at High Density:"

Under a given set of bleaching conditions, with time of bleaching held constant, it may be stated that both the consumption of bleach and per cent shrinkage vary directly with the temperature, and inversely with the concentration of the solution.

Expressed in another way: to lower the amount of bleach liquor required for bleaching a given pulp, in any given kind of bleaching apparatus, under constant temperature, it is necessary to increase the concentration of the solution. When the per cent of bleach is decreased in this manner, the shrinkage in weight of pulp, due to bleaching, is proportionately decreased.

The effect of varying conditions of temperature and concentration of solution on consumption of chemical reagent and shrinkage in raw material is much better known in the process of cooking sulphite pulp than in the bleaching process. This relationship is shown in Fig. 1, made up from records of several years' actual operating experience.

The wood averaged about 70 per cent spruce and 30 per cent fir.

That a similar relationship between temperature and concentration of solution also exists in bleaching pulp is shown in Fig. 2, taken from mill operation conditions.

In the above chart the per cent bleach used was practically constant, although there was some variation in the time of bleaching.

It was a knowledge of the effects of concentration of solution and solution temperatures upon bleach consumption and shrinkages that brought about the development of apparatus for bleaching at greater densities. It had been known for some time that when the temperatures were kept low, which was accomplished largely by increasing the concentration of solution, that organic dirt could be bleached out. Bleached pulp is always freer from shives and discolored woody matter than unbleached pulp. In spite of this well known fact, however, the mechanical difficulties in the way of circulating very thick stock have until recently, prevented practical results along this line.

The first bleaching apparatus in pulp mills generally used consisted of a series of tanks, with vertical agitators. The stock

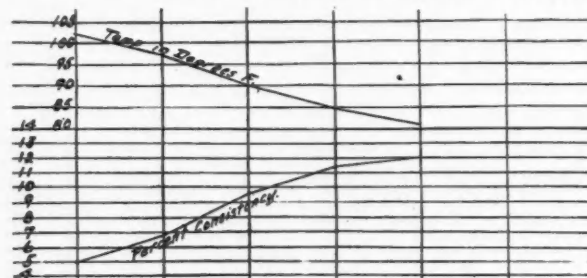


FIG. 2

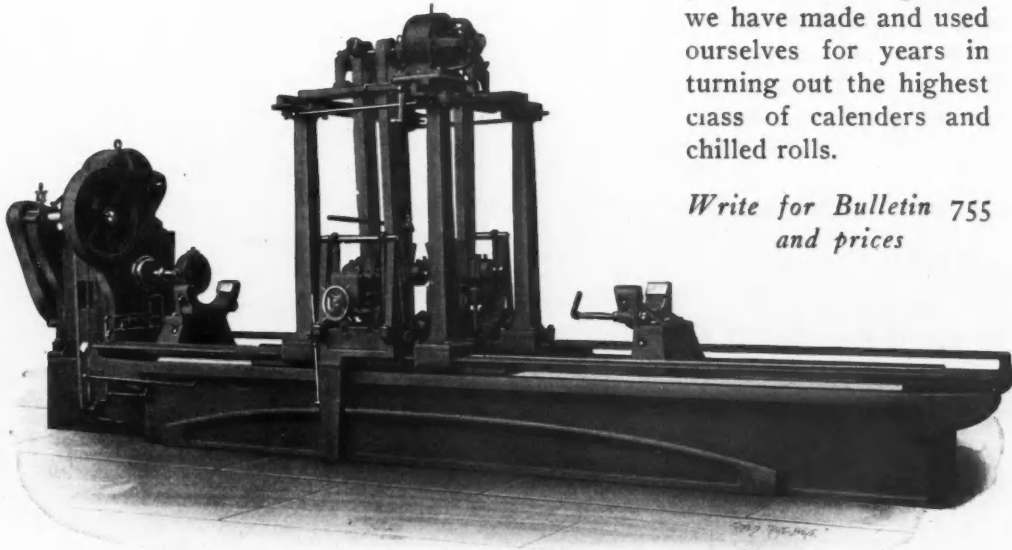
usually overflowed from the top of one tank into the bottom of the next. As the advantages of thicker stock became apparent, a pump was interposed so that the stock overflowed into the suction of the pump and was pushed into the bottom of the tank. For obvious

(Continued on page 26)

Roll Grinders

For the sake of your product regrind your old Farrel rolls, or any others, on this heavy, sturdy instrument of precision—a roll grinder we have made and used ourselves for years in turning out the highest class of calenders and chilled rolls.

*Write for Bulletin 755
and prices*



Farrel Foundry & Machine Company

Established 1848

Ansonia, Conn.

**Branch Plant:
BUFFALO, N. Y.**

MAINE SUPERINTENDENTS HOLD SUCCESSFUL MEETING

(Continued from page 24)

reasons, it was impractical to handle this stock at a density much greater than 4 per cent. Most of these tank systems were continuous systems and had the disadvantage of difficulty of control especially where the bleaching quality of the pulp varied considerably.

What is known as the Bellmer bleacher was later introduced into this country, with very good results. Better control was obtained because the process was intermittent and the amount of bleach added could be governed by the bleaching quality of the stock.

Furthermore, this process, because it used a worm in place of a pump, made it possible to circulate stock at densities as high as 6 per cent, and later developments with this type of bleacher, where the Bellmer worms are placed at both ends

of the bleacher, make it possible to raise the consistency to about 9 per cent.

The next development was also a continuous tank system where the pulp was handled with worm propellers, similar to the Bellmer propeller. The pulp was introduced into the top of the first tank traveling downward to a worm which forced it into the bottom of the second. In the second tank, the travel is upward. By means of another worm conveyor, the stock was conveyed from the top of the second to the top of the third tank, where it traveled downward again. Another worm conveyor conveyed the stock from the bottom of the third to the bottom of the fourth, and so on through the entire system. Stock densities as high as 12 per cent were obtained.

(Continued on page 28)

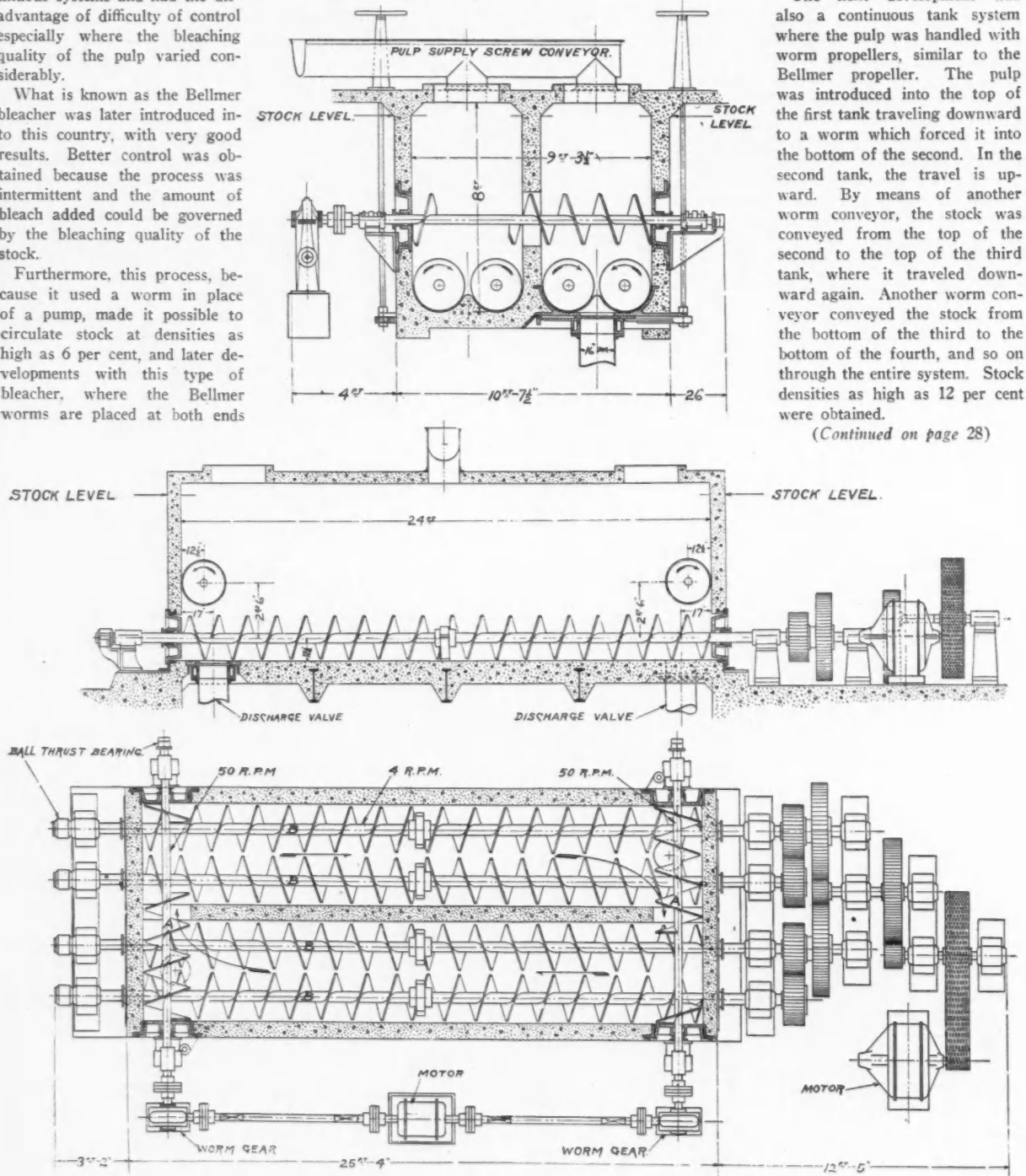
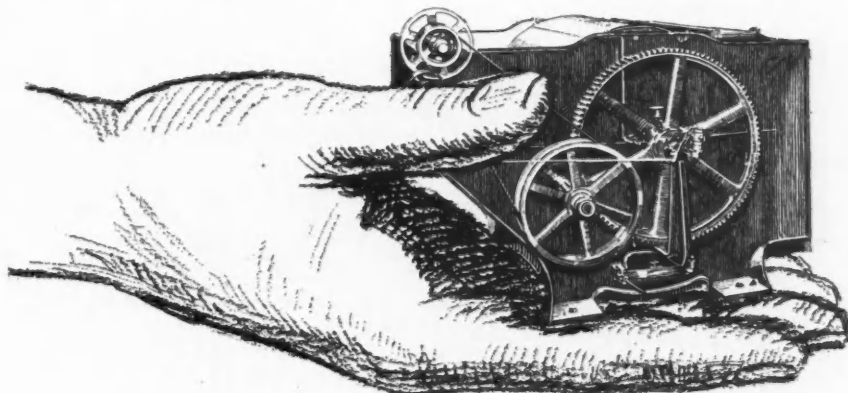


FIG. 3



Helping the Cause

The movement toward elimination of waste, sponsored by the Federated American Engineering Societies, is today one of the most hopeful signs of progress in industry.

As one contribution to the share of the paper industry in this forward work we have developed the BIRD SAVE-ALL.

This is a commonsense pulp saver, an effective detector of leaks and a practical white water filter. It is aiding pulp and paper mills to turn white water waste into profit.

Let us tell you how.

BIRD MACHINE COMPANY SOUTH WALPOLE, MASS.

Western Representative:
T. H. Savery, Jr., 1718 Republic Bldg.,
Chicago, Ill.

Canadian Builders of Bird Machinery:
Canadian Ingersoll-Rand Co., Ltd.,
260 St. James St.,
Montreal, Canada.

THE BIRD SAVE-ALL

MAINE SUPERINTENDENTS HOLD SUCCESSFUL MEETING

(Continued from page 26)

When the consistency of stock in this type of bleaching system reached 10 per cent, however, the power required increased very rapidly and enormously heavy agitating devices had to be used. It was found impractical, with this type of system, to raise the stock to greater densities than 12 to 13 per cent, although obviously the advantages of so doing were quite apparent.

All of these previously mentioned systems are more or less familiar, so it is unnecessary to illustrate them.

The gradual development of bleaching systems to handle thicker stock clearly indicated that the increased efficiency in the use of

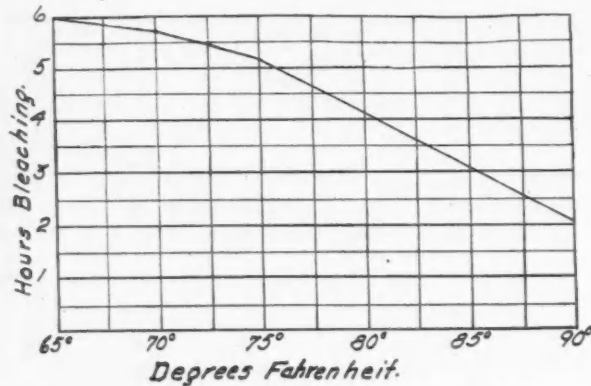


FIG. 4

bleach and the decreased shrinkages were due to the fact that the great concentration decreased the resistance that the bleaching agent had to overcome. Therefore more work was accomplished at lower temperatures.

It is probable that the law of bleaching is somewhat similar to

Ohm's law, which is expressed by $C = \frac{E}{R}$; where C equals the cur-

rent, representing the quantity element; E representing the electro-motive force, or the intensity element; and R representing resistance, or the inertia which must be overcome. We might, therefore, express the law of bleaching as follows:

$$\text{Bleaching energy expended} = \frac{\text{Temperature of bleaching}}{\text{Resistance to bleaching}}$$

As suggested previously the effect of increasing the concentration is to lower the resistance to the bleaching agent, which means that the lignin can be removed more easily because the oxidizing agent is brought into more intimate contact with the lignin and coloring matter in the fiber.

The apparatus, which will now be illustrated (See Fig. 3) was developed with a full realization that if a great concentration of solution could be obtained a big reduction would be made in the per cent. bleach used; also a great saving in fiber because of low shrinkages. It was also developed with a full consciousness that it would be possible to bleach out practically all organic dirt if a great degree of concentration were used.

In Fig. 3, it is apparent that the principle on which the apparatus is based is thoroughly mixing the stock and bleach liquor at frequent intervals, this being accomplished by means of the cross worms, A; the longitudinal worms, B, simply acting as conveyors for moving the stock in a solid mass, in the direction indicated by the arrows.

The worm, B, rotates at 4 r. p. m. only and the stock takes five

minutes to travel from one end of the bleacher to the other. At each end, however, a very thorough mixing of the stock and bleach liquor takes place, as the stock must be forced through the 24 inch diameter opening in the central partition at each end.

There is practically no limit to the density of the stock which can be circulated in an apparatus of this kind, as the very slow moving bottom worms do not take excessive power; furthermore the fact that the cross-worms simply convey the stock from one side of the central partition to the other, means that the power consumption is low—much lower in fact than where the heavy stock is forced through an elongated opening. Bleach liquor testing about 25 grams per litre is used in this process.

In order that the pulp content in the bleacher does not drop below 18 per cent after the bleach liquor is added, it is necessary to deliver the pulp to the bleacher at not less than 25 per cent air dry. This is accomplished by "doctoring" the pulp off of the press roll of a regular wet machine and conveying it from the wet machine to the bleacher, by means of a worm conveyor. In the case of a paper mill bleaching lapped or sheet pulp, the pulp is furnished direct to the bleacher after passing through a shredder.

At the end of the bleaching operation the pulp is preferably dropped into a drainer chest, where it is flooded with water. After watching in the drainer chest it is sluiced into a storage tank, from which it is pumped to a riffler. On the riffler it is diluted to between three and four-tenths per cent in order to settle out the inorganic dirt. From the riffler the stock goes direct to the wet machines or dryers, most of the white water from these wet machines being used over again in diluting the stock on the riffler. Of course a modification of this arrangement can be made in order to meet local mill conditions.

Bleaching time, at different temperatures, is shown on Fig. 4, representing a composite average of some 150 tests on full size units.

It will be noted from this graph that the time required for bleaching at 18 to 20 per cent consistency is much less than at 5 to 6 per cent, so the power consumption per ton of pulp is not greater than when the thinner stock is used.

Tests made at the Newton Falls Paper Company, where three of these units are in full operation, show the following:

In the above tests shrinkages represent the overall loss between the pulp actually weighed into the bleachers and the pulp actually weighed off the wet machines.

Under normal bleaching conditions, strong hemlock pulp would shrink at least 10 per cent and the bleach consumption would be in the neighborhood of 25 per cent.

Assuming, therefore, for spruce pulp a shrinkage of only 25 per cent less, and a reduction in bleach consumption of only 25 per cent, the saving because of the thick stock would be as follows:

Saving in fuel, with coal at \$7 per long ton.....	.70
Saving in bleach, figuring normal percentage at 13, and bleach powder at 2¼c. per lb. f. o. b. mill.....	1.47
Saving by reduction shrinkage from 10 to 7.5 per cent, figuring unbleached pulp at \$60 per ton.....	1.82

Total saving\$3.99

In the Newton Falls plant, however, the greater saving came from the fact that all the old hemlock wood, which had been accumulating for two or three years because it was too poor for even wrapper stock, was used up without culling a stick for firewood. Everything, in other words, which would hold together, long enough to go through the chipper was used and, while this wood contained an average of over 30 per cent red rot, the resultant pulp

(Continued on page 30)



**Those who have hesitated to
buy Liquid Chlorine in bulk**

Can now do so with full assurance of safety and convenience in handling and storing.

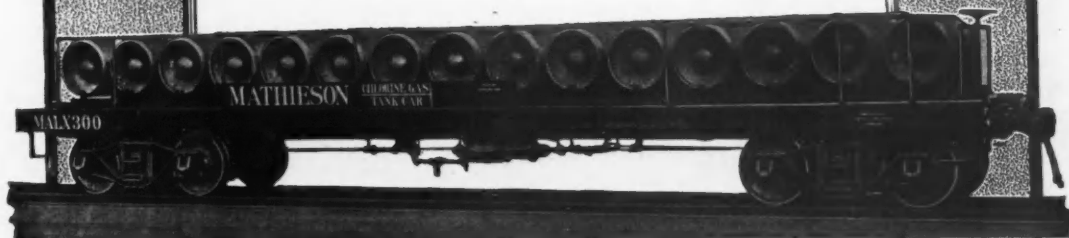
Mathieson
Multiple-Unit Chlorine Tank Car
(Patents Pending)

(A specially designed car carrying 15 one-ton individual containers of seamless, forge-welded steel, complying with Interstate Commerce Commission specifications; inspected internally and cleansed before each charging.)

developed by the Mathieson Organization, makes safe the shipment, handling and storage of Liquid Chlorine in commercial quantities.

Buy Liquid Chlorine, Mathieson "EAGLE-THISTLE" Brand, in Bulk Quantities and buy it most economically.

We'll be glad to quote price on Liquid Chlorine and send detailed information covering this improved method of shipping and handling.



THE MATHIESON ALKALI WORKS, (Inc.)

25 West 43d Street, New York, N. Y.
Chicago, Ill. Philadelphia, Pa. Providence, R. I.
Charlotte, N. C.

Works:

Saltville, Virginia Niagara Falls, N. Y.

CANADIAN PAPER INDUSTRY ON SOUND FINANCIAL BASIS

In Spite of the Fact That the Industry Has Been Passing Through One of the Most Trying Periods of Its History and In Consequence Not Much Interest Has Been Manifested of Late by the Public in Pulp and Paper Issues on the Stock Exchange the Future for the Paper Business Seems Bright—Canada's Paper and Pulp Export Show Decline for April, 1922, as Compared with April, 1921.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 29, 1922.—A marked change has come over public sentiment in regard to the pulp and paper industry. Up till quite recently, the pulp and paper issues had occupied the center of the stage on the Stock Market for several years, first by their phenomenal advances and secondly by their phenomenal fall. During the past few weeks the paper issues have been practically neglected. This tendency has been interpreted in some quarters as unfavorable to the pulp and paper industry. This interpretation, in well-informed circles, is disregarded. In fact, it has been argued that market indifference, under the particular circumstances, may be given the opposite interpretation. The fact is that in the pulp and paper industry, the feeling of depression and discouragement has entirely passed away. There still remains to be absorbed a fairly heavy depreciation on pulpwood, but this is taking place regularly and according to sound financial procedure. Practically all financial reports of pulp and paper companies, issued after 1920, took cognizance of the situation in one form or another, some writing the wood piles down in drastic manner and others setting up a reserve for that purpose. All financial statements issued in 1922 have made heavy allowances of similar character, and, no doubt, statements still to make their appearances, will do likewise. Thus the loss from drop in prices will spread itself out over a period until the financing is adjusted completely to the new situation. Meantime, there is a chance that the actual loss may not be quite so heavy as was anticipated. In some quarters, hope has been expressed that prices of the manufactured product may show some improvement in 1922. This view is opposed in other quarters and it does not seem that any particular aid will be forthcoming in this manner. What can be looked for, and what is taking place, is increased consumption, so that pulp and paper industries are operating much nearer to capacity or actually operating at capacity, thus reducing the per-ton costs of production. Companies have faced the situation and taken the loss and are assured that at present costs of getting out wood they will be able to make good profits. The situation is that, following one of the most difficult periods in the trade, the Canadian end of the industry finds itself, for the most part, in sound financial position and with a bright future ahead—barring labor and similar troubles. Under the circumstances, the neglect of the market for pulp and paper issues is not an indication of disappointment or of adverse conditions. The position is excellent. It must not be forgotten that the recovery in pulp and paper stocks was unusually sharp and well sustained and that the rise in price has been all that could well be justified by industrial conditions. Until further developments take place, it will be as well for all if the market should remain much as at present, unless in particular stocks which have not yet reflected the full improvement.

Timber on Vancouver Island

Speaking before the Vancouver Island Association Boards of Trade, E. W. Neel estimated the standing timber of Vancouver Island at 116,000,000,000 feet. In that portion of the Island which

includes the Esquimalt and Nanaimo Railway belt, the Renfrew district and Barkley Sound drainage basin, there are estimated to be 30 billion feet of Douglas fir and 13 billion b.m. feet of red cedar.

New Abrasive Paper Company

The Western Abrasive Paper Company, Ltd., has been incorporated with headquarters at Victoria, B. C., for the purpose of manufacturing sandpaper. The company is using as abrasive material a hard crystalline quartz from the Prince Rupert district, which has proven to be of hardest quality.

Canada's Pulp and Paper Exports

Canada's exports of pulp and paper for April were valued at \$6,490,359, a considerable decline from the previous month when the value was \$10,672,332 and a decline of \$455,877 from the month of April, 1921.

The figures for April, 1922 and 1921, are as follows:

	April, 1921		April, 1922	
	Cwts.	Value	Cwts.	Value
<i>Paper:</i>				
Book Paper	6,314	83,796	35	560,000
News Print	949,269	5,241,893	1,229,046	4,371,961
Other Paper .....	.....	405,965	.....	319,542
		5,731,654		4,692,063
<i>Pulp:</i>				
Sulphate Kraft	98,103	424,430	163,248	511,615
Sulphite, Blchd.	40,711	254,345	162,982	654,903
Sulphite, Unblchd.	98,744	404,380	166,346	452,564
Mechanical	64,070	131,427	128,957	179,214
	301,628	1,214,582	621,533	1,798,296

The principal countries of destination of these exports were:

	Paper	Pulp	Total
United States	4,031,226	1,588,806	5,620,032
United Kingdom	122,107	.....	122,107
All Other	538,730	209,490	748,220

Exports of pulpwood were smaller in April, being 49,076 cords valued at \$476,344 compared with 96,998 cords valued at \$955,983 in March and 73,017 cords valued at \$977,537 in April, 1921.

MAINE SUPERINTENDENTS MEET

(Continued from page 28)

produced a high grade, exceptionally clean bond paper—a paper which, on a folio basis, tested over 1.25 points per pound.

Very little care was used in the preparation of this wood, which was mostly peeled, for any bark or knot linings which went through with the chips was entirely bleached out; in other words, any organic dirt which passed through a 9/1000ths cut plate was rendered colorless in the bleachers.

The results obtained in this new process points to a complete revolution in bleaching methods. It is no longer necessary to spend enormous amounts of time and energy in cleaning of wood in order to produce clean pulp; furthermore the tremendous waste because of culling out discolored and rotten wood will be practically eliminated.

G. K. Gibson Speaks at Ad Men's Post

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, May 29, 1922.—George K. Gibson, "The Man Who Put Across 'Mossinee Kraft' When Other Lines Were Hard Hit," was the principal speaker at a luncheon gathering of the Ad. Men's Post of the American Legion, held in the Ivory Room of Mandel Brothers, Monday, May 22.

CRANE

CRANE

Pipe Bends



CRANE

A CAREFULLY proportioned radius and tangent of a pipe bend will frequently relieve the entire system of expansion strains, reduce leakage at the joints, and eliminate upkeep cost.

SALES OFFICES, WAREHOUSES AND SHOWROOMS:

- | | | |
|--------------|---------------|---------------|
| BOSTON | ATLANTIC CITY | MEMPHIS |
| SPRINGFIELD | NEWARK | LITTLE ROCK |
| HARTFORD | CAMDEN | MUSKOGEE |
| BRIDGEPORT | BALTIMORE | TULSA |
| ROCHESTER | WASHINGTON | OKLAHOMA CITY |
| NEW YORK | SYRACUSE | WICHITA |
| HARLEM | BUFFALO | ST. LOUIS |
| ALBANY | SAVANNAH | KANSAS CITY |
| BROOKLYN | ATLANTA | TERRE HAUTE |
| PHILADELPHIA | KNOXVILLE | CINCINNATI |
| READING | BIRMINGHAM | |

CRANE LIMITED

FOUNDED BY R. T. CRANE, 1888

CRANE CO.
836 S. MICHIGAN AVE.
CHICAGO

MONTREAL, TORONTO, VANCOUVER, WINNIPEG,
CALGARY, REGINA, HALIFAX, OTTAWA.

WORKS, CHICAGO AND BRIDGEPORT

- | | | |
|--------------|-------------|----------------|
| INDIANAPOLIS | ST. PAUL | SEATTLE |
| DETROIT | MINNEAPOLIS | TACOMA |
| CHICAGO | WINONA | PORTLAND |
| ROCKFORD | DULUTH | POCATELLO |
| OSHKOSH | FARGO | SALT LAKE CITY |
| GRAND RAPIDS | WATERTOWN | ODDEN |
| DAVENPORT | ABERDEEN | RENO |
| DES MOINES | GREAT FALLS | SACRAMENTO |
| OMAHA | BILLINGS | OAKLAND |
| SIoux CITY | SPOKANE | SAN FRANCISCO |
| MANKATO | | LOS ANGELES |

CRANE-BENNETT, LTD.
LONDON, ENG.

Obituary

George F. Hewitt

George F. Hewitt, nephew of the former Mayor of New York, Abram S. Hewitt, died suddenly last Thursday at his home in Montclair. Mr. Hewitt was seventy-three years old at the time of his death, having been born in 1849 at No. 28 Bleecker Street, New York. He was Chairman of the Board of Directors of C. B. Hewitt & Bros., paper and glue concern, of 16-18 Ferry street, and was one of the founders of this company in 1868.

The firm was located at 48 Beekman Street for many years, and now has for its president, George F. Hewitt, Jr., son of the late Mr. Hewitt. His death came as a distinct shock to members of his family, who were aroused by his heavy breathing Wednesday night and sent immediately for a physician. Mr. Hewitt was dead before medical attention could be secured. He had been in attendance upon his business the preceding day and was apparently in the best of health.

He is survived by his son, George F. Hewitt, Jr., and his widow, Jessie L. Hewitt. Business of the company, C. B. Hewitt & Bros., was suspended Saturday and a large delegation of employees and business associates attended the cortege. Funeral ceremonies took place at 12:30 last Saturday afternoon at his home, and the body was interred at Greenwood Cemetery. Actively engaged in the paper industry since the close of the Civil War, Mr. Hewitt was highly esteemed for his integrity and fairness in business dealings extending over half a century, and his loss is mourned by scores of men who knew him intimately.

J. Howard Welch

[FROM OUR REGULAR CORRESPONDENT]

WATERVILLE, Me., May 29, 1922.—J. Howard Welch, superintendent of the printing plant of the Hollingsworth & Whitney Company, in Winslow, died last week at the age of 57 years. Mr. Welch was one of Waterville's most highly esteemed citizens. He was prominent in all civic activities, and was possessed of such an unusually fortunate personality that to once meet him meant to always afterwards consider him a friend. He was a 32nd degree Mason, having been active in the Commandery and Shrine, and was also honored by fellow members of the Elks, Knights of Pythias, Modern Woodmen of America, Chamber of Commerce, Red Cross and Rotary Club. Among the honorary bearers at the funeral were several 32 degree Masons, also Hon. Charles F. Johnson, United States District Court Judge and former United States Senator; Ex-Governor F. W. Plaisted, President Arthur J. Roberts of Colby College and George H. Marr, of the Hollingsworth & Whitney Company. All of the organizations mentioned were represented by delegations at the funeral, the city of Waterville being represented by Mayor Leon O. Tebbetts. The Hollingsworth & Whitney Company sent Robert Nivison, Percy Cram, Frank Rollins and W. H. Bowden.

The Rotary Club held a special meeting this week in honor of the deceased, several speakers expressing their heartfelt admiration. Mr. Marr, his colleague at the mill for 24 years, said that Mr. Welch always had a clear understanding of what was required and a good idea of the best way to attain the desired result. He had a faculty of maintaining harmony and cultivating a spirit of good will among the employees under him, which was manifested in many ways.

Pulpwood Men Join Interests

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 29, 1922.—Three prominent concerns that handle pulpwood in Northern New York and Canada have joined interests and in the near future it is expected the partnership

will become a corporation. E. W. Elsworth of this city, James A. Murray of Potsdam and A. H. Kennedy of Kingston, Ontario have joined interests.

The purpose of the amalgamation is to better serve the trade throughout the section without a duplication of effort.

E. W. Elsworth has been handling pulpwood for seven years, with offices in this city. He purchases timber in Canada and supplies it to mills in Northern New York. Before entering this business he was for 10 years connected with the Remington group as a stockholder and superintendent. He will now handle the office work of the combination and will occasionally visit the mills and the woodlands located in Quebec.

Mr. Murray is thoroughly familiar with the pulpwood and paper business, having been connected with the A. Sherman Lumber Company for 20 years.

Mr. Kennedy is a man especially familiar with woodlands. He was formerly a minister but poor health influenced him to withdraw from his profession and take up a life in the woods. He is familiar with the timber lands of Ontario and has a wide acquaintance with wood shippers. He will devote most of his time to the shipping department and see that the wood is right and promptly delivered.

New Pulpwood Railroad for Maine

[FROM OUR REGULAR CORRESPONDENT.]

AUGUSTA, Me., May 25, 1922.—Promoters of the Eastern Maine railroad appeared before Examiner James C. Clark of the Interstate Commerce Commission here today and gave as reasons for the construction of the new line that it will open up a vast section of the state rich in long lumber and pulpwood. The proposed road, to run from Houlton to Bangor a distance of 128 miles, will traverse a thickly wooded country which has not been lumbered as extensively as other parts of the state on account of the comparative scarceness of driving streams. Attorneys for the Maine Central, Canadian Pacific and Bangor & Aroostook railroads were represented at the meeting. Affiliated with the Eastern Maine railroad corporation is the Mattawamkeag & Eastern railroad company, which asks permission to build from Mattawamkeag to Bangor. Securities asked for the two roads are approximately \$3,500,000.

Rates on Import Paper Stock

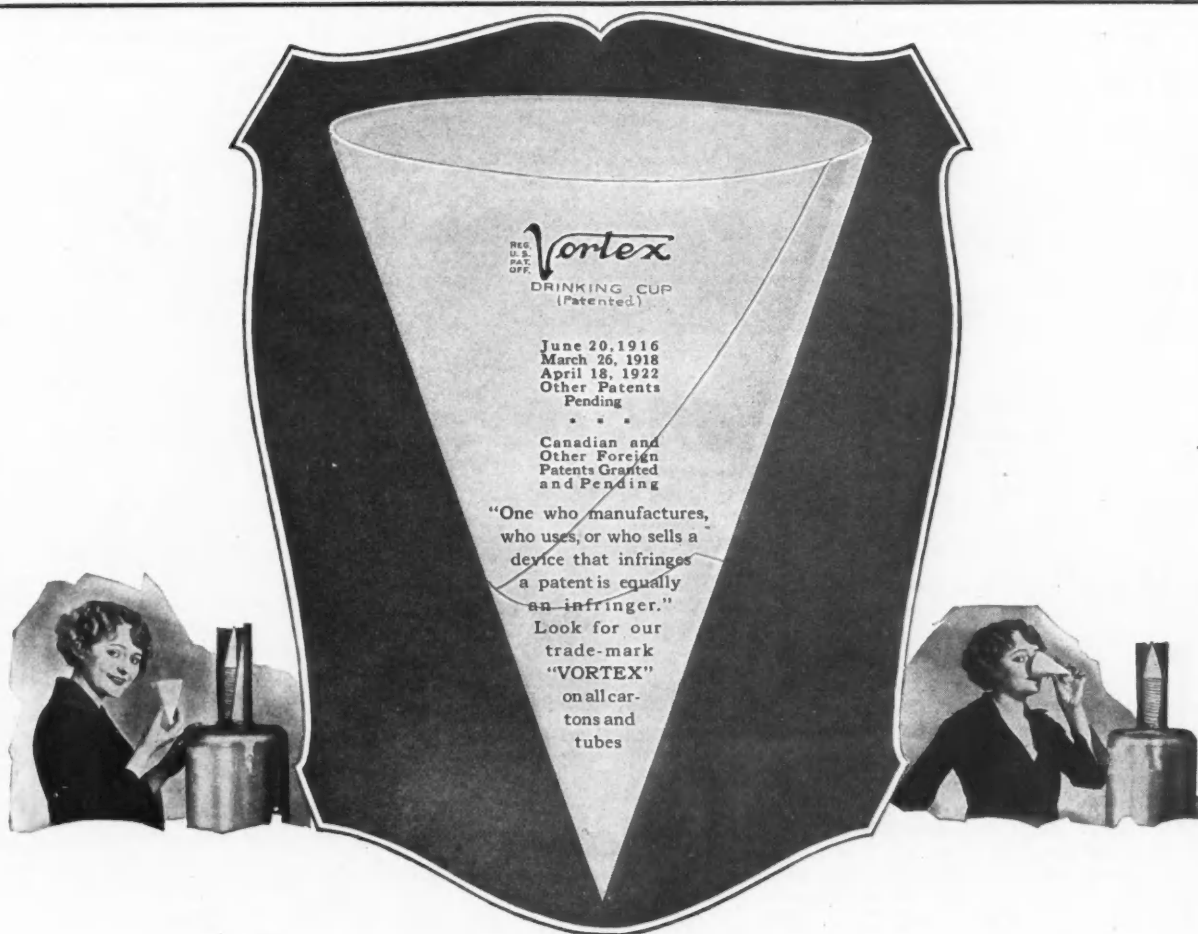
Effective June 15, 1922, rates will be established on import paper stock, viz: Rags and waste paper, pressed in bales; cotton motes and cotton sweepings; cotton and jute waste, tailings, and old rope, straight or mixed carloads, min. wt. 30,000 lbs. to C. F. A. territory. Below are shown rates to a few representative points:

		Baltimore	
		New York	Philadelphia and Norfolk
From—			
To—			
Monroe, Mich.	40	38	37
Hamilton, O.	40	38	37
Kalamazoo, Mich.	42½	40½	39½
Chicago, Ill.	46	44	43
St. Louis, Mo.	54	52	51

Cushnoc and Kennebec Paper Co. Show Improvement

[FROM OUR REGULAR CORRESPONDENT.]

AUGUSTA, Me., May 30, 1922.—Improvement in the affairs of the Cushnoc Paper Company and Kennebec Paper Company for which a receiver was appointed a few months ago is reported to Judge Peters of the United States District Court by the receiver, Walter S. Wyman. The companies, he reported, have not only paid operating expenses since the receivership went into effect, but even show a small margin of profit. The policy of the present management will be continued.



REG. U. S. PAT. OFF. **Vortex**

Drinking Cups

The Cone Shaped Pioneer

VORTEX Drinking Cups, clean and sanitary, protect the user from infections often traceable to the common drinking cup. They afford, in addition, another protection. They safeguard the user against any legal action which may arise from the use of a cup infringing on our fully protected patents.

Vortex, the pioneer cone shaped paper cup, has been in use for years. It has won its leadership not alone because of its unique design, but because of its economy and sturdiness, which cannot be duplicated in a flimsy, cheaply made cup.

This unusual strength is due to the firm, heavy quality of the paper; its reinforcement, on the outside, with paraffin wax; and its extra reinforcement about the bottom. It is substantial and rigid; needs no holder.

Vortex Cups are needed in every office, factory, theatre, club, bank, hotel and store. They are manufactured in such enormous quantities that they can be sold, with *excellent profit*, at a *very low price*. Distributors are invited to write for prices and terms.

Vortex Drinking Cups have these special features:

Made of clean, strong, pure white paper.

Carefully sterilized in manufacture. Meet requirements of Pure Food and other existing Laws.

Reinforced on the outside with pure, fully refined paraffin wax. Strong and rigid.

Have no wax on inside. Cups are tasteless and odorless.

No glue is used in their manufacture. Sealed, under pressure, with paraffin.

Spiral wrapping reinforces cup.

Extra reinforcement about bottom of cups prevents cups sticking together.

Will not absorb moisture or leak when left for an indefinite period.

Convenient in shape; no holders needed.

Packed in dustproof cardboard tubes; and shipped in sealed cartons.

Nested together and dispensed in inverted fashion; inside untouched by hands.

THE VORTEX MFG. CO., 421-431 North Western Avenue, Chicago

New York Trade Jottings

The Arkell Safety Bag Company, 67 North 11th street, Brooklyn, has filed notice with the Secretary of State at Albany, N. Y., of an increase in its capital to \$800,000.

* * *

S. W. Dunning, 132 Nassau street, New York city, who has represented in New York city the Schmidt & Ault Paper Company since 1910, advises that the agency will be discontinued June 6.

* * *

A petition in bankruptcy was filed last week against the R. & C. Paper Box Corporation of 80 Greene Street by these creditors: Louis Schulman Company, \$228; Paper, Twine & Board Company, \$604; Charles W. Rider & Co., Inc., \$40.

* * *

The offices of the American Paper and Pulp Association, 18 E. 41st Street, together with many other paper houses throughout the city, were closed from Saturday, May 27, to Wednesday, May 31, over Decoration Day.

* * *

The Irving National Bank, New York, has been appointed depository under a creditor's protective plan and agreement for receipt of bonds and creditor's claims of the Cushnoc Paper Company and the Kennebec Paper Company, both of Augusta, Maine.

* * *

A. W. Kimball, of 60 Edward Street, East Haven, Connecticut, Superintendent of the Rose Lithographic Corporation mill at White Hall, Baltimore County, Md., was among the New York trade visitors during the first part of this week. The mill has been closed down temporarily due to unfavorable economic conditions.

* * *

The American Woodpulp Corporation having recently announced that it has absorbed J. J. Patricof Company, Inc., now desires to confirm this announcement. The statement says, "Neither of the above mentioned concerns, however, will hereafter be responsible for any obligations incurred by Jacob J. Patricof, who is no longer in the employ of either firm, or connected with them in any capacity."

* * *

Judge Mack last week appointed Ernest Angell receiver for the Kolb Carton Company, Inc., manufacturer of cartons, of 474 West Broadway, under bond of \$100. The petition in bankruptcy was filed against the company by the following creditors: Lee Siegel, \$242; Angel Paper Mill Supply Company, \$369; Harry G. Jones Company, Inc., \$6,651. The corporation operates mills at Thamesville, Conn., its liabilities being listed at about \$250,000 and its assets \$50,000.

Bagley & Sewell May Make Screens

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., May 29, 1922.—The manufactures of rotary tremor screens for papermaking machines may be added to the business of the Bagley & Sewell Company of this city. Announcement of a decision on that point has not as yet been made, but John Paramor, managing director of the Watford Engineering Works, Ltd., of Watford, England, was in the city last week and held a conference with Bagley & Sewell officials relative to the proposition.

Mr. Paramor is in this country and Canada in an effort to locate branch agencies for the manufacture of the English patent rotary screen. The local plant is one of the largest paper machine and paper mill machinery manufacturing plants in the country. It now makes flat screens, but it is said that the rotary type of screen is an improvement over the flat type and is being installed in many mills, especially in Europe.

While in the city Mr. Paramor was entertained by members of

the Lansing family. He left Friday for Canada and expected to sail for home on June 6. The most that could be obtained on the question of the success of the local conference was a statement by Mr. Paramor that he had made a thorough inspection of the local plant and that the proposition to manufacture rotary screens here was under advisement.

The Watford Engineering Works, Ltd., manufacture rotary screens, revolving screen drums, strainers and strainer plates, brass and iron foundries, diaphragmless strainers and the Watford pulper.

Oppose Duty On Casein

As a result of the recent developments in the tariff situation, the Senate having passed on the bill to take casein off the free list and impose a duty of four cents a pound, book paper manufacturers held a special meeting last Monday in the offices of the Oxford Paper Company, 200 Fifth avenue. The purpose of the meeting was to get under way a movement to oppose the tariff bill and advocate free casein.

Martin Cantine, of the Martin Cantine Company was appointed chairman of the committee which was named to carry on this work and present the book paper manufacturers' side of the matter to the Senate Tariff Committee. Another meeting was held Wednesday, May 31, at which plans and further developments were discussed.

In their fight for free casein, manufacturers will work as an organized whole throughout the country. A further meeting of mill owners, constituted chiefly of those making book paper, is planned as an adjunct to the joint meeting of the Superintendents and Cost Association Convention at Kalamazoo this week.

Paper Men Show Lines at Candy Exhibit

CHICAGO, May 29, 1922.—The drive which the paper box and cover paper manufacturers and jobbers have been making for business was demonstrated during the past week when the biggest candy convention ever held convened in Chicago. During the week a large number of paper box and paper specialties houses showed their lines in booths at the Coliseum.

Among those showing at the Coliseum were, the Bedix Paper Company, of New York, showing a very attractive line of specialties for the candy and box trade: The A. M. Collins Company, of Philadelphia; The Container Club, of Chicago; The Milwaukee Paper Box Company; the F. J. Schleicher Paper Box Company, of St. Louis; The W. C. Ritchie & Co., Chicago, and H. Schultz & Co., of Chicago.

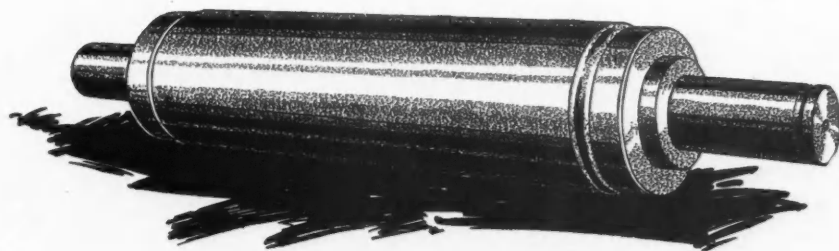
The Continental Paper and Bag Mills, 346 North Ada street, Chicago, had a very comprehensive showing of the various paper products this company produces, not alone for the candy trade but for others as well.

Hammond Paper & Bag Co. Formed

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., May 29, 1922.—Merritt J. Davis, secretary and treasurer of the Watertown Stone Products Company, Inc., has sold out his interests in the company to members of the concern and is leaving the city permanently. He has become interested in the papermaking business with T. H. Hammond, formerly superintendent of Taggart Brothers Company, who is now in Wellsburg, W. Va.

When Mr. Hammond moved to Wellsburg several weeks ago he did not announce his future plans. Report comes now that he has organized the Hammond Paper and Bag Company of Wellsburg and is getting ready to start a plant. At the present time it is said he is engaged in financing the proposition and that Mr. Davis is assisting him in the work and will be a part of the company after it gets into operation.



SUPER CALENDER ROLLS

The final touch is given your paper stock by the Calender Rolls. For half a century our rolls have been putting that finishing touch upon papers that have an acknowledged superiority.

THE APPLETON MACHINE COMPANY

APPLETON WISCONSIN

“AMERICAN”



- PAPER MAKERS TWINE
- WALL PAPER TWINE
- FINE AND COARSE POLISHED TWINES
- “AMERICAN” BRAND MANILA ROPE
- “AMERICAN” BRAND TRANSMISSION ROPE
- TUBE ROPE
- HAY ROPE

The name “AMERICAN” as applied to cordage means “more value in every way.” Send for copy of our General Catalogue, Prices and samples. Address Department M.

Largest Makers of Commercial Twines and Rope in the World

AMERICAN MANUFACTURING CO.
NOBLE AND WEST STREETS, BROOKLYN, NEW YORK CITY

CORDAGE

PROGRAM FOR COST ASSOCIATION CONVENTION

The following is the official program of the seventh semi-annual convention of the Cost Association of the Paper Industry to be held at the Community House of the Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich., June 1-3:

THURSDAY, JUNE 1, 1922.

9:00 A. M.—REGISTRATION:

Cost Association—Park American Hotel, Kalamazoo, Mich.
Superintendents' Association—New Burdick Hotel, Kalamazoo, Mich.

MORNING SESSION

COMMUNITY HOUSE—KALAMAZOO VEGETABLE PARCHMENT CO.

10:00 A. M.—

1. Address by President Bush.
2. Report by secretary-treasurer.
3. Report of Committee on Beater Furnish: Technical Association. Chairman, J. C. Sanburn, Strathmore Paper Company. Cost Association. Chairman, H. F. Miller, American Writing Paper Co.
4. Report of Committee on Depreciation: Chairman, E. S. Catlin, R. B. Wolf Company.
5. Appointment of Group Cost Committees. The Cost Association recently suggested the appointment of cost committees in each group of manufacturers and has been requested by the secretary-treasurer of the Writing, Book, Cover and Tissue Associations and the Toilet Paper Converters' Association to appoint such committees, to consist of three reliable cost men in each group.

The work to be done by these committees is important and it is hoped that very careful consideration will be given to this matter by those attending, thereby securing the appointment of the most reliable men.

AFTERNOON JOINT SESSION WITH AMERICAN PULP AND PAPER MILL SUPERINTENDENTS' ASSOCIATION

COMMUNITY HOUSE—KALAMAZOO VEGETABLE PARCHMENT CO.

1:00 P. M.—

- Address of Welcome—J. Kindleberger, president and general manager Kalamazoo Vegetable Parchment Company.
- "Association Activities in the Paper Industry," Dr. Hugh P. Baker, executive secretary American Paper and Pulp Association.
- "An Executive's Viewpoint on the Subject of Co-operation Between Superintendents and Cost Departments," George A. Galliver, president American Writing Paper Company.
- "How Cost Systems Help Superintendents," C. Oliver Wellington, C. P. A., Scovell, Wellington & Co. (15 minutes will be allowed at close of address for those who wish to question speaker.)
- "Cost Accounting as Relating to the Superintendents," F. M. Hodge, president Kalamazoo Paper Company.

6:45 P. M.—

Banquet, Community House—Kalamazoo Vegetable Parchment Company.

FRIDAY, JUNE 2, 1922

MORNING SESSION—COMMUNITY HOUSE—KALAMAZOO VEGETABLE PARCHMENT COMPANY

10:00 A. M.—

"A Simple Cost System for One or Two-Machine Mills," Paul Koenig, cost accountant Marinette & Menominee Paper company.

GENERAL DISCUSSION REGARDING:

1. Cost association's future activities.
2. Initiation of campaign for new memberships.

3. Work of Local Divisions & Group Cost Committees.
4. Executives and Cost Departments.

AFTERNOON JOINT SESSION WITH AMERICAN PULP AND PAPER MILL SUPERINTENDENTS' ASSOCIATION

COMMUNITY HOUSE—KALAMAZOO VEGETABLE PARCHMENT CO.

1:00 P. M.—

1. Short addresses by: Felix Pagenstacher, president Bryant Paper Company; Fred Sutherland, Sutherland Paper Company; A. B. Thomas, general manager Eddy Paper Company.

"Co-operation Between Superintendents and Cost Accountants," J. H. Slater, general manager Escanaba Pulp and Paper Company.

"How Superintendents Are Benefited by Cost Reports Based On Accurate Manufacturing Data," J. A. Reilly, manager cost and inventory department American Writing Paper Company.

"Mill Costs from a Technical Man's Standpoint," W. G. MacNaughton, secretary-treasurer T. A. P. P. I.

Other speakers will be C. A. Jasperson, secretary Nekoosa-Edwards Paper Company; Fred C. Boyce, Wausau Paper Mills Company; E. G. Clerke, comptroller the Richardson Company, and Ed. Coughlin, Allied Paper Mills.

6:45 P. M.—

DINNER-ENTERTAINMENT

SATURDAY, JUNE 3, 1922

Arrangements have been made whereby those wishing to do so may visit the various mills in the Kalamazoo district. All those wishing to make such visits should give their names to the Secretary-Treasurer, T. J. Burke, as soon as possible after their arrival.

Conditions Improving in Chicago

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, May 29, 1922.—Looking back over the month the trade here feels that it was a fair one. It is said by some to have fallen below the volume of March, but that unlike April, indications are much improved.

June is being looked forward to with hopes, but it is not the consensus that any great advancement will be made in a business way during the first month of summer.

The paper industry here has pointed to the approaching fall season as one in which a demand for paper will be strongly in evidence. Business conditions in general have been taken into consideration and these are said by the trade to be showing improvement. Mail order houses are expected to start campaigning for business late this summer.

Advertising of all kinds is expected to improve with the passing of the summer months.

Price of Brass Fourdrinier Wires

The Armstrong Bureau of Related Industries for its clients, the manufacturers of paper machine wires, furnishes for publication the following prevailing market price information on brass Fourdrinier wires (new standard) as last quoted to the trade by the respective sellers and cleared through the Bureau:

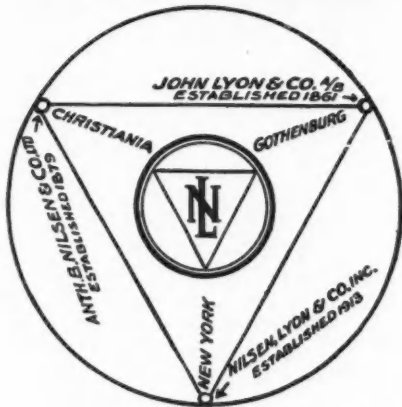
	Price in Cents Per Sq. Ft.
No. 60 mesh	50-51 cents
No. 65 mesh	52-53 "
No. 70 mesh	56-57 "
No. 75 mesh	61-62 "
No. 80 mesh	61-72 "

**GROUND WOOD
CHEMICAL PULPS**

PERKINS-GOODWIN CO.
NEW YORK

PAPER

"FOR THOSE WHO WANT THE BEST"



OSKARSTRÖM

Easy Bleaching Sulphite

- "TT" - - - - - PRIME
- "H" - - - - - HALF PRIME
- "X" - - - - - 2nd QUALITY

Stocks Carried at Baltimore, Philadelphia and Boston.

For Samples and Prices, Address

NILSEN, LYON & CO., INC.

Formerly

NILSEN, RANTOUL & CO.

140 Nassau Street

New York



CUT down excessive wrapping paper investment. Why carry two wrapping paper lines for one wrapping paper purpose?

MOSINEE

presents a perfect wrapping paper, weight and strength for each wrapping purpose. Made in all weights, from 15 lb. to 100 lbs. basis. The one complete, standardized and economical line of wrapping paper sold.

MOSINEE KRAFT

"The Wrapper That Delivers the Goods"

ADPAX

TRADE MARK REG. U. S. PAT. OFF.

PAPER

*"It more than Wraps—
It Advertises"*

IN APOLOGY TO SOME, AND IN
CONSIDERATION OF OTHERS

The advertising of our AdPax Line has been criticised and possibly justly so, for to the many who have written us we were compelled to reply that we were not prepared to give out any information. We are sorry.

Up to date, we have not attempted to draw inquiries but rather to let the trade know that we had a new line in process of preparation. Much time has also been devoted to investigation so that it would be easier to decide upon those we would be glad to have cooperate with us later on.

In early announcements we intend telling of the fields we purpose to cover and their scope and possibilities.



FRED C. STRYPE
320 Broadway, New York



Clay

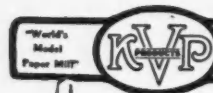
300 Tons daily

M-E clay has the lowest average grit and moisture content of *any* clay, be it domestic or foreign.

AMERICAN MADE
FOR AMERICAN TRADE



110 William Street
New York

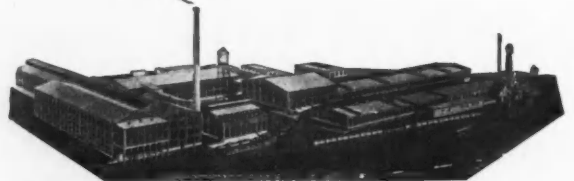


Kalamazoo Vegetable Parchment Co.
Kalamazoo, Michigan, U. S. A.

*Yours for Bigger
and Better Business*

K·V·P

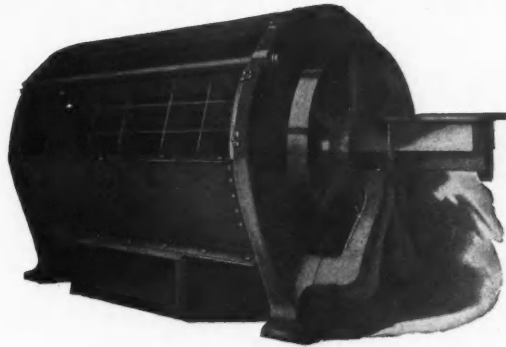
Genuine Vegetable Parchment
Pure White Waxed Paper
Bond—White and Six Colors
Manifold—Substance 8 and 10.



“IMPCO” TAILING SCREENER

FOR SCREENING GROUND WOOD TAILINGS

Very Low
Power
and
Upkeep Expense



Delivers
Rejections Free
from Good
Stock

ANOTHER UNIT OF OUR CLOSED SYSTEM FOR PULP SCREENING
WRITE FOR FULL DETAILS *CORRESPONDENCE A PLEASURE*

IMPROVED PAPER MACHINERY CO. Nashua, N. H.
SHERBROOKE MACHINERY CO., LIMITED, SHERBROOKE, CANADA

WHALEN SULPHITE PULPS

Made from the SITKA SPRUCE of BRITISH COLUMBIA
Noted for Fibre, Color and Strength

**SNOWHITE
BLEACHED
SULPHITE**

**GLACIER
EASY BLEACHING
SULPHITE**

**SWAN
STRONG
SULPHITE**

As exclusive Sales Agents for all of the products of the WHALEN PULP & PAPER MILLS, LTD., in addition to stocks at the mills, we will carry large stocks of the above well-known brands in New York, thus insuring prompt deliveries.

Your inquiries addressed to any of our offices will bring prompt quotations by wire.

CANADIAN ROBERT DOLLAR CO., Limited
VANCOUVER, B. C.

U. S. ADDRESSES

Robert Dollar Co., Robert Dollar Bldg., San Francisco.
Robert Dollar Co., 15 Moore Street, New York, N. Y.
Robert Dollar Co., Harris Trust Bldg., Chicago, Ill.
Robert Dollar Co., L. C. Smith Bldg., Seattle, Wash.

FOREIGN OFFICES

Robert Dollar Co.,
Shanghai, Hong Kong,
Hankow, Tientsin,
Ichang, Chungking, and
Pekin, China; Kobe,
Japan; Calcutta, India;
Manila, P. I.; Singapore,
S. S.

Editorial

Vol. LXXIV New York, June 1, 1922 No. 22
FIFTIETH YEAR

The Need For Enterprise

In spite of the manifold signs of returning prosperity—of a rehabilitation of broken business as a result of the period of recession which industry in general is suffering, it is very difficult indeed for manufacturers and merchants in the paper industry to smile and believe that conditions will again attain a pre-war normalcy within a few weeks' time. Furthermore, it is next to foolhardy to labor under the delusion that any such immediate metamorphosis will actually take place.

Many mill owners and paper dealers have experienced for the first time in their business careers, a genuine period of price recession, weak demand and increasingly greater competition. On a graph of wholesale prices from 1810 to 1920, it is very interesting to note that during the last century there have been just three periods of this type. During the years 1812-13, 1863-64 and 1920-21, prices attained a peak that averaged 150 per cent higher than the average for the intervening years.

Those men who were in the paper industry prior to 1898 will remember the effects of the tail end of the downward swoop of wholesale prices which resulted from the Civil War. To them, the present situation is more easily understood. The PAPER TRADE JOURNAL was inaugurated shortly after the close of the Civil War and has the benefit of the experience gained through nearly thirty years of price recession. Editorials in the year 1898 pointed out that wholesale prices were at the lowest ebb, during that year, they had ever reached in the history of our country.

From that time until late in 1920, however, the curve climbed upwards in leaps and bounds, and it is the experience of this period that men in the paper business today have accepted as a criterion. Due to the extreme complexity of modern civilization and the infinitely greater magnitude of the late war, as compared to the war of 1812 and the Civil War, it is safe to assume that the era of price reconstruction which has just commenced will be even longer than the two preceding ones, and more difficult to overcome.

This fact, however, certainly affords no reason why American business should not prosper. The era immediately following the Civil War and continuing until the twentieth century was characterized by such industrial progress as the United States had never known. The country developed in every direction and fortunes were made in innumerable lines of business despite the steady recession of prices. But one thing is sure—these fortunes were not made under the same circumstances as those which were accumulated in the early years of the recent World War. The demand for products had to be *created* in the earlier era and the mechanism of every business that survived had to be thoroughly oiled and in sound running order.

This status is approaching in present day affairs. Factory costs must be cut down to the lowest possible notch. Business must be financed soundly, and, most important of all, the effort of every individual in the paper industry must not lag. Selling campaigns

must be conducted on an intensive basis, and when every manufacturer, jobber, packer and merchant puts on an extra pound of steam and really *hustles* for business, he will find it is still there.

Foreign Trade Recommendations

The recovery of prosperity in the United States depends upon the ability of our people to sell at remunerative prices practically all they produce, running approximately full time and full-handed, was the keynote of the "final declaration" of the Ninth National Foreign Trade Convention at Philadelphia, recently.

Our productive capacity is substantially greater than the normal requirements of the domestic market. It is evident, therefore, that sustained prosperity for this country depends upon sustained foreign trade; and because in so many lines of production profit depends upon prices that are determined in international markets, our interest in foreign trade is far greater than the mere proportion which it bears to our total commerce.

Despite the improvement wrought in the last year in many markets, the world's purchasing power continues impaired, and exchanges remain unbalanced. Europe's lingering recovery retards the restoration of normal conditions elsewhere. It is now evident, however, that the competitive advantage derived from extreme inflation by some European countries, notably Germany, is rapidly lessening as their production costs rise through wage increases and through increased costs of imported raw materials.

With extensive unemployment, this country never stood more in need of foreign trade. Unemployment will not be reduced to its minimum until our export trade absorbs the last ten or twenty per cent of normal production. The country has passed from a debtor to a creditor position. The volume of American foreign trade today is less, however, than would have resulted from maintenance of the average rate of growth of the decade before the war. The value and distribution of our overseas commerce today is entirely inadequate for the service of foreign indebtedness to us and for the employment of the American Merchant Marine.

It must be recognized that the payment of foreign balances due the United States can be accomplished only in the degree that we are willing to accept goods and services. This by no means implies that the liquidation must be in competitive merchandise—on the contrary, it may take the form of non-competitive imports, irrespective of their origin.

The absorption of imports to the full value of the balances annually due us is dependent upon a fuller operation of our industries, including agriculture, and this in turn depends in part upon greater export trade. The most notable development in our foreign trade during the last year has been the importation of securities representing either American investment abroad or the funding of the excess value of our exports.

The needs of other countries, especially in Europe, for long term credits afford opportunity for the employment of American investment funds in ways that will be beneficial to both borrowers and lenders.

The conditions confronting our foreign trade today demand increased effort to expand our commerce against increasing competition. This is no time to relax effort just when foreign markets are recovering their ability to consume and our foreign competitors are

increasing their ability to produce and their selling activity in all fields. Our foreign trade has suffered in the past through lack of persistent effort to hold and develop fields in which a footing has been gained. This is the time above all for activity, courage and persistence.

It is peculiarly essential to remember that it will cost much more to regain in the future a business, lost now through lack of courage and tenacity.

The National Foreign Trade Council urges as a national program the following special features during the coming years as being likely to aid materially in hastening the return of domestic prosperity:

- 1—An expanded foreign trade to insure the prosperity of the United States.
- 2—Sale of Foreign securities to American investors; and the handling such foreign loans in such a manner as to stimulate American exports.
- 3—Development of a trans-shipment trade through the creation of foreign trade zones.
- 4—Creation of debenture-issuing corporations under the Edge Act to extend long term credits; and the financing of such corporations through the return to Member Banks of the Federal Reserve System of the subscription of three per cent of their capital required to capitalize originally the Federal Reserve Banks—such refunding to be conditional on the reinvestment of these funds in the stock of corporations organized under the Edge Act.
- 5—Elimination of the excessively high income surtax rates.
- 6—Active support of the American Merchant Marine by American shippers and travellers; and the development of a governmental tax policy which will permit of depreciation charges sufficient to reduce the capital investment in shipping to present market values.
- 7—Enactment by the various States of marine insurance laws in conformity with the model law recently enacted by Congress for the District of Columbia.
- 8—Further development of simplified and standardized documents of foreign trade.
- 9—Tax exemption of the foreign income of Americans resident abroad.
- 10—Bargaining tariff sufficiently flexible to prevent discrimination against American exports and imports.
- 11—Increased efforts to educate Americans in all parts of the United States to the importance of foreign trade to every man, woman and child.
- 12—Activity, courage and persistence at the present time in order to expand American foreign trade.

Charleston Paper Co. Buys Old Nitro Plant

CHARLESTON, W. Va., May 29, 1922.—The Charleston Paper Manufacturing Company has announced the purchase of 9¼ acres at Nitro, the former government ordnance plant. The property includes a power plant. By the time the plant is completed, probably in September, it will have cost \$400,000, according to the announcement.

Plans have been laid to start with a force of 100 men. The factory will produce a heavy grade of wrapping paper.

Charles G. Hartje, of Stubenville, Ohio, is president of the concern; W. H. Kimberland, of Pittsburgh, vice-president; and R. C. Stewart, Toronto, Ohio, secretary-treasurer.

Paper Mill Employment and Wages

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1922.—The Bureau of Labor Statistics, Department of Labor, has issued figures showing the employment and wages paid in 60 paper mills for the months of April, 1921, and April, 1922.

In these mills there were 25,251 persons employed in April, 1921, as compared with 24,655 employed in the same mills in April of this year, which is a decrease of 2.3 per cent. The payrolls also showed a decrease from \$632,394 paid to employees in April, 1921, as compared with \$567,996 paid in April of this year, a decrease of 10.2 per cent.

The bureau also shows a comparison between the employment and wages paid in 58 mills during the months of March and April of this year. In March there were 25,732 persons employed in these paper mills as compared with 24,287 in April, a decrease of 5.6 per cent. The payrolls also decreased from \$602,922 paid in March to \$559,328 in April, a decrease of 7.2 per cent.

Regarding changes in wage rates and per capita earnings in the paper industry during the period of March 15 to April 15, 1922, the bureau says:

"Two plants reported a decrease in wage rates of 10 per cent, affecting all employees in the first plant and 97 per cent of the employees in the second plant. In one establishment a decrease of 5 per cent was made in the wages of 4.8 per cent of the force. Slackness was reported for this industry and the per capita earnings showed a decrease of 1.7 per cent when March and April figures were compared."

Spanish River Mills To Use Hydro Plane

DAYTON, Ohio, May 27, 1922.—The Dayton-Wright Company has shipped a large hydroplane for use by the Spanish River Pulp and Paper Mills, Ltd., in connection with a very interesting surveying project. The power plant of the machine consists of two Liberty motors, and will carry six persons. Under Canadian laws, it will be necessary to employ a Canadian pilot. He has already been selected in the person of a member of the old flying squadron in France.

The company's timber preserves cover 12,000,000 acres lying between the territory adjacent to Sault Ste. Marie and the Hudson bay. It is necessary in modern operations to have concrete information as to the state of the timber, the topography, location of streams, watershed, etc. In the old days this was done with timber cruisers. Under that method, a survey of the 12,000,000 acres would have cost \$1,000,000. The aerial survey will involve a modern and expert photographic service. The entire territory will be photographed by piecemeal. It will require about one year to do the work.

Trips have been made from the Soo to the Hudson bay by canoe and portage. It required six weeks' time. The hydroplane now brought into service will fly from the Soo to Moose Station on Hudson bay in three hours. The machine was taken down and shipped in parts. This is a marked departure in exploratory work and will be viewed with great interest, not only in this country, but elsewhere. The machine was not purchased outright. The Dayton-Wright Company will be paid by the square-mile unit.

George H. Mead of Dayton, prominent in the affairs of the Spanish River Pulp and Paper Mills, conducted the negotiations.

Kimberly-Clark Co. Orders More Text Books

The Kimberly-Clark Company has just placed orders, through the Technical Association of the Pulp and Paper Industry for ten more copies of the third volume of the text books. Advance orders for Volumes IV and V have likewise been placed, although the date of publication is not yet definitely known.

**Exclusive****Manufacturers***Ryan-Seaman Process***DRY SATIN WHITE**

The Latest Development in The Coated Paper Industry

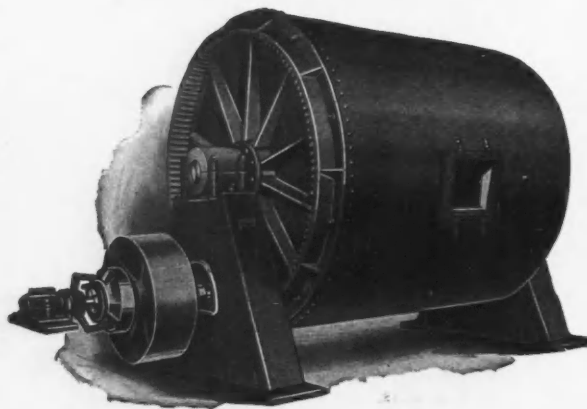
Casein
Crystal Boro Phosphate
(A solvent for casein)

ALUM
 Both Commercial and Iron Free
FOR PAPER MAKERS

Pulp Satin White
English China Clay

THE KALBFLEISCH CORPORATION
 200 FIFTH AVENUE, NEW YORK, N. Y.

MIX YOUR DRY **SATIN WHITE** IN A
CROSSLEY BALL MILL



We have been building ball mills since 1879.

You are invited to benefit by our extensive service. An opportunity of quoting on your requirements is solicited.

Write for full information and prices.

THE CROSSLEY MACHINE COMPANY
 TRENTON, N. J.

Section of the

Technical Association of the Pulp and Paper Industry



AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.



Conducted by **W.G. Mac NAUGHTON, Secretary**

WASTE IN THE PULP AND PAPER INDUSTRY

The study made by the Federated American Engineering Societies of what is known as the Hoover Committee, in its report, "Waste in Industry," has stimulated the Technical Association of the Pulp and Paper Industry to undertake the investigation of one phase that has a wider interest than the industry itself. The phase to be studied is the loss of materials or the lack of their proper utilization. The loss of material, whether fiber or chemicals, is largely through being carried away in the mill effluent and the bearing of the study on stream pollution should insure the broadest support not only of the paper companies concerned, but also the state and federal bodies. This support is being evidenced by the promise of active co-operation by the Forest Survey and the Forest Products Laboratory through Earle H. Clapp, Assistant Forester of the Washington staff.

Robert B. Wolf Chairman

The chairmanship of the committee having been accepted by Robert B. Wolf, who acted on the Hoover Committee and is one of the prominent mill engineers, insures its activity, and the vice chairmanship having been taken by George D. Bearce, engineer of the News Print Service Bureau, is a guarantee of the active interest of the chief users of wood as a raw material and the largest group of manufacturers. The study, it is announced, will start with the materials at the plants in their raw state, and will follow them through the mill to the finished product. Since wood is the chief raw material used the largest place will undoubtedly be held by wood and wood pulp although others will be dealt with. The waste of wood as such may be defined as the decrease in value through deterioration during storage and its destruction by fire and decay on account of ineffective means of prevention.

Wood Preparation

In preparation for the pulp mill, waste may be due to inefficient methods of bark removal by which material designed for pulp is either disposed of as an absolute waste or applied to a lower use, as for fuel. Waste would also include the disposal of bark otherwise than for fuel purposes, provided its value as fuel could be shown to be greater than the cost. There may also be the production of an unnecessary amount of sawdust or material unsuitable for pulp manufacture.

Mechanical Pulp Mill

Probably the outstanding instance of waste is the coarse material removed in screening the pulp where it is not utilized but is otherwise disposed of, usually through the mill effluent, while

another is the considerable percentage of usable pulp that is carried away by the same means, through inefficient methods of fiber recovery.

Another waste of which little definite is known, is the undoubted loss of power through inefficient regulation of the factors involved.

Sulphite Pulp Mills

In this class of chemical pulp mills probably the outstanding sources of material waste are the losses of sulphur through inadequate plant control, and the loss of fiber in the mill effluent. A waste which has long been studied and which is still unsolved for the industry at large, is the spent liquors of digestion. The methods of digestion may be responsible for the production of an excessive quantity of screenings containing incompletely digested wood as well as the knots.

Soda and Sulphate Pulp Mills

Apart from the fiber carried away, which is common to nearly all pulp and paper mills, the chief wastes probably lie in the unwarranted loss of chemicals due to the apparatus used and inefficient methods of recovery.

Paper Mill

The chief avenue of waste both of fiber and chemicals is through the mill effluent. The waste of fuel may be either in the steam plant itself or in any of the mills to which the steam produced is distributed for process work or for heating. In chemical pulp mills the loss of heat is almost complete. In a sulphite mill the heat produced in burning sulphur is a definite amount compared with an equal weight of coal. In discharging the contents of the digesters of chemical pulp mills some attempt has been made to recover the discharged heat. In the case of paper mills it is recognized that the application of heat in the drying operation is extremely wasteful and measures have been applied in a few cases towards heat recovery. One of the chief causes of the waste of heat, especially in the more northern sections of the country, is the poor insulation of the buildings.

To Include Ablest Engineers

In selecting the personnel of the committee R. B. Wolf and G. D. Bearce plan to include in it the ablest plant engineers in the industry and the selection is now being made. They are inviting co-operation by executives in rendering assistance toward the study of the problems which are vital to the advancement of the industry.

USE OF CONTINUOUS CENTRIFUGAL IN THE SODA PULP MILL

By J. R. KESSLER AND G. N. COLLINS

In the washing of soda pulp, as it comes from the digesters, it is desired to remove the black liquor from the pulp as soon as possible in order to decrease the bleach consumption, and with as little dilution as possible in order to have a low steam consumption in evaporating the black liquor for the recovery system. In collaboration with G. H. Elmore, a number of experimental runs were made to determine the feasibility of using a centrifugal for this purpose.

Elmore Continuous Centrifugal Used

The machine used was a 10-inch Elmore Continuous Centrifugal, with an inverted rotary basket. The material to be separated was fed in the top and passed to the inside of the basket. The liquor was thrown through the basket, which was lined with slotted plates similar to a pulp screen, and passed out a drain in the side of the machine. The pulp passed down the inside of the basket to openings in the base of the machine.

For operation on a plant scale, it was the intention to use a centrifugal with a basket 36 inches in diameter. It was deemed advisable to experiment first with a 10-inch machine,



36 INCH CONTINUOUS CENTRIFUGAL MACHINE

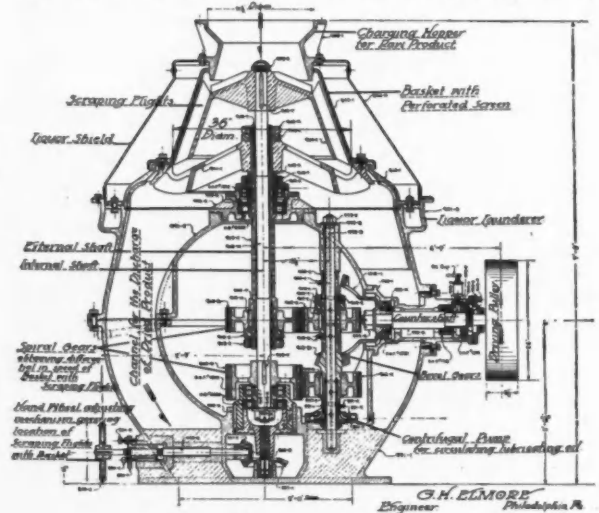
in order to demonstrate that a centrifugal of this nature would work with soda pulp as it comes from the blow dome; and to predetermine, if possible, any changes that might be advantageous in a 36-inch machine.

The 10-inch machine was set on a split concrete foundation giving a space for the accumulation of the pulp discharged through the base of the machine. The liquor outlets in the sides of the machine were arranged to discharge to either of

two barrels. The soda pulp taken out of a wash pan immediately after a blow, was fed to the machine from buckets. It was found impossible to flow this stuff through an 8-inch pipe at a low enough speed not to flood the 10-inch machine.

Series of Runs First Made

A series of runs was first made using varying speeds to



CROSS SECTION OF MACHINE

determine the most economical point at which to run the machine. The machine is designed to operate at 3,000 r. p. m. The first run was made at 2,550 r. p. m., and others at varying speeds down to 1,620 as shown in Table 1, following:

Run No.	Basket Speed, r. p. m.	Stock		Per Cent Moisture	Per Cent Caustic on Dry Stock	Liquor % Be. at 100° F.	Per Cent Fiber Lost on Air Dry Stock	Remarks
		Kind	Moisture					
1	2550	Pine	Partly diluted	57.5	1.6	...	0.28	Shown the knotty character of pulp
2	1986	Pine	Partly diluted	57.1	1.68	...	0.28	Stock diluted in an effort to feed it through a pipe
3	1986	Pine	Largely diluted	65.7	0.5	1.0	2.4	
4	1896	Poplar	7.9% Dry	57.45	2.0	8.7	0.10	
5	1950	Poplar	9.0% Dry	55.7	2.4	11.9	0.20	
6	1620	Poplar	11.0% Dry	59.4	2.16	11.5	0.28	

The column designated as "Per Cent Caustic Soda on Air Dry Stock" refers to the titrable alkalinity using Phenolphthalein as indicator.

The "Per Cent Fiber Lost" or waste pulp, appears to vary directly with the moisture content of the stock run. The loss could be reduced by the use of finer screen plates.

The moisture content of the resulting pulp appears to be fairly constant above 1,950 r. p. m. Below this speed the elimination is less complete. The caustic soda and sodium carbonate remaining in the pulp is less at the higher speeds. At the higher speed a distinct knotting or balling of the fiber presented an objectionable feature. This was attributed to the action of the scraping flights, which are inclined blades

moving inside the basket and set a small distance from it. These blades or flights are mounted on a central shaft, rotating in the same direction as the basket, only one revolution in a hundred slower, so that the resulting motion is opposite in direction to that of the basket. It is believed this objection would be eliminated in a larger machine as G. H. Elmore claims better operation with larger machines invariably results.

In running these tests different speeds were obtained by changing pulleys; this meant that some time elapsed between the successive tests and consequently different materials were used for the different runs. This would allow a difference in the original moisture content and freeness which would influence the moisture content of the product coming from the machine.

Some of the Possibilities

When using a larger machine, it is possible to give the pulp a washing in the machine by introducing water part way down the basket. To secure some idea of the possibilities of using the Elmore with washing, a few runs were made on pulp washing the first product with cold water, also with hot water, and in a third case two washings with hot water were used.

TABLE 2

No.	R. p. m.	Stock	Washing Temp.	Gal. lb. Air Dry	Per Cent Moisture	Per Cent Caustic on Air Dry Stock	Liquor % Be. at 100° F.
4	1896	Poplar	.....	.....	57.45	2.0	8.7
			1st 40° F.	1.8	66.4	0.2	0.2
5	1950	Poplar	.....	.....	55.7	2.4	11.9
			1st 40°	1.2	62.2	0.32	4.8
			2d 150°	2.3	63.7	0.08	0.05
6	1620	Poplar	.....	.....	59.4	2.16	11.5
			1st 150°	1.2	66.0	0.4	0.7
			2d 150°	1.0	67.0	0.08	
7	1950	Poplar	.....	.....	56.3	1.64	11.9
			1st 160°	.25	62.0	1.12	5.2
			2d 150°	1.13	64.0	0.2	0.4
8	1950	Poplar	.....	.....	55.5	1.24	10.8
			1st 150°	.25	59.5	0.6	4.8
			2d 150°	1.60	62.	0.6	0.0
			3d 150°	2.14	63.	0.08	0.1
						.12	

The water used was in no case excessive as compared with wash pan practice, but unfortunately even the two washings with hot water did not give a pulp sufficiently free of black liquor to be bleached at nearly as low a figure as the pulp from wash pans.

The pulp in the regular system was screened, run through a wet machine and bleached. This was an additional treatment which the stock from the centrifugal did not receive.

It must be borne in mind while considering these tests that they were run not with the idea of publication, but purely for our own use in determining whether we should proceed with the installation of a 36-inch machine.

This machine still remains excellent in theory as it provides the speediest method yet suggested of ridding the pulp of black liquor as it will take the pulp as fast as it comes from the blow and throw out the liquor.

Several Things to Be Considered

In practice, several things must be considered. Due to the difficulty of stopping a blow in the middle and holding stuff in a digester, and the possibility that something might go wrong with the centrifugal, it would be necessary to have a storage tank paralleled with the discharge to the centrifugal or a spare centrifugal could be installed as a stand-by machine in case of trouble. Small pieces of tramp iron such as nuts, bolts, nails, etc., are frequently found in the pulp. Some method for their elimination must be provided as they would probably damage the centrifugal by punching holes in the screen or bending the scraping flights. A magnetic separator could be used for this purpose. In feeding the pulp to the centrifugal, some sort of feeding control as an Adamson Rotary Feeder may be necessary to assure uniform flow. We had considered this necessary in our plans for a 36-inch installation.

The dried pulp coming from the centrifugal would be mixed with water for screening or further washing before being bleached.

Following these tests an experimental run was made on black ash grout as it came from the diffusers. The moisture content was reduced from 88 per cent to 76.6 per cent, when operating at 1950 r. p. m. This could no doubt be bettered with higher speeds and a 36-inch machine.

Further experiments, with this machine, would no doubt prove interesting and there is a large possibility that they would be especially profitable to anyone contemplating the construction of a new mill.

COMPUTING THE PULP FURNISH

In computing the quantity of pulp used in the paper mill, the variable factor is the moisture content. Throughout all the different forms in which pulp is found the moisture content varies from as low a figure as 5 per cent to one as high as 97 per cent. The greater the percentage of water the greater is the influence of a variation on the percentage of dry content. There are a number of factors to be considered in making moisture tests and the computations some of which are peculiar to certain forms of pulp and the conditions of storage.

In the case of pulp taken from wet machines and going directly into the manufacture of paper when the official method of sampling is used, the wet weight together with the moisture test should be dependable.

Rolls and Bales of Dried Pulp

The weight and test on receipt should be used provided that storage conditions are suitable.

Hydraulic Pressed Pulp

If used from storage, the variation of the moisture test from that shown on receipt will depend on conditions of storage. Accuracy of the weight will depend on the method of sampling, whereby the average of the lot is secured for a test.

Moist Laps on Sheets

When used from storage the change in moisture test from the date of receipt will depend on the factors involved in the storage conditions. Here as in the previous section the accuracy of the dry weight will depend primarily on the method of sampling to secure a fair average. The factors to be considered are the storage place whether in the open or protected, the climatic conditions during storage and the height of the pile and the length of time in storage. When pulp is piled in a warehouse for a given length of time and to a given height, an equilibrium will doubtless be reached as to the weight of dry pulp per cubic foot depending on the height piled above and the time of piling.

Drainer Pulp

The factors governing the moisture content of this form are practically the same as described in the former section. In a similar way it is probably possible to establish a factor of moisture content depending on the character of material, the depth of the mass and the time of drainage.

Slush Pulp

In this the recognized methods for determining the consistency must be employed.

A DICTIONARY OF PAPER TERMS

Industrial development is always associated with lengthening vocabularies and extending definitions. That position has been reached by the paper industry, which is rich with words and phrases of special application redolent of days before the art became an industry. The compilers of this glossary wish to help the student, young employee and layman in any work which requires a knowledge of the values of words devised to particular uses in pulp and paper mills, and to preserve, so far as possible, the interesting historical sentiment attached to the earlier words.

It is proposed after simultaneous publication in *The Pulp and Paper Magazine of Canada* and the *PAPER TRADE JOURNAL* and the receipt of constructive—or other—criticisms and additions, to incorporate the work in Volume 5 of the series of text books prepared by the Joint Executive on Vocational Education. Early comments will therefore be welcomed. Acknowledgment is hereby given to friends who have suggested words, and to "The Condensed Chemical Dictionary" (Chemical Catalog Company), "A Technological and Scientific Dictionary" (Goodchild & Tweney). The glossaries given in Sindall's, "Elementary Manual of Paper Technology." Dawe, "Paper and Its Uses." Kress, Wells & Edwardes, "American Pulpwoods." Bromley, "Paper and Its Constituents."

A

"A" Frame. A triangular frame with a cross bar for supporting machinery, etc.

Aberration. (1) Chromatic. The formation of a margin of several colors, owing to the splitting up of light rays on curved surfaces. (2) Spherical. The effect produced by reflecting light rays from a circular surface. These reflected rays are at different points in any plane of vision.

Abies. A group of coniferous trees, including spruce, larch, fir, etc.

Abietic Acid. The chief constituent of rosin ($C_{10}H_{16}O_2$). Its neutralization results in the formation of rosin soap for size.

Abrasive. Any substance used for polishing or grinding surfaces, as emery or sand.

Absolute Pressure. Pressure referred to a vacuum. Atmospheric pressure is actually 14.7 pounds per square inch absolute, usually given as 15 pounds.

Absolute Temperature. Gases lose $1/273$ of their value per degree centigrade in cooling from the freezing point of water. 273 degrees below zero centigrade or freezing point of water, is the absolute zero. Temperatures so referred are called "absolute." One degree C. above the freezing point of water would therefore be 274 degrees C. absolute. On the Fahrenheit scale absolute zero is -459° F.

Absorbency. The amount of liquid that a unit weight of paper will take up, usually measured by the height to which water will rise in a strip of filter or blotting paper, in a unit time, and in water resistant papers by immersion and determination of increased weight due to water retained.

Absorbent Papers. Paper made of suitable stock which is beaten a short time with sharp tackle and with roll down hard. It is run on the machine with minimum pressure and rapid drying. Soft cotton rags are best for this. Examples are blotting and filter papers.

Acceleration. Increase of speed; in physics, the rate at which velocity changes. The acceleration of falling bodies due to gravity is expressed by the factor g , or G , about 32 feet per second.

Account Book Papers. Strong, even, well made papers, hard

tub sized, with good writing surface, usually azure laid. The finish of both sides of the paper should be as nearly equal as possible, and opacity is essential. (Bromley)

Acetate of Lead. See Lead Acetate.

Acetic Acid. An acid compound having the formula CH_3COOH , obtained by secondary fermentation of wine, cider or other fermented substances. It is the cause of the sour flavor of vinegar. Also obtained when wood is destructively distilled. Sometimes used to hasten the action in bleaching paper stock.

Acid. (1) Chemically a compound containing hydrogen which is liberated when the acid reacts with a metal. (2) Having a sharp, pungent taste. See Sour. (3) The opposite of alkaline.

Acid Dyes. Colors whose nature is such that they can only dye fibres satisfactorily in an alkaline medium.

Acid Plant. That part of a sulphite mill wherein the sulphur is burned and the acid liquor prepared and stored; includes limestone towers, or other absorption apparatus.

Acid Proof. Having the property of resisting the action of acids, or acid fumes, such as the lining, lead and bronze fittings of sulphite digesters and acid plants.

Adansonia. The inner bark of the baobab or monkey bread tree, found on the west coast of Africa. The bast fiber contains a high proportion of cellulose.

Adhesive. Substances which cause two or more surfaces to stick together on drying, as glue, silicate of soda. Paper having one side coated with gum or mucilage.

Adipo Cellulose. A term applied to the complex cellulose substance which forms the cuticular tissue of cotton, straw esparto and other fibrous plants.

Agalite. A filler similar to talc or finely ground asbestos, and having the same chemical composition; chiefly magnesium silicate.

Agave Americana. Agave aloe. A plant yielding fibre suitable for paper making. Sisal cord or string is manufactured from a Mexican variety.

Agitator. A means of stirring fluids, usually consisting of a central revolving shaft to which arms of various patterns are attached with the object of keeping the mass in motion.

Air Dry. Containing an amount of moisture not further reduced by exposure to the air at ordinary temperatures (about 60° F.) and humidities. In the case of wood pulp it is agreed to be air dry when the pulp is 90 per cent fiber and 10 per cent water. See Moisture Test.

Air Dried Browns. Brown papers carefully made and slowly dried by exposure to air, which ensures great strength and elasticity.

Air Pump. See Suction Pump.

Albumen or Albumin. One of the chief constituents of animal matter. Egg and blood albumen may be used in place of casein for coated papers, but coagulate at a lower temperature and do not form so waterproof a coating on treatment with formaldehyde.

Albumenised. Papers used in photography. Coated with albumen from the white of egg mixed with ammonium chloride, and then treated with silver salts sensitive to light.

Alder. A tree found in the Western United States and British Columbia. The red alder (*Alnus Oregona*) has been successfully cooked by the soda process. The pulp is similar in properties and fiber length to that from poplar.

- Alea.** See Esparto.
- Algae.** Tiny organisms growing in water, which give trouble owing to their growth in the water circulation systems of mills, plugging small pipes and causing slime. One form causing this trouble in iron pipes is known as *crenothrix*.
- Alkali.** Soda, potash or ammonia; oxides, carbonates and hydroxides of sodium, potassium and ammonium.
- Alkali-Cellulose.** The compound obtained by treating cotton or wood cellulose with concentrated sodium hydroxide. Used in manufacture of viscose.
- Alkali Waste.** A residue of impure calcium sulphide produced in the manufacture of sodium carbonate.
- Alloys.** Mixtures of metals, made while molten, such as babbitts or bronzes.
- Aloe.** See Agave.
- Alternating Current.** Intermittent current of electricity flowing alternately in opposite directions. The period of change is called a cycle.
- Alum.** Papermakers' alum is sulphate of alumina $Al_2(SO_4)_3 \cdot 18 H_2O$. Other alums are double salts such as sodium alum $Al_2(SO_4)_3 \cdot Na_2SO_4 \cdot 24 HO$. Used as a mordant for dyes. See Mordant and Size.
- Alum Cake.** A commercial form of aluminum sulphate.
- Alumina.** The oxide of aluminum prepared by strongly igniting Aluminum hydrate in a crucible. A white amorphous powder.
- Aluminate of Soda.** Prepared by dissolving freshly precipitated hydrate of alumina in caustic soda. Can be used in the process of rosin sizing.
- Alumine.** A trade name for a filler, consisting chiefly of calcium sulphate with a small proportion of aluminum sulphate. Said to be well retained by paper.
- Aluminum Hydrate.** A bulky gelatinous precipitate produced when ammonia is added to soluble aluminum salt. If ammonia is added to the solution obtained by extracting paper with hot water, the formation of a gelatinous precipitate indicates the presence of alum salts.
- Aluminum Sulphate.** Used in the sizing of paper. Added to animal size it acts as a preservative. Added to rosin size it precipitates the rosin upon the fibres in the beating engine. See Alum.
- Aluminum Resinate.** A compound held by some authorities to be formed when rosin soap is treated with alum in sizing paper. Evidence of its formation is not conclusive.
- Amalgam.** An alloy in which mercury is one of the constituents.
- Ammonia.** A solution in water of the colorless gas NH_3 —properly "ammonia water." Also called "spirits of hartshorn" used as a solvent for casein in coating for paper and in various ways as an anti-acid.
- Ammonium Chloride.** A white powder or crystalline solid obtained by reaction between ammonia and hydrochloric acid; used in electric dry batteries and as a soldering flux.
- Ammunition.** Hard, strong papers made of wood pulp, hemp, or gunny; used for shot gun shells and other purposes relating to ammunition.
- Amorphous.** Having no crystalline structure.
- Ampere.** The unit of electric current; the current produced by an electro-motive force of one volt against a resistance of one Ohm. It amounts to a transfer of one coulomb per second.
- Amplitude.** Extreme distance of swing, vibration or oscillation, as of a pendulum.
- Amyloid.** A substance obtained by the action of 30 parts of sulphuric acid upon cotton or cellulose. The syrup produced is poured into water and the resultant precipitate dried. The horny mass obtained is amyloid.
- The change produced when paper is passed through sulphuric acid for the manufacture of vegetable parchment is the formation of this amyloid on the surface of the paper.
- Angle Papers.** Envelope papers, made in the usual way and after slitting cut at an angle, in order to economize in cutting the envelope blanks. Should have little difference in strength between machine and cross direction, contain little filler and sometimes a little soap as a top size.
- Anhydride.** An oxide which by the addition of H_2O to its molecule produces an acid, as sulphuric anhydride, SO_3 , which upon combining with water forms sulphuric acid, $SO_3 + H_2O = H_2SO_4$.
- Anhydrous.** Without water; dry.
- Aniline.** A coal tar compound formed by replacing one hydrogen atom of benzene (C_6H_6) by the amino group NH_2 —Formula $C_6H_5NH_2$, also called aminobenzene or phenylamine. Its formation is one of the first stages in manufacture of a number of dyes; hence all coal tar dyes are often referred to as aniline dyes.
- Aniline Sulphate.** A compound which dissolved in water is used for detecting mechanical pulp and esparto in pulps, giving a strong yellow color to liquefied fibers.
- Animal Size.** Glue or gelatine. See Size.
- Animal Sized Paper.** A term applied to any paper which has been sized with gelatine or glue.
- Annaline.** Trade name for calcium sulphate used as a loading material.
- Annatto.** A fugitive coloring matter obtained from fruit of the annatto tree, giving shades of orange.
- Anode.** The conductor or electrode by which an electric current enters the cell.
- Anti-Acid Manila.** A hard, strong paper made of hemp, or sometimes wood pulp, used for insulating purposes, as telephone wires, etc., and guaranteed free from an acid reaction.
- Antichlor.** A substance to offset or eliminate an excess of hypochlorite of lime or bleaching powder. Sodium thiosulphate or any sulphite would act thus.
- Anti-Froth Oils.** Various compounds used to break up the foam as in coating mixtures. There is no general specific, as froth is due to a wide range of causes.
- Antimony.** A gray metallic element which alloyed with lead increases its hardness and prevents collapse when antimonial lead is used for pipes in gas coolers of a sulphite mill.
- Antiquarian.** See Sizes of Paper.
- Antique.** A light, bulky paper having a soft, velvety feel, used largely for novels and standard works of fiction. In Europe sometimes made of esparto only or mixed with chemical wood pulp; in America various mixtures of sulphite and soda being used. Uncalendered and as a rule containing no loading.
- Apron.** An overlapping tray or sheet for carrying fluids or moving masses over gaps.
- A rubber covered sheet carrying half stuff or paper stock onto the wire of a fourdrinier paper machine from the headbox.
- Apron Board.** A hinged board attached to flow box of a paper machine to support apron.
- Aqua Fortis.** See Nitric Acid.
- Aqua Regia.** A mixture of nitric and hydrochloric acids—so named because it dissolves the noble metals, gold and platinum.

Armature. (1) A piece of soft iron laid across the poles of a magnet. (2) That portion of a motor which by the motion of itself or another portion called the field cuts the lines of magnetic force producing alternately positive and negative currents.

Arsenious Acid. See Sodium Arsenate.

Artificial Parchment. See Parchment.

Art. A paper, in Europe usually made of esparto and wood pulp; in America of a combination of sulphite and soda pulp. Coated on both sides with a mixture of glue and some mineral, such as china clay, and highly glazed. Used for the printing of half-tone blocks.

Asbestine. Ground short fibred asbestos, used as a paper filler.

Asbestos. The mineral amphibole, frequently of a fibrous, silky nature and used for fire prevention and heat conservation. Composition chiefly magnesium silicate.

Asbestos Paper. A paper composed largely of fibrous asbestos, used for theater curtains, screens, heat insulation, etc.

Ash. The mineral content of organic substances; the residue left after burning off combustible and volatile matter.

Ashcroft Tester. See Bursting Strength.

Asiatic Acid. Sometimes used for acetic acid.

Aspen. (*Populus tremuloides*), a tree of the poplar family used for making wood pulp, usually by the soda process. Common in northern United States and Canada. Allied to cottonwood, which see.

Atlas. See Sizes of Paper.

Atmosphere. The gaseous envelope of the earth; a mixture of oxygen and nitrogen (approximately 21 per cent oxygen and 79 per cent nitrogen) with small quantities of carbon dioxide and rare gases.

Atmospheric Pressure. The pressure exerted on the earth by its envelope of air. At sea level this is 14.7 pounds per square inch.

Auramine. A yellow coal tar dyestuff basic in character, used in coloring paper, wool, silk and leather.

Autogenous Weld. The form of weld used in lead burning; the metals being placed in contact and melted by the oxy-hydrogen blow pipe. Now much used with oxyacetylene blow pipe for all kinds of metal repairs. Applies also to the electric arc in welding.

Available Chlorine. The chlorine in bleaching powder which effects the bleaching of cellulose, present normally in bleaching powder to the extent of 36 per cent.

Azure Laid. A term of long custom applied to certain high class writings of a particular shade of blue, made on a "laid" mold or with a "laid" dandy. See Laid.

Azure Wove. A term applied to certain high class writings of a particular shade of blue, made on a "wove" mold or with a "wove" dandy. See Wove.

B

Babbitt. A bearing metal named for its originator; composed at first of copper 3.7 per cent, antimony 7.4 per cent, tin 88.9 per cent. Bearings lined with such an alloy are said to be babbitted.

Back. The driving side of a paper machine.

Backing Papers. Brown papers which paste down easily and serve to strengthen the flong or mould of alternate paper and paste used for stereotype work.

Backfall. The dam of special design behind the roll in a beater. Its function is to assist circulation of the stock.

Back Tender. Member of the machine crew next under the

machine tender. "Second hand." Has charge of paper from presses to winders, passing sheet over dryers, is responsible for the drying and finishing operation and seeing that other subordinates are properly stationed when starting up or when handling breaks.

Backwater. The water extracted from the paper stock on the machine by the wire, suction equipment and presses and returned to the system in order to save the clay, coloring, materials, alum, size or fibers contained therein.

Bag. See Bag Mill, Bag Paper.

Bagasse. Refuse of sugar cane after extracting sugar; possible source of fiber for paper and so used to a slight extent.

Bag Mill. A factory where paper bags are made.

Bag Paper. Paper of which bags are made. The usual qualities necessary are strength and toughness. Sulphate and carefully prepared sulphite pulps make good bag stock.

Balata. Gum of *Mimusops Globosa*, native of Guiana and used in the rubber trade: hence Balata belts, made from cottonweb impregnated with balata in place of rubber.

Bale. A bundle of pulp sheets or other merchandise pressed and tied, or bound, while under pressure in the baling press.

Balsam. A coniferous tree of the fir family (*Abies balsamea*), used somewhat as a source of wood pulp, notable for the resinous syrup in its outer bark, known as Canada Balsam. If bark is not completely removed, this resinous matter may get into paper made from balsam wood pulp. The fibers are shorter and softer than those of Spruce.

Bamboo. Any member of the genus *bambusa*. A giant grass, often reaching a height of 40 feet, found in the tropical regions of the Eastern Hemisphere. Makes good pulp by sulphite or soda process; has no bark to remove; yields annual crop. Fibers not so long as, and narrower than in spruce, and similar to manila. There are many species, not all of them suitable for pulping.

Bank. A term applied to high-class machine writings, which are very strong and thin. Made from rags or wood pulp, usually beaten from eight to nine hours. Paper is similar to *loan*, but not quite so heavy or transparent.

Thin, tough, glazed or unglazed; banks run from hand-made, tub-sized, air-dried to machine-made, engine-sized machine finished. The usual sizes and weights are: foolscap, 7 lbs., large post, 11 lbs., medium, 13 lbs. See Sizes and Ream Weight.

Bank Note Papers. Papers for which new linen cuttings are used. The notes having to withstand considerable handling the paper is specially strong and tough. In Europe hand-made, in North America mostly machine made.

Baobab. See *Adansonia*.

Barite. See Barytes.

Barium Sulphate. The chemical term for blanc fixe, produced by a reaction between sodium sulphate and barium chloride. Sometimes called "Basafor" in the trade, from its formula Ba SO₄. Also called Heavy Spar. Its specific gravity is 4.1. Sometimes used as a filler for paper. Part of the mixture used in coating papers is Barium Sulphate.

Barker. A machine for removing bark from pulpwood. There are two general forms: the rotating cylinder, removing bark by rubbing and tumbling of the blocks in the interior and the revolving vertical disc containing knives usually inserted in its face by which the bark is shaved off.

Barytes. Barium sulphate as mined in nature.

Basic Colors. Dyes chiefly made from aniline, requiring the use of an acid mordant for dyeing paper fibers.

Basswood. *Tilia Americana*; a North American tree with light, soft wood, sometimes used for pulp by the soda process.

- Bast.** Inner bark of plants; flax, hemp and jute are bast fibres.
- Bastose.** The cellulosic portion of the jute fibre.
- Bauxite.** A natural mineral, the hydrated oxide of alumina, from which alum is made by treatment with sulphuric acid.
- Beater.** A machine consisting of a tank or "tub" usually with a partition or "midfeather" and containing a heavy roll, revolving against a bedplate. Both roll and bedplate may contain horizontal metal bars (called fly bars) set on edge. The materials used in paper are circulated in the body of the beater and pass between the roll and bedplate. Formerly referred to as "beating engine" or "engine," Hollander, Umpherston, Taylor.
- Beater Roll.** The heavy roll which gives the stock the necessary mechanical treatment and which also causes circulation in the beater, and which contains horizontal bars on its periphery at close intervals. The roll can be raised or lowered in relation to the bedplate, and, in addition to causing circulation mixes the fiber constituents together with the chemicals and fillers and is the agent for the variation in fiber condition and to a great extent the character of the paper made.
- Beater Tub.** The tank body of the beater. Of various sizes and designs, usually oval in plan and divided by a partition or "midfeather." In it the constituents of paper are mixed and prepared for the machine.
- Beating.** The process carried out in the beater whereby the various ingredients of paper are mixed and receive mechanical treatment. Where little mechanical treatment is required a mixing tank is used instead as in news print and the reaction of size and alum facilitated. The coloring of paper is usually done while in the beater and there much of the ultimate character of the paper is determined.
- Bedplate.** A removable plate of stone or containing steel or bronze bars, placed across the direction of flow in beaters and underneath the roll.
(2) The stationary plate in the spout of the chipper in conjunction with which the chipper knives act in producing chips.
- Beech.** A broad leaved tree with hard wood found in North-eastern United States, not used in any quantity for papermaking. (*Fagus atropunicea*.)
- Bell.** A defect in paper caused by bubbles of froth passing the slices and breaking before the suction boxes.
- Benzo-Purpurine.** An aniline dye similar to Congo red, yielding a bright red color unaffected by dilute mineral acids. A useful stain for microscopic work.
- Berlin Blue.** See Prussian Blue. Ferric Ferrocyanide.
- Bible Paper.** A thin strong paper, used for Bibles originally, in which opacity is a chief characteristic, obtained by carefully boiling and beating cotton rags. Wood pulp is now used in the cheaper qualities.
- Bill Papers.** Hand or machine-made, all rag papers, tub sized, air-dried. Being used for documents, such as promissory notes, bills of exchange, etc., the paper must be very durable.
- Birch.** *Betula Alba*. A tree of the deciduous or broad-leaved type, White Birch. Sometimes used for pulp in northern United States and Canada.
- Biscuit.** A term originally applied to papers used for packing biscuits, particularly thin sulphate papers glazed on one side. The paper is now used for wrapping all kinds of dry goods.
- Biscuit Caps.** Thin white N. G. papers, employed for making bags for confectionery and similar trades, in various sizes. (Bromley.)
- Bisulphite of Lime.** The compound of sulphur dioxide and lime present in the cooking liquor used by sulphite pulp mills whereby in the digestion, the lignin and non-fibrous materials of wood are rendered soluble.
- Black Ash.** Crude carbonate of sodium produced from the black liquor in the rotary burners in the recovery system of soda pulp mills.
- Black Liquor.** Spent liquor resulting from the cooking of wood or other vegetable material by the soda or sulphate processes. It contains the dissolved lignins in combination with the organic chemicals. See Recovery.
- Blanc Fixe.** See Barium Sulphate.
- Bleach.** (1) The process of whitening cellulose by removal of coloring matter, lignin and other readily oxidizable impurities. The agent by which bleaching is done. (2) Often refers specifically to Bleaching Powder (Chloride of Lime) Calcium chlorohypochlorite or its solution.
c. f. Sodium sulphite used in bleaching mechanical pulp.
- Bleaching Powder.** Calcium hypochlorite, a compound in the form of powder produced by passing chlorine gas over slaked lime. Used for the bleaching cellulose from rags or wood. Standard bleaching powder contains 35-36 per cent of available chlorine.
- Block Pile.** The reserve of wood blocks cut to proper length for use in wood pulp mills.
- Blotting.** The trade term for blotting paper. A paper without sizing and of marked absorbent character. Best made from rags.
- Blow.** The dumping or discharging of a boiler or digester under pressure when the digestion of its charge of wood chips is completed.
- Blow Off.** The contents of the digester. The gas or liquor emitted in discharging a digester.
- Blow Pit.** The vat or tank of wood or concrete into which the contents of a boiler or digester is discharged. Equipped with a "vomit stack" or pipe to permit the escape of the steam and usually provided with a perforated false bottom. In it the pulp is drained and washed.
- Blow-off Valve.** The valve controlling the discharge of the digester.
- Blue Print.** 1. A paper sensitive to light, used by engineers for copying tracings of plans, machinery, etc. Prepared by floating white paper on a solution of yellow prussiate of potash (potassium ferrocyanide) and peroxide of iron. Paper should have no filler and preferably of rag stock tubsized with gelatine. Must stand handling in water, essential to the development of exposed prints.
2. The plans or designs shown on such paper.
- Bluestone—Blue Vitriol.** See Copper Sulphate.
- Boards.** Stiff sheets of paper usually of a definite required thickness sometimes consisting of several layers of paper made on board machines—which see.
- Board Machine.** A machine with several cylinder moulds instead of a fourdrinier wire. It may have from two to seven or more moulds, vats, and couch rolls depending on the thickness required or the number of layers desired in the finished sheet.
- Boehmeria.** See China Grass.
- Boil.** See Boiling.
- Boiling.** The act of changing liquids to a gaseous state; also the treatment of rags or old paper by heating in water with lime or soda at the boiling temperature, or under pressure in a closed vessel. Also refers to the preparation of rosin size.
- Bolt Wood.** Wood for headings or staves of barrels, ash, elm, red oak. Pulpwood delivered in two or four foot lengths.
(To be continued)

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Examination of China Clay.—James Strachan.—*Paper*, xxix, No. 21, 16-18 (Jan. 25, 1922); *Paper Trade J.*, lxxiv, No. 1, 46-47 (Jan. 5, 1922).—The author considers that a 12 per cent moisture content for clay with present methods of drying is fairly reasonable; but, as moisture is absolutely useless to the paper maker and represents so much dead weight that he has to handle and cannot put into his paper, the producer should adopt modern methods of drying by which the moisture content could be reduced to 1 or 2 per cent without danger of calcining. The following are suggested as practical standards for the maximum amount of grit allowable in various grades of clay: China clay for coating, not more than 0.1 per cent; for fine papers, not more than 0.25; for news, not more than 0.5; low-grade clays containing 5 to 10 per cent mica should be described commercially as "mica clays." A method is described for the determination of grit by repeated sedimentation and decantation in beakers or jars of standard size.—A. P.-C.

Alleged Adsorption of Alumina from Aluminum Sulphate Solutions by Cellulose.—Alfred Tingle, E. B. Eddy Co., Ltd., Hull, Que., Canada. *J. Ind. Eng. Chem.*, xiv, 498-199 (March 1, 1922); *Paper*, xxix, No. 26, 9-10 (March 1, 1922).—The observed withdrawal of alumina from solutions of aluminum sulphate in the presence of cellulose is due to chemical precipitation by non-cellulose material present as an impurity. Both neutral and basic solutions of aluminum sulphate were brought in contact under various conditions with cellulose in the form of (a) acid-washed filter paper, (b) bleached sulphite spruce pulp. By the methods employed no change in the aluminum content of the solutions could be detected, except when a pulp was used which contained calcium compounds and gave a strongly alkaline reaction to water, with which it was extracted. The deduction is made that adsorption does not occur to any appreciable extent, and that the phenomena which have been accounted for by this cause are due to other causes. The question should be thoroughly investigated and an authoritative decision reached when pure standard cellulose becomes available for research. Methods of investigation which attempt to separate aluminum salts from cellulose by repeated washing can only be employed when great caution is used as to the nature of the materials, and can never be trusted when basic solutions are in question. The experiments carried out are described in detail.—A. P.-C.

Beet Pulp as a Substitute for Wood Pulp in the Manufacture of Paper.—Fr. patent No. 517,302, F. S. Gerona.—*Chimie et Industrie*, vii, 127 (Jan., 1922).—Beet pulp contains about 80 per cent of utilizable material free from incrusting matter. It can be mixed with other fibrous materials in proportions up to 50-70 per cent. It can be used dry for the manufacture of ordinary grades of paper, and fresh, either as it comes from the diffusers or after fermentation, for the manufacture of the finer and whiter grades.—A. P.-C.

Fertilizer Experiment with Spruce Transplants.—Siefert and Helbig. *Forstwiss. Centralbl.*, xlii, 258-261 (1920); *Botan. Abs.*, ix, 32 (Aug., 1921).—Results of observations (1914-1917) on the height growth of spruce transplants, some unfertilized and others treated in 1909 with various fertilizers, are presented. The plants to which nitrate fertilizers had been applied showed more rapid growth during the first few years, but by 1917 had been almost overtaken by the unfertilized ones, whose actual percentage growth at that time was considerably greater. (Compare next abstract)—A. P.-C.

Results of Nitrogen Fertilizer Experiments with Spruce.—M. Helbig.—*Forstwiss. Centralbl.*, xlii, 262-267 (1920); *Botan.*

Abs., ix, 23 (Aug., 1921).—The results of experiments in fertilizing spruce nursery stock, 1907-1917, are summarized. The conclusion is reached that fertilization of young spruce with nitrates alone is not profitable, but that complete fertilization is advantageous in cases where tall planting stock is desired at an early age.—A. P.-C.

Observations on the Planting of the Quicker Growing Conifers.—H. S. Stewart.—*Trans. Roy. Scottish Arboric. Soc.*, xxxiv, 141-145 (1920); *Botan. Abs.*, viii, 266 (July, 1921).—Spacing even as close as 3 feet in the case of Douglas fir and Japanese larch does not prevent, and only partially restrains, branch growth. If clean boles are required, hand pruning close to the stem must be resorted to. Such spacing, moreover, results in the production of many suppressed boles of little value which interfere with the root development of the more vigorous, dominant neighbors. Spacings of 5.5, 6 and 7 feet are advocated respectively for Sitka spruce, Japanese larch and Douglas fir.—A. P.-C.

The Partington Rotary Screen.—*Papeterie*, xlv, 64-66, (Jan. 25, 1922).—Brief description of the merits of the Partington rotary screen, which are noiseless operation; no joints, packings or rubber aprons; elimination of vibrating plates and hence decrease in power consumption; simple, automatic and visible rejection of tailings; the drum can be taken apart; when the quality of the stock is changed, the plates are easily changed to meet the new requirements; ready adjustment of the length of the stroke and the number of revolutions per minute.—A. P.-C.

Pulp Refiner.—Fr. Patent No. 520,875, S. Milne, *Monit. Papeterie Francaise*, lii, 720-722 (Nov. 15, 1921).—A rotary disc acts in conjunction with two fixed discs, housed in a suitable casing, the pulp passing from the center of the casing towards the outside, around the rotating disc, and then from the periphery of the casing toward the center. This arrangement has a fourfold purpose: (1) To allow of treating very thick pulp, (2) to afford means of easily adjusting the distance of the fixed discs from the rotary discs, (3) to pack the shaft bearings so as to prevent loss of pulp, (4) to provide the discs with blades which are equidistant from one another and from one or more large openings for the passage of the pulp.—A. P.-C.

Feltless Wet Machine.—U. S. A. Patent No. 1,407,398, H. R. Farnsworth, assignor to Sandusky Foundry and Machine Company (Feb. 21, 1922).—The machine consists essentially of a perforated polygonal drum covered with wire similar to a Fourdrinier wire, each face having a suitable cover for confining a definite quantity of pulp on that face. Means are provided for intermittently rotating the drum. During the periods of rest of the drum the pulp is fed to one of the flat sides, and when the proper amount of pulp has been fed the feed is shut off and compressed air is forced under the cover, pressing the water out of the pulp. The drum is then rotated to bring the next face into position and the operations are repeated. At a suitable point the pulp is removed from the machine by blowing air outwardly through the drum face.—A. P.-C.

Cutting Blade for Wet Machines.—Can. Patent No. 205,402, J. G. Carrier, Nov. 9, 1920.—A. P.-C. Also, Can. Patent No. 216,333, March 7, 1922.—A. P.-C.

Method and Apparatus for Draining a Moist Web on a Wet or Paper Machine.—U. S. A. Patent No. 1,405,211, A. J. Haug, assignor to Improved Paper Machinery Company (Jan. 31, 1922).—A perforated roll is pressed against the couch roll to express the water of the layer of fiber, the water passing through the pressing roll. The latter may be made to pick the sheet of fibers off the

couch roll, or may even press directly against the cylinder mould, filling the function of the couch roll.—A. P.-C.

Export Packing.—C. C. Martin, National Paper & Type Co.—*Pulp and Paper*, xx, 10 (Jan. 5, 1922).—An enumeration of the varied knowledge required for properly packing goods for export shipments.—A. P.-C.

Process for the Purification of Commercial Wood Pulp for the Manufacture of Special Papers or for Chemical Purposes.—Fr. Patent No. 525,720, Exportingenieur für Papier und Zellstoff-technik G. m. b. H., June 15, 1921. *Papier*, xxv, 14-15 (Jan. 1922).—The bleached or unbleached pulp, either dry or moist, is placed in a rotary digester, 50 per cent (on the dry weight of the pulp) of caustic soda, sodium sulphide, or a mixture of the two, is added, and just enough water to obtain a solution of 4 to 5 degrees Be. The air is removed as much as possible either by steaming or by displacing with an inert gas or a reducing gas, the digester is closed, rotated for some time, and then heated with steam until a pressure of 0.5 to 2.5 atmospheres is obtained and maintained for several hours. After relieving the pressure the pulp should be merely moist, and should not be bathed in liquor. The pulp is then washed thoroughly, and is heated at a consistency of about 25 per cent to 100 degrees C. in the digester which is rotated for about 4 hours.—A. P.-C.

Electrolytic Cell for the Preparation of Hypochlorite Solutions.—U. S. A. Patent No. 1,409,782, D. McD. Rogers and A. T. Masterman, March 14, 1922.—A. P.-C.

Process of Manufacturing Hypochlorite Solutions.—U. S. A. Patent No. 1,403,993, C. F. Wallace and J. C. Baker, Jan. 17, 1922.—A solution of the base (preferably sodium carbonate, caustic soda, or milk of lime, but any weak base such as magnesia, borax, basic phosphates, etc.) is passed through an injector and chlorine gas under pressure is forced into the solution in sufficient amount to immediately react with the whole of the base. Solutions containing up to 5 per cent of available chlorine have thus been prepared, and higher concentrations can doubtless be obtained.—A. P.-C.

Electrolytic Cell.—U. S. A. Patent No. 1,404,387, S. M. Green, Jan. 24, 1922.—The cell contains two endless (preferably circular and concentric) perforated cathodes covered by suitable diaphragms. The annular space between the cathodes forms the anode chamber. The space outside the anode chamber can be connected to a suction pump so as to draw the electrolyte through the diaphragms when the latter begin to get clogged up. It is claimed that this effects an increase of about 100 per cent in the output of a cylindrical cell without increase in dimensions or floor space required; the volume of the anode chamber, being reduced, there is a smaller volume of electrolyte in the cell at any time, which effects considerable economies when starting up or shutting down; the flow through the cathodes is more regular, improving the efficiency of the cell; and finally the life of the diaphragms is increased.—A. P.-C.

Method of Bleaching Pulp.—U. S. A. Patent No. 1,409,799, Geo. M. Trostel, March 14, 1922.—Bleach solution of suitable concentration is heated to 170 to 180 degrees F. and is allowed to act for 7 to 15 minutes on the pulp at a consistency of 18 to 20 per cent. The bleaching may be carried out in one or two stages as preferred.—A. P.-C.

Handling Liquid Chlorine.—D. K. Bartlett, Electro Bleaching Gas Company.—*Paper*, xxix, No. 8, 18-19 (Oct. 26, 1921); *Paper Ind.*, iii, 1277-1281 (Dec., 1921).—A discussion of the handling and storage of chlorine from a safety point of view. Danger from the gas occurs when it gets out of the container, which can take place in three ways: by explosion, by an increase of pressure (due to heat) sufficient to rupture the container, or by leaks. The first can be disregarded as chlorine is non-explosive. The second is slight owing to the high critical temperature of chlorine. A few cases of rupture of containers have occurred in the manufacturers' plants (none on record in transit or users' plants) due to the presence of foreign material in the container which reacted with

the chlorine. The presence of a leak is soon detected owing to the odor of the gas, and its position can be located by means of ammonia. The gas is non-inflammable and non-poisonous, but is a very strong irritant. Inhaling it will not cause death unless the subject remains for a long time in an atmosphere of highly concentrated gas. Local conditions affect the storage problem, so that a detailed discussion of the best method of storage is useless at the present stage of the art; but the problem can be readily worked out for any particular case.—A. P.-C.

Pulping and Washing Engine of the Hollander Type.—U. S. A. Patent No. 1,402,456, H. W. Southworth, Jan. 3, 1922.—The engine is equipped with an ordinary beater roll and bedplate, and one washing drum, the place of the second washing drum being taken by a pair of pressure rolls. When the stock reaches these rolls, most of the water is pressed out and held back of the rolls to be eliminated through the washing drum, while the stock is mixed with fresh water on the other side of the pressure rolls.—A. P.-C.

The Herrbold Waste Paper Pulper.—U. S. A. Patent No. 1,391,056, William J. Herrbold, Sept. 20, 1921.—*Paper*, xxix, No. 12, 13-15 (Nov. 23, 1921).—The stock is fed into a horizontal cylindrical tank with suitable agitators, and from the tank is fed into a chamber provided with an internal spiral and a top plate which is weighted down and held in place by beans of springs, so that a certain predetermined pressure must be exerted by the stock in the chamber to lift the top plate. On overflowing from this chamber the stock falls on a concave deflector and finally returns to the tank, where it goes through the cycle over again. It is claimed that the disintegrating of the stock is very effective and rapid and is without grinding or abrading action.—A. P.-C.

Rag Shredder.—U. S. A. Patent No. 1,407,364, H. H. Waller, Feb. 21, 1922.—A. P.-C.

Process for the Recovery of Waste Paper.—U. S. A. Patent No. 1,396,227, R. A. Marr, Nov. 8, 1921.—*Paper*, xxix, No. 15, 28-29 (Dec. 14, 1921).—The waste paper is treated with a solution of soap (preferably soft soap, i. e., potash soap) and ammonia, heated to about the boiling point, and subsequently treated in a beating engine.—A. P.-C.

Thermit Welding for Beater Shafts.—*Paper*, xxix, No. 9, 27-28 (Nov. 2, 1921).—A beater shaft at the James Leo Company, Jersey City, N. J., which broke, was thermit welded, and then broke again about 1 foot from the weld. The old cast iron shaft was then cut back to the larger portion and welded to an eight-inch forged steel bar, making it stronger than it originally was.—A. P.-C.

Beater Roll.—U. S. A. Patent No. 1,362,219, G. L. Bidwell, Dec. 14, 1920. Also Can. Patent No. 215,567, Feb. 7, 1922. Also Fr. Patent No. 531,530.—The roll is built up of longitudinal segments which have bars, or knives, cast in one piece with the segment. These segments are bolted to 3 spiders (one in the middle and one at each end) keyed to the shaft, the joints between the segments being filled with lead. The ends of the roll are tightly closed by means of suitable plates.—A. P.-C.

Process and Apparatus for the Preparation of Paper Pulp.—U. S. A. Patents Nos. 1,405,944 to 1,405,947, C. W. Shartle, Feb. 7, 1922.—These patents cover various arrangements of breaking engines, beaters and screens.—A. P.-C.

The Beating of Paper Pulp.—Raymond Fournier.—*Papier*, xxiv, 539-542 (Dec., 1921).—A general discussion of the function of beating. The author also shows how it is that cylindrical fibers, such as hemp, flax, etc., hydrate more readily than flat fibers, such as cotton, and insists on the fact that the felting power of a given material does not depend on the length and diameter of the ultimate fibers as generally prepared in the laboratory, but on the length and diameter of the beaten fibers as they are fed to the paper machine.—A. P.-C.

Method and Means for Coloring Paper.—U. S. A. Patent No. 1,407,247, E. B. Brewster, Feb. 21, 1922.—The color is sprayed

through nozzles onto the web on the wire by means of compressed air, the pipe carrying the nozzles being given a reciprocating motion at right angles to the line of travel of the paper.—A. P.-C.

Paper-Cutting Device for Paper Machines.—U. S. A. Patent No. 1,402,451, W. H. Shellington, assignor to International Paper Company, Jan. 3, 1922.—The patent covers a device for cutting the web just before it leaves the driers to facilitate its introduction into the calender stack.—A. P.-C.

Cylinder and Felt Cleaner for Paper Machines.—Can. Patent No. 215,672, Bird Machine Company, assignee of C. S. Bird, Feb. 5, 1922.—The spray pipe is given a reciprocating motion at right angles to the line of travel of the felt or cylinder, the amplitude depending on the distance between the spray nozzles. It is claimed that this effects a more thorough cleaning with a lower consumption of water and power.—A. P.-C.

Method of Removing the Web from the Wire on to the Felt.—Can. Patent No. 214,078, Bagley & Sewall Company, assignee of F. W. Monaghan, Nov. 1, 1921.—The moist web passes over a suction couch roll so designed that compressed air can be blown out of the roll along a given generator, thereby blowing the web off the wire against a small roll and from there on to the press felt.—A. P.-C.

Hardy Stock Consistency Regulator.—Can. Patent No. 214,176, Mills Works & Machinery, Ltd., assignee of George Hardy, Nov. 8, 1921.—Addition to Can. Patent No. 184,950, June 18, 1918. Also U. S. A. Patent No. 1,406,009, Feb. 7, 1922.—A. P.-C.

Removing Condensed Steam from Paper Machine Dryers.—U. S. A. Patent No. 1,406,991, Alfred MacKay, assignor to Geo. B. Ferrier, Feb. 21, 1922.—Three volute spiral chambers, each having but one inlet and one deflector rib to guide the water into the chamber, deliver the water into a chamber in one of the heads of the dryer, from which it is evacuated through one of the journals. The purpose of having more than one spiral is not to increase the capacity of the water removing means, but to prevent interference in the flow of water such as occurs when there are several inlets to the one spiral.—A. P.-C.

Drive for Paper Machine Dryers.—U. S. A. Patent No. 1,407,154, F. A. Headson, Feb. 21, 1922.—A. P.-C.

The Manufacture of Woolen Press Felts.—E. S. Bates, Bates & Innes, Ltd.—*Pulp and Paper*, xx, 41-45 (Jan. 19, 1922); *Paper Trade J.*, lxxiv, No. 8, 43-46 (Feb. 23, 1922); *Paper*, xxx, No. 1, 7-11, 18 (March 8, 1922).—A detailed description of the process of manufacture of paper machine felts and jackets, with a brief discussion of their strength and performance, and a plea for closer co-operation between the paper mills and felt manufacturers in order to enable the latter to give better service.—A. P.-C.

Watermarking Embossing Machine.—U. S. A. Patent No. 1,408,633, P. D. Parsons, assignor to Scott Paper Company, March 7, 1922.—The paper is embossed by pressing the embossing wheel on the moist web against one of the dryers, giving a sharp impression resembling a watermark. More particularly applicable to tissue paper for towels, etc.—A. P.-C.

Milkey Paper Dryer.—U. S. A. Patent No. 1,387,061, L. E. Milkey, Aug. 9, 1921.—*Paper*, xxix, No. 12, 15-17 (Nov. 23, 1921); *Paper Ind.*, iii, 1253-1254 (Dec., 1921).—The paper is held between two wires and pressed firmly against a perforated roll from which air under pressure is blown through the sheet to carry away the moisture.—A. P.-C.

Method of Drying Paper.—Fr. Patent No. 527,975, G. C. Joly, Aug. 5, 1921.—*Papier*, xxiv, 545-546 (Dec., 1921); *Papeterie*, xliii, 1120-1122 (Dec. 25, 1921).—The paper is dried on an endless wire cloth which passes over a series of electrically heated plates, which are arranged in sets above one another, the whole being enclosed in a suitable chamber.—A. P.-C.

Stock Consistency Regulator for Paper Machines.—U. S. A. Patent No. 1,408,977, L. Boivin, March 7, 1922.—The stock outlet from the chest supplying the paper machine is conical-shaped. A

hollow copper bulb, attached to a vertical rod, is suspended in the outlet, and controls the amount of stock flowing out according to its height in the outlet. Above this is a second copper bulb, also hollow, which is attached to a suitably pivoted vertical rod. The greater the consistency of the stock, the heavier it is and the more it presses down on the upper copper bulb, thereby lowering it and decreasing the area of the outlet opening, so that the actual amount of stock delivered is kept constant.—A. P.-C.

Electrical Paper Machine Drives in Canadian Mills.—J. N. Stephenson.—*Pulp and Paper*, International Number II, 145-147 (Dec., 1921).—A brief review of the principal features of the Harland, General Electric and Westinghouse sectionalized paper machine drives.—A. P.-C.

Process and Apparatus for the Manufacture of Corrugated Paper.—Fr. Patent No. 526,331, Arkell Safety Bag Co., U. S. A. *Papeterie*, xliii, 1122-1125 (Dec. 25, 1921).—Compressed air is used to press the paper against a support placed immediately in front of the corrugating device. The device can be applied to existing paper machines.—A. P.-C.

Save-All.—U. S. A. Patent No. 1,409,885, E. Partington, March 14, 1922. Also Eng. Patent No. 171,718, May 21, 1920.—The back-water from the paper machines is gently introduced into a suitable chest, at or near the bottom, and is kept in gentle movement in the lower portion of the chest. The agitation prevents the fibers from settling completely to the bottom of the chest; but it does not affect the upper layers out of which the fibers settle, leaving the overflow practically clear.—A. P.-C.

Angle-Gauge Attachment for Paper Cutting Machines.—U. S. A. Patent No. 1,410,519, H. Stengel, assignor to A. J. Otten, March 21, 1922.—A. P.-C.

Feeding Device for Paper Cutters, Perforators, Embossers, etc.—Fr. Patent No. 526,624, Thieble. *Papeterie*, xliii, 1035 (Nov. 25, 1921).—The feeding of the paper is not uniform, as there are two dead points, and it is just at this moment that the cutter, embosser, etc., is made to act.—A. P.-C.

Coating Paper with Metals or Mica.—R. Miller. *Papeterie*, xliii, 1022-1025 (Nov. 25, 1921).—Brief notes on the coating of paper with aluminum, tin, bronzes and mica.—A. P.-C.

Paper Roll Bushing.—U. S. A. Patent No. 1,408,126, H. L. Mumm, Feb. 28, 1922.—A. P.-C.

Method of Finishing Paper.—U. S. A. Patent No. 1,407,611, G. W. Wheaton, Feb. 21, 1922.—A. P.-C.

Corner-Cutting Gauge for Paper-Cutting Machines.—U. S. A. Patent No. 1,402,540, V. T. Rybicki and B. Greenfield, Jan. 3, 1922.—A. P.-C.

Indicating Device for Paper-Cutting Machines.—U. S. A. Patent No. 1,402,543, F. O. Scott, assignor to Southworth Company, Jan. 3, 1922.—The patent covers a device for indicating or determining the position of watermarks, or the like, recurring at intervals in the web, so that the cutting operation can be regulated to insure locating the mark at, say, the center of each sheet cut from the web.—A. P.-C.

Process of Finishing Paper.—U. S. A. Patent No. 1,401,980, H. H. Hanson and P. E. Hodgson, assignors to Eastern Manufacturing Company, Jan. 3, 1922.—The fabrics used in platers are pasted along the edges to the zinc plates, thereby greatly facilitating the handling.—A. P.-C.

Method of and Apparatus for Imparting a Pattern Finish to Paper.—U. S. A. Patents Nos. 1,403,628 and 1,403,629, W. J. Price, Jan. 17, 1922.—A. P.-C.

Safety Device for Paper-Cutting Machines.—U. S. A. Patent No. 1,408,020, W. B. Murtha, Feb. 28, 1922.—A gate is allowed to drop on the cutting table as soon as the knife begins to move; and must be raised again by hand after the stroke of the knife.—A. P.-C.

Process and Apparatus for the Manufacture of Fiber Board.—Fr. Patent No. 529,682, Manley Chew, Sept. 15, 1921.—*Papier*,

xxv, 16-17 (Jan., 1922); *Papeterie*, xlv, 27-28 (Jan. 1, 1922).—Same as Can. Patents Nos. 209,835 and 209,836, March 29, 1921.—A. P.-C.

Mechanism for Scoring Paper Board, Pasteboard, or Fiber Board.—U. S. A. Patent No. 1,408,486, G. W. Swift, March 7, 1922.—The scoring is accomplished by opposite lines of paired rollers, with tongues opposed to grooves, the rollers of the opposing lines being arranged so that each successive pair is slightly nearer together than the preceding one. The scoring is thus done gradually as the board passes through the rollers. Also, parallel scorings are made by means of opposing lines of rollers arranged radially, so that as the board progresses through them the scoring mechanisms approach one another to provide the necessary surplus material required for the formation of the scoring.—A. P.-C.

Plaster Board Composition.—Can. Patent No. 215,002, J. N. Ehr, W. J. Ehr and G. W. Matteson, Jan. 10, 1922.—The composition consists of 50 per cent hard plaster, 25 per cent paper pulp, 25 per cent swamp moss pulp, which are mixed dry. Sufficient water is added to bring the mass to a suitable plastic state to be applied with a trowel. The composition may also be formed into sheets to be nailed to a wall as in the case of common plaster board.—A. P.-C.

Machine for the Manufacture of Double Face Corrugated Board.—Fr. Patent No. 518,939, Geo. W. Swift, *Monit. Papeterie Francaise*, lvi, 752-754, (Dec. 1, 1921).—A. P.-C.

Preparation of Paper Coating Composition.—U. S. A. Patent No. 1,407,773, J. H. Ryan, Feb. 28, 1922.—Clay or whiting is mixed with water to a thin dough and ground for a suitable length of time in a ball mill. Sizing material is then added and the mixture ground for about 30 minutes more.—A. P.-C.

Manufacture of Coated Paper.—Wm. T. Schenk, Champion Coated Paper Company.—*Pulp and Paper*, xix, 1276 (Dec. 22, 1921).—A brief and general discussion of the precautions to be taken in the coating of paper, which is considered as being a difficult art. A plea is made for a dull or semi-dull finish instead of the high glossy surface at present in vogue.—A. P.-C.

Notes on Coated Printing Paper.—R. Miller. *Papeterie*, xlviii, 962-965 (Nov. 10, 1921).—Practical notes on the quality of coating stock and on the proper method of coating.—A. P.-C.

Bituminous Roofing.—Can. Patent No. 214,157, Barber Asphalt Paving Company, assignee of A. T. Cavey, Nov. 8, 1921.—Adhesive (preferably 90 per cent castor oil and 10 per cent gilsonite) is applied to one surface of each of two webs of saturated felt, which are pressed together with the adhesive between them, and are then given an external application of a non-sticky bituminous material having a relatively high melting-point to serve as a weather-resisting coating. When required for use the two plies are stripped apart and laid in such a manner that the adhesive will unite the overlaps.—A. P.-C.

The Manufacture of Tissue Paper for Confectionery, etc.—*Papeterie*, xlviii, 1068-1069 (Dec. 10, 1921).—A description of the manufacture of this grade of paper, with particular emphasis on various minor details essential for obtaining good results.—A. P.-C.

Ornamental Paper.—U. S. A. Patent No. 1,403,765, M. A. T. Gillbee, assignor to A. M. Collins Manufacturing Company, Jan. 17, 1922.—The stock is given a surface coating of casein and glue, containing satin white or clay, and while still wet colors are applied in patches by means of rollers carrying different shades or colors. The web is then subjected to the action of brushes which move sideways of the line of travel of the paper, and which soften and blend and practically obliterate the lines of demarcation between the patches.—A. P.-C.

Machine for Applying Waterproof Coating to Paper and Other Fabrics.—U. S. A. Patent No. 1,410,465, C. C. Gamm, March 21, 1922.—A. P.-C.

Machine for Marbling Paper.—U. S. A. Patent No. 1,405,163, M. Rheinauer, Jan. 31, 1922.—A. P.-C.

Machine for Making Stretchable Crinkled Paper.—U. S. A. Patent No. 1,405,384, B. Arkell, assignor to Arkell Safety Bag Company, Feb. 7, 1922.—A. P.-C.

Japanese Handmade Paper.—Ch. Groud, *Papier*, xxiv, 4 (Jan., 1921); *Paper*, xxix, No. 11, 16-17 (Nov. 16, 1921). Translation by A. Papineau-Couture.—A description of the manufacture of handmade paper from the paper mulberry in Japan.—A. P.-C.

Method and Apparatus for Making Corrugated and Wrinkled Paper.—Fr. Patent No. 520,974, Otaka Fabric Co. *Monit. Papeterie Francaise*, lvi, 16-18 (Jan. 1, 1922).—The patent covers the process of and machinery for corrugating paper longitudinally and creasing or wrinkling it transversely.—A. P.-C.

Laid and Wove.—Dard Hunter, Chillicothe, Ohio. *Paper*, xxix, No. 16, 12-14, 16-18 (Dec. 21, 1921).—A historical sketch of early paper-making moulds, giving the origin of the terms "laid" and "wove" paper.—A. P.-C.

Carton from Fibrous Material.—U. S. A. Patent No. 1,408,752, F. X. List, assignor to National Card Mounting Company, March 7, 1922.—A. P.-C.

Method and Device for Perfecting Folded Paper Boxes.—U. S. A. Patent No. 1,405,139, L. E. La Bombard and M. H. Sidebotham, assignors to Specialty Automatic Machine Company, Jan. 31, 1922.—A. P.-C.

Machine for Making Boxes.—U. S. A. Patent No. 1,407,331, L. E. La Bombard, assignor to Specialty Automatic Machine Company, Feb. 21, 1922.—A. P.-C.

Paper Bucket.—U. S. A. Patent No. 1,407,483, B. I. Rike, assignor to Rike Folding Box Company, Feb. 21, 1922.—A. P.-C.

Pails, Receptacles, etc., from Fibrous Pulp.—U. S. A. Patent No. 1,407,409, A. W. Handford, assignor to American Seamless Container Company, Feb. 21, 1922.—A. P.-C.

Adhesive Applying Mechanism for Paper-Bag Machines, etc.—U. S. A. Patent No. 1,407,612, H. W. White, Feb. 21, 1922.—A. P.-C.

Envelope-Making Machine.—U. S. A. Patent No. 1,407,206, H. F. Marston, Feb. 21, 1922.—A. P.-C.

Safety Envelope.—U. S. A. Patent No. 1,407,212, E. F. Nissen, Feb. 21, 1922.—A. P.-C.

Material Handling as a Factor in Eliminating Industrial Waste.—H. V. Coes, Ford, Bacon & Davis. *Chem. Met. Eng.*, xxv, 1096 (Dec. 14, 1921).—A brief discussion of the subject illustrated by a specific example of the saving effected by the introduction of proper methods of handling materials in a certain paper mill, in which the estimated annual saving was over \$60,000.—A. P.-C.

The Volume of Air Required in Air Drying.—C. T. Mitchell, J. G. White Engineering Corp.—*Chem. Met. Eng.*, xxv, 1088-1090 (Dec. 14, 1921). A discussion of the problems which confront the average engineer in attempting to find the volume of air required in air drying, giving the various factors affecting atmospheric evaporation, and showing how the calculations may be made from wet bulb temperatures and psychrometric tables. Charts are given showing the volume of air required with ultimate air humidity (i. e., humidity of the air coming from the drying chamber) of 70, 85 and 100 per cent, which show the importance of low initial humidity and also that increases in the initial temperature above 110 degrees are not attended with proportionate increase in efficiency.—A. P.-C.

Lubrication of Paper Machine Bearings.—Vincent G. Hazard, Pusey & Jones Company, Wilmington, Del.—*Belting*, Oct., 1921; *Paper*, xxix, No. 11, 14-15 (Nov. 16, 1921).—A brief discussion of problems of the paper industry in the care and selection of bearings, covering care of cast iron bearings, wood bearings, lignum vitae bearings, use of water as a lubricant for wood, and ball and roller bearings.—A. P.-C.

Apparatus for Evaporating Liquids.—U. S. A. Patent No. 1,406,997, P. Muller, assignor to Chemical Foundation, Inc., Feb.

21, 1922. The liquid is sprayed into a chamber in such a manner that the finely-divided material forms a flat layer of mist between two layers of air moving through the chamber just above and just below, parallel to, and in the same direction as the liquid spray; thus effecting rapid evaporation of the water at a relatively low temperature.—A. P.-C.

New Electrical Systems of Heating Liquids and Solids.—*Can. Chem. Met.*, v, 342-244 (Dec., 1921).—For heating liquids, a cascade electric heater has been devised, in which the heating effect is obtained by passing the current through the liquid itself, using alternating current to prevent electrolysis. For heating solids, pastes, or very viscous liquids which must be maintained at a fairly high temperature, an induction surface electrical heater is used: by placing a coil carrying alternating current in suitable relation to the surface, the induced current and hysteresis effects generate the necessary amount of heat, and the control of the primary results in perfect control of the temperature. This system can be applied to the dryers of paper machines, making it possible to maintain the dryers at any desired temperature most accurately, even when subject to variable rates of drying.—A. P.-C.

Anti-Corrosive Chemical Engineering Plants.—*Can. Chem. Met.*, v, 341-342 (Dec., 1921).—A brief description of "ceratherm" equipment made by Guthrie & Co., Accrington, England.—Ceratherm centrifugal pumps are designed to handle any corrosive liquid, whatever head or quantity may be desired or whatever liquid may be used. It is resistant to the action of heat, hot acids, cold alkali, solutions of copper salts, liquids containing chlorine, bromine, copper chloride, aqua regia, etc., and has a high crushing resistance. Vats are constructed which are lined to any desired thickness with "ceratherm" in such a manner that it cannot be detached from the side by the severest mechanical or chemical strain, and can be kept perfectly clean. The lining is also suitable for "paper digesters" (pulp digesters are probably meant—Abs.) and it is claimed that this lining is at least a thousand times as resistant as any lining which has hitherto been provided to the chemicals contained therein, and need only be one-sixth as thick as the old-fashioned lining.—A. P.-C.

Recording Instruments in the Pulp and Paper Industry.—L. G. Bean, Bristol Company, Waterbury, Conn.—*Pulp and Paper*, International Number II, 122h-122i (Dec., 1921); *Paper Trade J.*, lxxiv, No. 2, 50-51 (Jan. 12, 1922).—A partial enumeration of the uses to which recording instruments can be put in the pulp and paper industry.—A. P.-C.

Improving the Performance of Steam Boilers.—R. De Ker-garadec.—*Technique Moderne*, xiv, 14-21 (Jan., 1922).—A discussion, largely mathematical, of chimney losses in boilers and of the methods of reducing them to a minimum, with special emphasis on the use of air preheaters, either with or without economizers. The advantages of the air heater are that it fills the same purpose as the economizer by recovering waste heat; it is lighter, cheaper, less cumbersome than the economizer and is not under pressure; the furnace can be supplied with hot air resulting in higher temperature, better combustion, and possibility of using poorer grade fuel.—A. P.-C.

List of Abbreviated and Full Titles and of Addresses of the Journals From Which Abstracts Have Been Prepared for This Issue

Can. Chem. Met.	Canadian Chemistry and Metallurgy. 57 Queen street W., Toronto, Ont., Canada.
Chem. Met. Eng.	Chemical and Metallurgical Engineering. McGraw-Hill Co., Inc., Tenth avenue at Thirty-sixth street, New York City.
Monit. Papeterie Française.	Le Moniteur de la Papeterie Française. 154 Boulevard Haussmann, Paris, France.
Paper	Paper. 251 West Nineteenth street, New York City.
Paper Ind.	The Paper Industry. 356 Monadnock Block, Chicago, Ill.
Paper Trade J.	PAPER TRADE JOURNAL. 10 East Thirty-ninth street, New York City.
Papeterie	La Papeterie. 9 Rue Lagrange, Paris (5 ^e), France.

Papier	Le Papier. 16 Rue du Rocher, Paris (8 ^e), France.
Pulp and Paper	Pulp and Paper Magazine of Canada. Garden-ville, Que., Canada.
Technique Moderne	La Technique Moderne. 49 Quai des Grands-Augustins, Paris, France.
Botan. Abs.	Botanical Abstracts. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore Md.
Chimie et Industrie	Chimie et Industrie. 49 Rue des Mathurins, Paris, France.
J. Ind. Eng. Chem.	The Journal of Industrial and Engineering Chemistry. Charles L. Parsons, 1709 G St., N. W., Washington, D. C.

Better Paper for Money and Bonds

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1922.—America's money and bonds will be made of better paper next year, it was announced by Director Louis A. Hill of the Bureau of Engraving and Printing, discussing charges by the *Plate Printer*, a union paper, that "the standard of paper as now contracted for by the bureau is impossible and about as poor as can be imagined for Government securities."

Director Hill confirmed the *Plate Printer's* statement that "steps have been taken by Director Hill and Assistant Director Perry to improve it, and there are good prospects that as soon as possible better paper will be furnished to the bureau."

The quality now being used at the bureau is half linen and half cotton, Director Hill said, but after consultation with the Crane Company, which makes the silken fiber paper at its mill at Dalton, Mass., recommendation has been made for the next fiscal year's contract to call for 75 per cent linen and 25 per cent cotton. By the fiscal year 1923-1924, Director Hill said, it was hoped the Government could count on getting back to all-linen paper. But at present prospects, are, said Mr. Hill, of getting a paper 25 per cent better at one-half a cent a pound less.

During the war, on account of the great pressure on the mills and lack of raw supplies, it was necessary to use all-cotton paper, Mr. Hill said, and the bureau is now working around again to use all-linen as rapidly as the mill can supply it.

During a year the bureau uses a total of 180,000,000 sheets of this special paper, it was said, turning it by printing, into countless millions of dollars worth of paper money and Government bonds.

Much of the linen was made from flax supplied from Russia, a supply which has been seriously curtailed.

China to Operate Mill on Government Basis

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1922.—Consul General Heintzleman at Hankow, China, reports to the Department of Commerce that the Chinese Government Paper Mill, at Seven Mile Creek, Hankow, has recently ceased operation, and, owing to the lack of funds, the Ministry of Finance, which controls the plant, proposes to place the mill on a semi-Government basis under the joint management of officials and private individuals. In order to re-open the mill the manager plans to raise a loan, half of the shares to be taken by the Government and the other half to be offered to the public for purchase.

The building was erected about ten years ago. It was designed by British architects. The machinery is of American origin, except for the electric plant and the pumping plant which are British. About 200 males and 25 females were employed when the mill was in operation. The principal materials used are reeds, paddy stalks and bamboo. The nominal capacity is 300 bales of paper per diem, though the actual output when the mill was last in operation was considerably less than half of that amount. It took the form of cheap news print. The annual output was approximately 82,000 reams. The Government Printing Office at Peking used part of this paper.

Up to 1921 the paper machines of the mill consisted of one 72 inch Harper machine and one 26 inch Bagley & Sewell Fourdrinier.

METHODS OF FURNISHING STOCK

A line of study suggested to the Service to Members' Committee of the Technical Association and to which some thought has been given, is the methods of furnishing stock to the preparation apparatus of a paper mill and the measurement of the stock or the computation of the quantity supplied.

Different Forms and Usual Grades

The following is a list, so far as is known, of the different forms in which stock is generally supplied and the usual grade of material:

1. *Rolls or baled sheets*—75 to 95 per cent dry content—unbleached and bleached chemical wood pulp from drying machines.
2. *Hydraulic pressed sheets*—50 to 60 per cent dry—mechanical and chemical wood pulp and also cotton linter pulp.
3. *Moist laps or sheets*—25 to 45 per cent dry—mechanical and chemical wood pulp, deinked magazine and waste paper pulp.
4. *Drainer stock*—20 to 40 per cent dry—bleached rag and rope pulp; also chemical pulp in general.
5. *Noodles*—25 to 40 per cent dry—stock scraped from a wet machine press roll, loose or baled, mechanical pulp.
6. *Slush*—3 to 8 per cent dry—a liquid pulp suspension stored in tanks; all grades of wood pulp and pulp from old papers.

General Systems

In the preparation of stock for the paper machine there are three general systems:

1. *Beaters*—in which is attained the pulping of forms 1 to 5, inclusive; the mixture in the desired proportions of the fiber constituents; the preliminary mechanical treatment and the incorporation of the required chemicals, fillers and coloring materials. At the same time the beater tub usually serves as a unit of measurement whereby to check the quantity of fiber supplied. To do so it is necessary that the density of the contents be uniform. As the capacity of a beater rarely exceeds 2,000 pounds of dry fiber and is frequently as small as 500 pounds, it is used in mills making specialties where frequent changes of grade occur. They are in general use in mills of the older type on all grades. They are necessary in mills making classes of paper where mechanical treatment of the fiber is desirable, such as rag, rope and manila papers, sulphite bond, tissue and wrapping papers of the higher grades. In general, beaters are regarded as necessary equipment except in mills making paper largely of mechanical pulp, such as news print, and in some making book papers and boards.

2. *Mixing tanks*—in which the fiber constituents previously reduced to a liquid suspension are measured and mixed together with the chemicals, without definite mechanical treatment. In this system it is more important than in the beaters that the consistency of the stock be uniform as there is usually no check by weight against the measurement. This system is used principally in modern news print mills, to some extent in book paper mills, and is in general confined to mills in which few changes of grade are necessary. The stock is either slushed directly from the pulp mills or from a supply of pulp previously disintegrated in water.

3. *Continuous mixing system*—where the paper stock is prepared by bringing together in proper proportion, the different streams of fiber constituents in liquid suspension, and the other ingredients required. The proper mixing is attained in a box equipped with baffles, in the paper machine

screens and in the head box. The quantity of each ingredient is obtained by metering the flow which must be of a uniform consistency or concentration. This system is used in the most advanced type of paper mills where they operate continuously on the same grade of paper, such as in news print mills.

Methods of Measurement

In obtaining the accurate quantity of pulp used, when in the form 1 to 5, inclusive, the difficulty lies in the variation of the moisture content. If the moisture content were uniform weighing the pulp and using a conversion factor would give accurate results. Where the moisture content varies within wide limits, as it frequently does, the accuracy of the weighting method depends primarily on the sampling for the moisture test. All the difficulties encountered in testing pulp for moisture, are found.

Where beaters are used it is the common practice to weigh or measure the pulp and use a factor believed to be the average moisture per cent and to check the calculation by the capacity of the tub, bringing the contents to as nearly uniform density as the operator is capable of, according to his judgment. Some beater men become very accurate in this regard but it usually requires natural ability and long experience. Apparatus have been devised to measure the density of the stock in the beater, based on the viscosity of the mass, to serve as an aid to the operator. Where the pulp is slushed the measurement is dependent on regulating the consistency by the use of apparatus designed for the purpose.

The regulated stock is then measured either in the mixing tank by means of weightometers or by the use of a stock meter designed for the purpose.

Join Paper Men in Opposing Casein Tariff

The fight of the paper industry against the proposal of the agricultural bloc to have a duty placed on casein has found allies in the lumber industry, particularly the veneer manufacturers, because of the effect that such a duty will have upon their operations.

Through its central organization, the American Paper and Pulp Association, the paper industry has filed a brief with the tariff committee showing that the domestic production of casein, a glue made from milk, is far from sufficient to meet the needs of the paper industry, which uses casein in large quantities in the manufacture of book, cardboard, glazed and fancy papers. The production of casein also means the waste of milk as a food product, and the proposed duty of four cents a pound would mean not increased production in this country, but a higher price to the farmers for about one-third of the total amount consumed, while the importations would have to continue on the present scale.

The available domestic production of casein is from five to eight million pounds a year, while the 1920 consumption was over twenty-one million pounds.

The proposed duty, therefore, would place an added cost of some \$800,000 a year on the price of a few grades of paper, and other products involving the use of this glue.

The contest has come to be a direct division between the agricultural bloc and the industrial states. In the West, Felix Pagenstecher, president of the Bryant Paper Company of Kalamazoo, is leading the fight for the paper manufacturer, and in the Massachusetts region G. Frank Merriam, of the Holyoke Card and Paper Company of Springfield, is representing the paper manufacturers.

In the veneer industry such companies as the Underwood Veneer Company of Wausau, Wis., are interested, and the national association of plywood and panel manufacturers are also opposing the proposed duty.

PRODUCTION OF NEWS PRINT FOR THE MONTH OF APRIL

According to Statistics Just Issued by the Federal Trade Commission Production for April, 1922, Compared With April, 1921, Shows a Decrease Amounting to About Three Per Cent for Total News Print and Less Than One Per Cent for Standard News—Publishers' Stocks and Transit Tonnage, April 30, Represented 32 Days' Supply at the Existing Rates of Consumption.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1922.—The following is a tabulation of the reports received by the Federal Trade Commission from domestic manufacturers of news print paper from jobbers buying and selling news print paper and from publishers using news print paper. Import and export statistics of the Department of Commerce are also included in the review. When possible the figures for 1922 are compared with those for the corresponding period of 1921, 1920, 1919 and 1918.

The figures which follow show the results of the commission's tabulation for April, 1918 to 1922, inclusive:

	Number of mills	Stocks on hand 1st of month Net tons	Production Net tons	Shipments Net tons	Stocks on hand end of month Net tons
Total News Print:					
April, 1922	79	28,180	111,861	115,167	24,874
April, 1921	88	41,789	115,408	122,091	35,106
April, 1920	89	27,564	128,269	134,160	21,673
April, 1919	70	31,932	116,278	111,825	36,385
April, 1918	66	26,984	111,490	113,600	24,864
Total (4 mos.) 1922	..	23,934	432,962	432,022	24,874
Total (4 mos.) 1921	..	24,763	449,810	439,467	35,106
Total (4 mos.) 1920	..	15,369	500,014	493,710	21,673
Total (4 mos.) 1919	..	19,408	450,426	433,449	36,385
Total (4 mos.) 1918	..	31,713	416,384	423,233	24,864
Standard News (included in total news print):					
April, 1922	65	23,298	105,079	108,276	20,101
April, 1921	67	35,517	105,855	111,792	29,580
April, 1920	75	25,104	118,917	124,936	19,085
April, 1919	51	24,869	107,445	101,078	31,236
April, 1918	50	20,699	101,497	103,305	18,891
Total (4 mos.) 1922	..	19,607	404,892	404,398	20,101
Total (4 mos.) 1921	..	19,573	412,632	402,625	29,580
Total (4 mos.) 1920	..	12,338	453,368	451,621	19,085
Total (4 mos.) 1919	..	15,656	412,168	396,588	31,236
Total (4 mos.) 1918	..	26,482	377,528	385,119	18,891

Note—Above figures for total news print do not include hanging paper.

The average production of total news print and standard news, based upon the total combined production for the years 1917 to 1921, inclusive, amounted to 110,000 tons of total news print and 99,700 tons of standard news, for a period corresponding to April. The actual production for April, 1922, amounted to 111,861 tons of total news print and 105,079 tons of standard news, which, for total news print was 2 per cent above the average for the five-year-period and for standard news 5 per cent above the average.

The production of news print for April, 1922, compared with April, 1921, shows a decrease, amounting to about 3 per cent for total news print and less than 1 per cent for standard news.

The production for April, 1922, compared with April, 1920, shows a decrease of 13 per cent for total news print and about 12 per cent for standard news.

The production for April, 1922, compared with April, 1919, shows a decrease of 4 per cent for total news print and 2 per cent for standard news.

Mill stocks of both total news print and standard news decreased during April, 1922.

Loss of Production

The following tabulation shows idle machine time reported to

the commission for the month of April, 1922. This does not include mills shut down during the entire month:

Reasons	Number of machines	Hours idle
Lack of orders	10	2,324
Repairs	9	319
Other reasons	13	512

Imports and Exports

The imports and exports of printing paper not dutiable (practically all news print) and of wood pulp for the month of March, 1922, compared with the month of March, 1921, were as follows:

	March, 1922 Net tons	March, 1921 Net tons
Imports of news print (total)	78,031	66,791
From Canada	73,119	50,801
Germany	2,086	3,740
Norway	1,262	1,229
Finland	658	5,358
Sweden	532	5,600
Other countries	374	63
Exports of news print (total)	2,791	1,096
To Argentina	1,049	331
Cuba	681	374
Canada	110	30
Philippine Islands	270	184
China	253	30
Other countries	428	147
Imports of ground wood pulp (total)	12,425	2,684
Imports of chemical wood pulp (total)	48,376	21,225
Unbleached sulphite	20,153	9,555
Bleached sulphite	13,478	6,259
Unbleached sulphate	14,548	5,384
Bleached sulphate	197	27
Exports of domestic wood pulp	3,041	2,496

The imports of news print for March, 1922, were 11,240 tons more than for March, 1921. The exports for March, 1922, were 1,695 tons more than for March 1921.

The tonnage to "Other countries" under "Exports of News Print" for March, 1922, includes 71 tons to Peru, 69 tons to Mexico, 59 tons to Uruguay and 56 tons to Colombia.

Jobbers' Tonnage

The following tabulation shows the news print tonnage reported by jobbers during the month of April, 1922, compared with April, 1921, 1920, 1919, and 1918, together with commitments to buy and sell.

	On hand first of month Net tons	Received during month Net tons	Shipped during month Net tons	On hand end of month Net tons	Commitments to buy Net tons	Commitments to sell Net tons
Rolls, April, 1922	1,406	10,780	10,786	1,400	30,668	34,422
Rolls, April, 1921	2,112	7,777	7,353	2,536	39,268	43,896
Rolls, April, 1920	2,052	7,030	7,142	1,940	52,250	57,010
Rolls, April, 1919	3,403	3,056	3,527	2,932	53,168	66,016
Rolls, April, 1918	2,356	2,899	2,190	3,065	53,344	51,597
Sheets, April, 1922	4,504	2,279	2,515	4,268	2,029	1,489
Sheets, April, 1921	4,948	1,842	2,553	4,237	2,833	1,948
Sheets, April, 1920	3,333	2,556	3,076	2,813	4,647	3,452
Sheets, April, 1919	7,138	1,922	2,569	6,491	1,460	1,234
Sheets, April, 1918	6,701	3,503	3,317	6,887	5,830	5,467
Total News Print:						
April, 1922	5,910	13,059	13,301	5,668	32,697	35,911
April, 1921	7,060	9,619	9,906	6,773	42,101	45,844
April, 1920	5,385	9,586	10,218	4,753	56,897	60,462
April, 1919	10,541	4,978	6,096	9,423	54,628	67,250
April, 1918	9,057	6,402	5,507	9,952	59,174	57,064

Stocks of rolls in the hands of jobbers at the end of April were 6 tons less than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 236 tons less at the end of April than at the beginning of the month. The net decrease in the total stocks of news print in the hands of jobbers at the end of April amounted to 242 tons.

Commitments to sell roll news were 3,754 tons greater than commitments to buy. Commitments to sell sheet news were 540 tons less than commitments to buy.

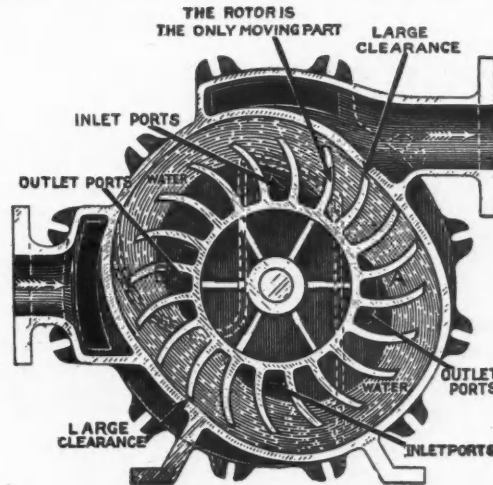
Publishers' Tonnage

Monthly tonnage reports from 660 (a) of the most important newspaper publishing concerns and associations, grouped according to the principal business sections of the United States, together with a

(Continued on page 58)

THE HYTOR VACUUM PUMP FOR FLAT BOX SERVICE

Vacuum
Produced
Absolutely
Without
Pulsation
—
No Vibration
—
Saves Wires



Only One
Moving Part
—
No Rods, Pistons,
Crank Shafts
Loose Moving Parts
and No Gears
—
No Expert Attendance

Western Representative
T. H. SAVERY, Jr.
1718 Republic Bldg.,
Chicago, Ill.

THE NASH ENGINEERING CO.
WILSON POINT ROAD
SOUTH NORWALK, CONN.

New England Representative
G. H. GLEASON
185 Devonshire Street
Boston, Mass.



CONVEYING AND POWER TRANSMITTING MACHINERY

For handling the raw materials and finished products inside or outside the plant

Quality Pays

Frequent shutdowns and waiting for repairs dissipate your profits.

Weller Made Machinery proves its merit because quality is built into it.

LET US KNOW

The kind of equipment you are interested in. Catalogues will be sent.



- WE DESIGN AND MAKE
- BELT CONVEYORS
- CHIP CONVEYORS
- COAL CONVEYORS
- PULP CONVEYORS
- STRAW CONVEYORS
- BUCKET ELEVATORS
- HEAVY STEEL CHAIN
- COMBINATION CHAIN
- SPROCKETS
- SCREENS
- FRICION CLUTCHES
- HEAVY BEARINGS
- ROPE DRIVES
- PULLEYS
- GEARS
- COAL HANDLING EQUIPMENT, ETC.

Get Our Prices Before Placing Your Order.

WELLER MFG. COMPANY

Main Office and Works: 1820-1856 N. Kostner Ave.

CHICAGO, ILL.

Sales Offices

New York Boston Baltimore Pittsburgh Cleveland Detroit Salt Lake City San Francisco

Recent Incorporations

PAPER UTILITIES COMPANY, INC., Manhattan, New York. Manufacturing paper, wood pulp, etc.; capital \$165,000. Incorporator, J. L. Watson, 37 Wall street, New York city.

TWIN FALLS BINDERS BOARD MILLS, INC., New York. Twin Falls Mills, Scotch Plains.—Binders, board, paper, pulp and fiber products. Capital \$125,000.

BEAVER PRODUCTS COMPANY, Tonawanda, New York, wall boards and roofing material, capital \$100,000. Incorporators B. L. Worden, J. McC. Mitchell, G. F. Phillips. (Attorney, F. J. Knorr, Albany.)

MORGAN L. ELLIS, INC., Boston, Massachusetts, general paper business. Capital \$50,000. Incorporators, Roland Litchfield, Brookline, Hazel M. Townner, Everett, Marian V. Bantillier, Walden.

FLASHLIGHT PAPER TUBE COMPANY, Manhattan, New York. Capital \$10,000; Incorporators S. Cohen, J. J. and P. Maniel. Attorney, M. H. Mandel, 27 Pennsylvania avenue, Brooklyn.

WESTERN PAPER STOCK CORPORATION, Delaware, manufacture, capital \$450,000; Incorporators R. Tietgens, Madison L. Goff, Joseph Gilles, San Francisco. Corporation Service Company.

AMERICAN PAPER PRODUCTS COMPANY, a Missouri corporation, qualified to do business in Indiana; no capital in this state at present; to manufacture paper, containers, etc.; agent in Indiana, Harry C. Basaler, Carthage.

Bids and Awards for Government Paper

(FROM OUR REGULAR CORRESPONDENT)

WASHINGTON, D. C., May 31, 1922.—The purchasing officer of the Government Printing Office has received the following paper bids:

6,000 rolls Toilet Paper: Mathers-Lamm Paper Company, at \$9.78 per case of 100 rolls; Riegel & Co., Inc., \$10.28; Continental Paper and Bag Mills, \$11.50; Adams Paper Company, \$15.50; Morgan Envelope Company, \$9.25; L. Barth & Son, Inc., \$11.00; Republic Bag and Paper Company, \$10.35; D. S. Walton & Co., \$11.00; R. P. Andrews Paper Company, \$8.93; Sanitary Products Corporation, \$11.00; Chas. G. Stott & Co., Inc., \$10.80; National Paper Supply Company, \$10.50; Dobler & Mudge, \$11.50; S. Freedman & Sons, \$9.80; Osburn Paper Company, \$11.00; Garrett-Buchanan Company, \$10.30; F. J. McCarthy Company, \$12.50; Paper Manufacturers Company, Inc., \$9.95; and The Whitaker Paper Company, \$11.70.

9,500 lbs. 27 x 38, 95 Rope Manila Paper: Maurice O'Meara Company, at \$.095 per lb.; Dobler & Mudge, \$1.099, and American Writing Paper Company, \$1.196.

4,100 lbs. 17 x 28, 20½ White Bond Paper, No. 61: The Aetna Paper Company, \$1.191 per lb.; Old Dominion Paper Company, \$1.1519; R. P. Andrews Paper Company, \$.13; Dobler & Mudge, \$.17; Mathers-Lamm Paper Company, \$.19, and Lee Paper Company, \$.16.

10,400 lbs. 26½ x 41, 104 India Tint Cover Paper: Dobler & Mudge, at \$.089 per lb.; R. P. Andrews Paper Company, \$.0943; The Whitaker Paper Company, \$.09; Mathers-Lamm Paper Company, \$.099; Geo. W. Millar & Co., Inc., \$.1048; Old Dominion Paper Company, \$.099; Thos. Barrett & Son, \$.107; Reese & Reese, \$.09888; Maurice O'Meara Company, \$.0994.

7,800 lbs. 38 x 48, No. 16, Map Paper: Dobler & Mudge, \$.185 per lb.; Old Dominion Paper Company, \$.1872; R. P. Andrews Paper Company, \$.17; B. F. Bond Paper Company, \$.21; Barton, Duer & Koch Paper Company, \$.17625; The Whitaker Paper Company, \$.189; American Writing Paper Company, \$.1828.

4,000 lbs. 24 x 36, 70 11½ Rope Manila Paper: Maurice O'Meara Company, \$.095 per lb., and Dobler & Mudge, \$1.099.

4,375 lbs. 21 x 32½, 87½ No. 48, Yellow Commercial Ledger Paper: R. P. Andrews Paper Company, at \$.19 per lb.; The Whitaker Paper Company, \$.187; Old Dominion Paper Company, \$.2399;

Dobler & Mudge, \$.20; Mathers-Lamm Paper Company, \$.199; American Writing Paper Company, \$.1898.

The purchasing officer will open bids on June 2 for the following: 6,000 lbs. Pink Calendered Tag Board in 24" rolls, 26" diameter. 5,150 lbs. (100 reams) 30 x 40, 51½ Map Paper, Lithograph Finish.

2,400 lbs. (50 reams) 20 x 25, 48 Moss Green Cover Paper.

The Aetna Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 4,100 lbs. (200 reams) of 17 x 28 20½ white glazed bond paper at \$.1191, bids for which were opened on May 19.

The Maurice O'Meara Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 14,800 pounds (100 reams) of 24 x 38—148 rope manila paper at 9½ cents a pound.

Dobler & Mudge will furnish 4,800 pounds (100 reams) of 20 x 25—48 rough sage cover paper at \$.0923 per pound. Bids for these items were opened on May 10.

NEWS PRINT PRODUCTION FOR APRIL

(Continued from page 56)

separate tabulation for the agricultural publications, show the following results for April, 1922:

Location of publishers (b)	Number of concerns	On hand	Received	Used and	On hand	In transit
		first of month Net tons	during month Net tons	sold during month Net tons	end of month Net tons	end of month Net tons
New England ..	79	17,113	15,898	18,087	14,924	1,870
Eastern States ..	174	53,092	59,029	63,131	48,990	9,834
Northern States 128		44,053	33,834	40,399	37,488	7,531
Southern States 75		9,332	9,414	9,841	8,905	1,961
Middle West ..	147	26,257	26,913	28,161	25,009	5,354
Pacific Coast ..	30	11,486	14,641	15,814	10,313	3,539
Farm Papers (c) 27		6,165	1,217	1,368	6,014	153
		660	167,498	160,946	176,801	151,643
					30,242	

(a) This number represents a much larger number of publications.

(b) *New England* includes Connecticut, New Hampshire, Maine, Massachusetts, Rhode Island and Vermont; the *Eastern States* include Delaware, the District of Columbia, Maryland, New Jersey, New York, and Pennsylvania; the *Northern States* include Illinois, Michigan and Ohio; the *Southern States* include Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia; the *Middle West* includes Arkansas, Arizona, Colorado, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, Wisconsin, and Wyoming; the *Pacific Coast* includes California, Oregon and Washington.

(c) The farm papers for the most part use special grades of news print instead of the standard news.

Publishers' stocks decreased 15,855 tons during the month. Average daily tonnage used during April was 421 tons more than the average used in March.

Publishers' stocks and transit tonnage on April 30, represented 32 days' supply at the existing rate of consumption.

The domestic consumption of Standard news by metropolitan dailies using between one-half and three-fourths of a million tons annually, for April, 1922, when compared with April, 1921, shows an increase of 19 per cent and an increase of 23 per cent when compared with April, 1920.

The above metropolitan dailies held 59 per cent of the tonnage on hand at the end of the month.

Average Prices Paid by Publishers

The weighted average price of contract deliveries from domestic mills to publishers during April, 1922, f. o. b. mill in carload lots, for standard news in rolls was \$3.570 per 100 pounds. This weighted average is based upon April deliveries of about 41,000 tons on contracts involving a total tonnage of approximately 572,000 tons of undelivered paper manufactured in the United States.

The weighted average contract prices based on deliveries from Canadian mills of about 24,000 tons of standard roll news in carload lots, f. o. b. mill in April, 1922, was \$3.497 per 100 pounds. This weighted average is based upon the April deliveries on contracts involving about 246,000 tons of undelivered Canadian paper.

The weighted average market price for April of standard roll news in carload lots f. o. b. mill, based upon domestic purchases totaling about 10,000 tons, was \$3.548 per 100 pounds.

New York Office
280 Broadway

Chicago Office
1148 Otis Bldg.

Howard Bond



Howard Ledger

"The Paper of Many Uses"

Manufactured by

THE HOWARD PAPER COMPANY, Urbana, Ohio

FORGE LAP-WELDED

VERTICAL
SEAMS
HEATED WITH
FURNACES
AND WELDED
WITH
HYDRAULIC
POWER

SOFT STEEL

DIGESTERS

ALL SEAMS LAP-WELDED

AMERICAN WELDING COMPANY

CARBONDALE, PA.

CIRCUMFERENCE
TIAL SEAMS
HEATED WITH
FURNACES
AND HAMMER
WELDED

Felt Test—Lowest Cost per Ton

If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts, for ORR felts will produce the lowest cost per ton. They "stand up" under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

WILLIAM A. HARDY & SONS COMPANY, Fitchburg, Mass., U.S.A.



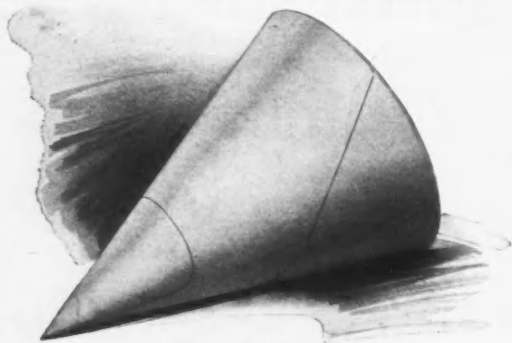


Illustration two-thirds actual size

Get All Desired Features
in One Drinking Cup
BURT'S

- Freedom from wax to make drinks taste.
- No bottom to unexpectedly drop out.
- No animal glue used.
- No touching by hands.
- Dust and Waste Proof Dispensers.
- Drinking edge untouched before use.
- No softening when holding hot drinks.
- Made by long established and world leader firm

and

LOWEST COST OF ANY DRINKING CUP

So you can profitably sell the particular people who stay sold.

F. N. BURT COMPANY, Ltd.
Buffalo New York



Dispenser
costs
only
five
dollars

PULP STONES

of absolutely the finest quality

Lombard & Co., Incorporated

Importers and Dealers

236-238 A Street : BOSTON, MASS.

Branch at Montreal, Canada



SERVICE WOOD ROLLS

A Construction for Every Service

Free Roll Blue Prints

RODNEY HUNT MACHINE CO.

No. 63 Maple Street

Orange, Mass.



The Ashcroft Paper Tester



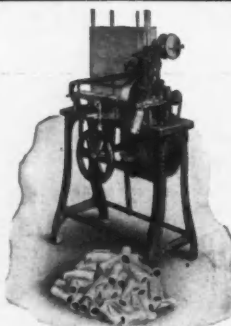
The Ashcroft Thickness Gauge

Actual necessities for all those who make, sell or purchase paper in any form. The thousands in daily use testify to their efficiency.

THE ASHCROFT MFG. CO.

119 West 49th Street New York Chicago, Ill. 29 North Jefferson Street Boston, Mass. 18 High Street Boston, Mass.

Canadian Sales Agents: The Canadian Fairbanks Morse Co., Montreal and Toronto.

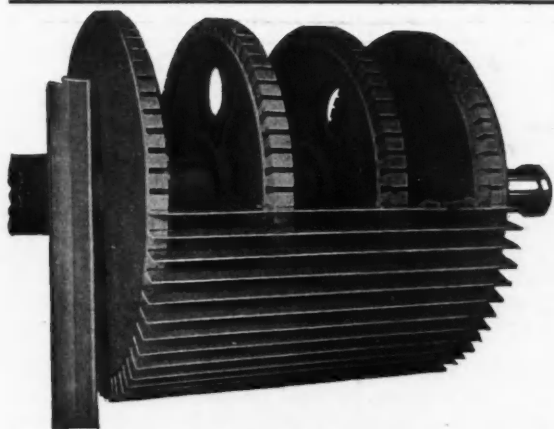


GRISSINGER Patented AUTOMATIC TUBE MACHINE

Wire Stitched Tube
TOILET PAPER
MACHINERY

**GRISSINGER MACHINE WORKS
PHILADELPHIA, PA.**

Patented { June 24, 1913.
August 10, 1915



Dilts Machine Works, Inc.

Fulton, N. Y., U. S. A.

Manufacturers of
BEATING and WASHING ENGINES
FLY BARS—BED PLATES—
MACHINE KNIVES

Our new **KEYED TYPE BANDLESS ROLL** is the final result of Many Years of Experience.

May we not tell you about its many advantages?

PAPER MAKERS CHEMICAL CO. WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO
 JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

SUPERIOR CHEMICAL CO.

JOLIET, ILLINOIS

Manufacturers

PAPER MAKERS' and FILTER
ALUM

Perforated Metal Screens

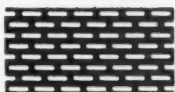
For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE
 and other Alloys

punched for Centrifugal and
 Rotary Screens, Pulp Washers,
 Drainer Bottoms, Filter Plates, etc.



.265 Inch Round



1/4 x 1/4 Inch Slots

CHARLES MUNDT & SONS
 13-15 FAIRMONT AVE. JERSEY CITY, N. J.

The Union Sulphur Company

Producers of the Highest Grade
 Brimstone on the market . . .

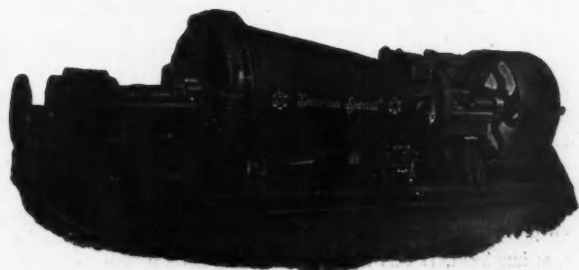
ABSOLUTELY FREE FROM ARSENIC OR SELENIUM

The Largest Sulphur Mine in the World

CALCASIEU PARISH, LOUISIANA

Main Offices: Frasch Building, 33 Rector Street, New York

EMERSON MANUFACTURING CO. LAWRENCE MASS.



See the Second-Hand Machinery ads and note the
 ABSENCE of

**EMERSON
 BEATING ENGINES**

They seldom wear out and are never thrown out.
 PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

does its work with half the power required by others of no
 greater capacity.

WRITE FOR DETAILS

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, May 31, 1922.

What with the suspension of all business over the holiday, paper merchants and manufacturers have enjoyed, nevertheless, a week of increasing prosperity. While there have been no marked price changes, confidence is generally restored in every branch of the industry, and dealers report a gratifying number of inquiries and subsequent orders. In the face of the impending slump which usually occurs during the summer months, business may, at this time, be characterized as unusually brisk. Even board, tissue, and twine dealers appear to have become more optimistic despite the difficulties with which they have been confronted, and the markets for news print, waste paper and both chemical and mechanical pulp have continued to make strides in a forward direction. It is predicted by many reliable authorities that at the actual beginning of the summer season conditions will have become ameliorated to such a great extent that the time will be ripe for a normal harvest of dollars in the early fall. Not much progress is expected during the summer months, naturally, due to any number of reasons. Not only is it a period of low water, but inventories are taken, vacations have their place and a general period of "house-cleaning" is declared. In view of the fact that present market conditions show a surplus in many lines with a demand that is insufficient to liquidate it, this period should, if anything, have a beneficial effect in that it will allow consumption to catch up with production. By next fall, it is hoped that the cogs of industry will be in so much better running order that mills will not be compelled to run at less than capacity to meet a more nearly normal demand.

News print is enjoying a phenomenal business and has been since the first of the year. From all appearances, mills can ill afford to curtail production in this line even during the summer, as newspapers are continually increasing their advertising space and circulations are becoming more widespread. Confidence is fully restored in the market and prices are firm. Rumors of an increase in transit rolls have been current, but these still remained unconfirmed from official sources.

Book paper is still slow in regaining its foothold, but despite the spotty demand there is an unmistakable activity in evidence. Prices have not yet reached a firm basis, and the base price of \$6.25 on super book is not expected to be a permanent one. Dealers are encouraged by the increasing number of inquiries.

Fine papers are in good demand for export and sulphate bonds of the higher grades are being sold in greater quantities for the domestic market according to merchants. Combined with the generally better feeling which now exists in the fine paper market this has given the situation a firmer aspect.

Tissue is progressing slowly and steadily and the demand from both the textile and shoe industries has materially strengthened. A feeling of greater firmness is evident in the market and merchants are receiving many inquiries.

Kraft wrapping papers have stiffened up to a slight degree during the past week although there have been no price alterations. Imported kraft is now quoted at 6.00 to 6.25 cents a pound and dealers are more optimistic.

Those board mills that have not had folding box board to fall back upon during the slump in this market have fared badly during the past few months, but the board situation has taken a turn for the better, according to many dealers, and with the rumor of several mills reopening confidence is being restored. Coal difficulties have hampered production, but mills find the greatest difficulty in disposing of their product. Folding boxboard is still in fair demand.

Mechanical Pulp

Keeping pace with the rapid consumption of news print, the groundwood market has enlivened appreciably. Larger orders are

continually coming in to dealers in this commodity, and buyers now appear to be convinced that the prices which are being quoted are fair ones and that the market is stable. As in the news print industry, it is doubtful whether or not there will be a noticeable let-up in the demand during the summer months, and if consumption continues to increase at the present rate, both manufacturers and merchants will have little about which to complain.

Chemical Pulp

The majority of those who handle this commodity are of the impression that if there is to be any change in the present quotations on chemical pulp it will be in the upward direction. Manufacturers have liquidated production costs to such an extent already that prices now quoted are considered as near rock bottom as present conditions will allow them to go. Many mills, acting under this belief, have contracted for supplies which will carry them over the coming year, and this confidence has, in itself, tended to strengthen the market and hold prices firm.

Old Rope and Bagging

The fact that several mills handling old rope and bagging have recently reopened gives evidence to the fact that this market is well on the way to recovery. Many were compelled to close down due to the surplus stocks on hand that could not be moved even at a losing figure. Dealers now report that a number of inquiries which they received have materialized into orders. The small quantities of rope which remained have been taken at a stiffer price, and Manila rope seems to be in good demand. Bagging is very slow in recuperating, however, and unsatisfactory packing is believed to be accountable for the loss of a goodly portion of this business.

Waste Paper

Mills are now actually experiencing difficulties in securing ample supplies of the better grades of waste papers. Production has not been keeping up with the demand for some time, and it is only when an attempt is made to purchase a dozen carloads of some such grade as soft white shavings that the change in the market becomes apparent. Kraft and manila cuttings are moving regularly but slowly while nearly every other grade has stiffened up materially in price, and packers are still unwilling to sell ahead in large quantities. Several of the largest dealers in waste papers have predicted that the present price advance is but the forerunner of a general amelioration of conditions in this market.

Rags

Prices on some grades of rags have stiffened slightly and the feeling which has been prevalent in the market during the past week is one of confidence. The demand for whites and bleachable grades of both new and old rags has continued unabated, and several dealers mentioned that some activity has started up in the lower grades. As was stated in this regard last week, the fact that roofing has taken a turn for the better is indicative of a pronounced alteration in the entire rag situation, as roofing has always been an indicative factor in the past. Dealers say that many inquiries are being received daily and that the size of orders is increasing.

Twine

No great change in either direction has been perceptible in the twine market during the past week and aside from the fact that it may be described as convalescent, it is by no means in a healthy condition. Prices have catapulted down to a ridiculously low level and still the demand is so spotty that a market is hardly demonstrated. Nominal prices are quoted and there is nothing firm about the present status of affairs. The fact that raw jute fiber had advanced somewhat several weeks ago is taken by some dealers as an indication that a general strengthening in other grades of twine was imminent. If this is the case, it has not yet become evident, as the price of nearly every grade of twine now on the market is not far enough above manufacturing cost to admit of any profit.

Market Quotations

Paper Company Securities

New York Stock Exchange closing quotations May 29, 1922:

STOCKS	BID.	ASKED.
American Writing Paper Company, pref.	34	34 3/4
International Paper Company, com.	52 1/2	53
International Paper Company, pref., stamped	70	70 3/4
Union Bag & Paper Corporation	65	67

Because of the unusual conditions prevailing in the various markets quotations are more or less nominal.

Paper

F. o. b. Mill.	
Ledgers	10.50 @ 30.00
Bonds	8.50 @ 55.00
Writings—	
Extra Superfine	14 @ 25
Superfine	13 @ 20
Tab Sized	10 @ 16
Engine Sized	9.00 @ 15.00
News—f. o. b. Mill—	
Rolls, contract	3.50 @ 3.75
Rolls, transit	3.50 @
Sheets	4.00 @
Side Runs	3.25 @ 3.50
Book, Caser—f. o. b. Mill	
S. & S. C.	6.25 @ 7.25
M. F.	6.00 @ 7.00
Coated and Enamel	8.00 @ 10.00
Lithograph	8.00 @ 10.00
Tissues—f. o. b. Mill	
White, No. 1	.75 @ .80
Colored	1.00 @ 2.00
Anti-Tarnish	.75 @ .80
Silver Tissue	1.50 @ 2.70
Manila	.75 @ .80
Kraft—f. o. b. Mill—	
No. 1 Domestic	7.00 @ 7.50
No. 2 Domestic	5.75 @ 6.25
Imported	6.00 @ 6.25
Screenings	2.50 @ 3.50
Manila—	
No. 1 Jute	8.50 @ 9.00
No. 2 Jute	7.75 @ 8.50
No. 1 Wood	4.50 @ 5.50
No. 2 Wood	4.00 @ 4.50
Butchers	4.25 @ 4.75
Fiber Papers—	
No. 1 Fiber	6.00 @ 6.25
No. 2 Fiber	5.00 @ 5.25
Common Bogus	1.75 @ 2.25
Card Middies	4.00 @ 5.00
Boards—per ton—	
News	35.00 @ 45.00
Straw	40.00 @ 45.00
Chip	32.50 @ 40.00
Binders' Board	60.00 @ 70.00
Spl. Mla. LL Chip	52.50 @ 62.50
Wood Pulp	75.00 @ 90.00
Container	60.00 @ 70.00
Wax Paper—	
Self Sealing White	
28 and 30 lb.	
basis	10.00 @ 11.00
Waxed Tissue	1.40 @ 1.60
Glassine—	
Bleached, basis 25	
lbs.	12.75 @ 13.25
Bleached, basis 20	
lbs.	13.75 @ 15.25

Mechanical Pulp

(Ex-Dock.)	
No. 1 Imported	32.00 @ 36.00
(F. o. b. Pulp Mills.)	
No. 1 Domestic	29.00 @ 33.00

Chemical Pulp

(Ex-Dock, Atlantic Ports.)	
Sulphite (Imported)—	
Bleached	4.00 @ 4.50
Easy Bleaching	2.85 @ 3.10
No. 1 strong unbleached	2.50 @ 2.75
No. 2 Strong unbleached	2.25 @ 2.50
No. 1 Kraft	2.50 @ 3.00
Sulphate—	
Bleached	3.90 @ 4.00
(F. o. b. Pulp Mill.)	
Sulphite (Domestic)—	
Bleached	4.00 @ 4.50
Strong unbleached	2.60 @ 2.80
Easy Bleaching	
Sulphite	2.60 @ 3.10
News Sulphite	2.50 @ 2.80
Mitscherlich	2.80 @ 3.10
Kraft (Domestic)	2.50 @ 3.00
Soda Bleached	3.50 @ 3.75

Domestic Rags

New Prices to Mill f. o. b. N. Y.	
Shirt Cuttings—	
New White, No. 1	10.00 @ 10.50
New White, No. 2	5.75 @ 6.25
Silesias, No. 1	6.00 @ 6.50
New Unbleached	8.50 @ 9.00
Washables	3.25 @ 3.50
Fancy	4.75 @ 5.25
Cotton—according to Grades—	
Blue Overall	5.50 @ 6.00
New Blue	4.00 @ 4.50
New Black Soft	3.00 @ 3.25
New Light Seconds	2.75 @ 3.00
O. D. Khaki Cuttings	3.25 @ 3.60
Mens' Corroy	2.50 @ 2.75
New Canvas	6.50 @ 7.00
New Black Mixed	2.25 @ 2.75
Old	
White, No. 1—	
Repacked	5.50 @ 6.00
Miscellaneous	4.25 @ 4.75
White, No. 2—	
Repacked	2.75 @ 3.00
Miscellaneous	2.00 @ 2.25
St. Soiled White	1.15 @ 1.25
Thirds and Blues—	
Repacked	1.50 @ 1.65
Miscellaneous	1.15 @ 1.20
Black stockings	2.25 @ 2.50
Cloth Strippings	.90 @ 1.00
No. 1	.90 @ 1.00
No. 2	.80 @ .90
No. 3	.55 @ .65
No. 4	.55 @ .65
No. 5A	.90 nominal

Foreign Rags

New Light Silesias	6.00 nominal
Light Flannelettes	6.75 nominal
Unbleached Cottons	7.50 nominal
New White Cuttings	9.50 nominal
New Light Oxfords	6.00 nominal
New Light Prints	4.50 nominal
New Mixed Cuttings	2.90 @ 2.50
New Dark Cuttings	1.90 @ 2.10
No. 1 White Linens	9.00 @ 11.00
No. 2 White Linens	6.50 nominal
No. 3 White Linens	5.00 nominal
No. 4 White Linens	3.50 nominal
Old Extra Light Prints	2.00 nominal
Ord. Light Prints	1.75 nominal
Med. Light Prints	1.50 nominal
Dutch Blue Cottons	1.85 nominal
German Blue Cottons	1.50 nominal
Ger. Blue Linens	3.50 nominal
Checks and Blues	1.50 nominal
Dark Cottons	1.00 nominal
Shoppery	.85 @ .90
French Blues	2.00 nominal

Bagging

Prices to Mill f. o. b. N. Y.	
Gunny No. 1—	
Foreign	.80 @ .85
Domestic	.80 @ .85
Wool, Tares, light	1.00 @ 1.10
Wool, Tares, heavy	1.10 @ 1.15
Bright Bagging	.90 @ 1.00
No. 1 Scrap	.80 @ .90
Sound Bagging	.75 @ .85
Manila Rope—	
Foreign	4.60 @ 4.85
Domestic	4.75 @ 5.00
New Bu. Cut	1.80 @ 1.90
Hessian Jute Threads—	
Foreign	4.25 @ 4.50
Domestic	4.00 @ 4.25
Mixed Strings	.75 @ .85

Twines

Cotton—(F. o. b. Mill.)	
No. 1	32 @ 34
No. 2	30 @ 32
No. 3	26 @ 28

India, No. 6 basis—	
Light	17 @ 18
Dark	17 @ 18
B. C. 18 Basis	38 @ 40
A. B. Italian, 18	
Basis	50 @ 60
Finished Jute—	
Light, 18 basis	25 @ 26
Dark, 18 basis	26 @ 28
Jute Wrapping, 3-6 Ply—	
No. 1	22 @ 23
No. 2	30 @ 31
Tube Rope—	
4-ply and larger	14 @ 16
Fine Tube Yarn—	
5-ply and larger	18 @ 20
4-ply	19 @ 21
3-ply	20 @ 22
Unfinished India—	
Basis	15 @ 16
Paper Makers Twine	
Balls	12 @ 14
Box Twine, 2-3 ply	16 @ 17
Jute Rope	12 @ 14
Amer. Hemp, 6	32 @ 34
Sisal Hay Rope—	
No. 1 Basis	14 @ 16
No. 2 Basis	12 @ 14
Sisal Lath Yarn—	
No. 1	13 @ 14
No. 2	10 @ 12
Manila Rope	17 @ 18

Old Waste Papers

(F. o. b. New York)	
Shavings—	
Hard, White, No. 1	3.75 @ 4.00
Hard, White, No. 2	3.30 @ 3.55
Soft, White, No. 1	3.25 @ 3.35
Flat Stock—	
Stitchless	1.60 @ 1.75
Over Issue Mag.	1.60 @ 1.75
Solid Flat Book	1.50 @ 1.60
Crumpled No. 1	1.15 @ 1.25
Solid Book Ledger	2.00 @ 2.25
Ledger Stock	1.60 @ 1.70
No. 1 White News	1.65 @ 1.75
New B. B. Chips	.50 @ .55
Manilas—	
New Env. Cut	2.50 @ 2.75
New Cut No. 1	1.60 @ 1.75
Extra No. 1, Old	1.50 @ 1.60
Print	.85 @ .95
Container Board	.60 @ .70
Bogus Wrapper	.55 @ .60
Old Krafts, machine compressed	
Bales	1.60 @ 1.70
News—	
Strictly Overissue	.70 @ .80
Strictly Folded	.52 1/2 @ .57 1/2
No. 1 Mixed Paper	.45 @ .50
Common Paper	.32 1/2 @ .37 1/2

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill	
All Rag Bond	35 @ 40
No. 1 Rag Bond	30 @ 35
No. 2 Rag Bond	18 @ 20
Water Marked Sulphite	10 @ 14
Sulphite Bond	9 @ 12
Sulphite Ledger	12 @ 13
Superfine Writing	18 @ 24
No. 1 Fine Writing	14 @ 22
No. 2 Fine Writing	12 @ 20
No. 3 Fine Writing	8 @ 12
No. 1 M. F. Book	6 1/4 @ 7
No. 1 S. & S. C. Book	6 3/4 @ 7 1/4
Coated Book	8 3/4 @ 10 3/4
Coated Label	8 1/2 @ 10 1/2
News—Rolls, mill	3 1/4 @ 4 1/2
News—Sheets, mill	3 3/4 @ 4 3/4
No. 1 Manila	5 @ 6
No. 1 Fiber	5 @ 6
No. 2 Manila	4 1/2 @ 5
Butchers' Manila	4 @ 5
No. 1 Kraft	7 @ 8
No. 2 Kraft	6 @ 7
Wood Tag Boards	4 @ 5
Screenings	2 1/2 @ 3
Boards, per ton—	
Plain Chip	35.00 @ 40.00
Solid News	40.00 @ 45.00
Manila Lined	
Chip	45.00 @ 52.50
Container Line—	
85 Test	60.00 @ 65.00
100 Test	65.00 @ 70.00

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10 @ .60
Ledgers	.15 @ .40
Writings—	
Superfine	.15 @ .20
Extra fine	.12 @ .22
Fine	.20 @ .30
Fine, No. 2	.20 @ .25
Fine, No. 3	.15 @ .20
Book, M. F.	.06 @ .09
Book, S. S. & C.	.08 @ .15
Book, Coated	.08 @ .15
Coated Lithograph	.10 @ .15
Label	.08 @ .15
News	.05 @ .07
No. 1 Jute Manila	.12 @ .13
Manila Sul, No. 1	.08 @ .08 1/2
Manila No. 2	.07 1/4 @ .08
No. 2 Kraft	— @ .08 1/2
No. 1 Kraft	— @ .09 1/2
Common Bogus	.02 1/4 @ .03
Straw Board	35.00 @ 45.00
News Board	32.50 @ 35.00
Chip Board	27.50 @ 32.00
Wood Pulp Board	90.00 @ 100.00
(Carload Lots)	
Binder Boards—	
Per ton	\$65.00 @ 75.00
Carload lots	60.00 @ 65.00
Tarred Felts—	
Regular	48.00 @ 50.00
Slaters	54.00 @ 56.00

Best Tarred, 1-ply (per roll)	1.35 @ 1.50
Best Tarred, 2-ply (per roll)	1.00 @ 1.15
Best Tarred, 3-ply	1.50 @ 1.63

Bagging

F. o. b. Phila.	
Gunny No. 1—	
Foreign	.75 @ .80
Domestic	.70 @ .75
Manila Rope	4.00 @ 4.50
Sisal Rope	.75 @ .80
Mixed Rope	.75 @ .80
Scrap Burlaps	1.00 @ 1.25
Wool Tares, heavy	2.50 @ 2.75
Mixed Strings	.75 @ .80
No. 1, New L. Burlap	.75 @ .80
New Burlap Cuttings	1.75 @ 2.10

Old Papers

F. o. b. Phila.	
Shavings—	
No. 1, Hard	
White	3.50 @ 3.75
No. 2, Hard	
White	3.00 @ 3.25
No. 1 Soft White	3.00 @ 3.25
No. 2 Soft White	1.75 @ 2.00
No. 1 Mixed	1.50 @ 1.75
No. 2 Mixed	1.00 @ 1.25

(Continued on page 66)

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MAY 27, 1922

SUMMARY

News print	188 rolls
Packing paper	30 cs.
Printing paper	118 rolls, 5 cs.
Cigarette paper	130 cs.
Letter paper	7 cs.
Parchment paper	27 cs.
Photo paper	30 cs.
Wall paper	7 cs.
Litho paper	10 cs.
Drawing paper	17 cs.
Filter paper	1 cs.
Wrapping paper	1,172 rolls, 1,513 bls.
Blueprint paper	51 rolls
Miscellaneous paper	169 cs., 14 bls.

CIGARETTE PAPER

P. J. Schweitzer, Canada, Marseilles, 56 cs.
British-American Tobacco Company, Adriatic, Liverpool, 10 cs.
Rose & Frank, Independence Hall, Havre, 12 cs.
American Tobacco Company, by same, 52 cs.

LETTER PAPER

L. Bamberger Company, Rochambeau, Havre, 7 cs.

PARCHMENT PAPER

Irving National Bank, Finland, Antwerp, 27 cs.

PHOTO PAPER

Gevaert Company of America, Inc., Finland, Antwerp, 30 cs.

WALL PAPER

R. Krause & Son, Finland, Antwerp, 3 cs.
J. L. Vandiver, Hudson, Havre, 4 cs.

LITHO PAPER

Arnhold Brothers & Co., Dacre Castle, Shanghai, 10 cs.

DRAWING PAPER

H. Reeve, Angel & Co., Westerdijk, Rotterdam, 6 cs.
Keuffel & Esser, Bayern, Hamburg, 11 cs.

FILTER PAPER

H. Reeve, Angel & Co., Westerdijk, Rotterdam, 1 cs.

WRAPPING PAPER

Blauvelt Wiley Paper Manufacturing Company, Falco, Gothenburg, 78 rolls.
Whiting & Patterson, by same, 10 bls.
Wilkinson Brothers & Co., Inc., by same, 678 bls., 990 rolls.
D. S. Walton & Co., by same, 124 bls.
M. O'Meara Company, by same, 130 bls.
C. F. Hubbs & Co., by same, 35 bls.

Irving National Bank, United States, Copenhagen, 28 bls.
Wilkinson Brothers & Co., Inc., by same, 417 bls.
E. C. Melby, by same, 61 bls., 104 rolls.

NEWS PRINT

Chemical National Bank, Orduna, Hamburg, 188 rolls.

BLUEPRINT PAPER

Keuffel & Esser, Bayern, Hamburg, 51 rolls.

PACKING PAPER

Steiner Paper Company, Bayern, Hamburg, 30 cs.

PRINTING PAPER

F. G. Prager Company, Finland, Antwerp, 118 rolls, 5 cs.

PAPER

P. C. Zuhke, Finland, Antwerp, 47 cs.
C. H. Boulin, Canada, Marseilles, 15 cs.
U. S. Forwarding Company, Manchuria, Hamburg, 11 bls.
Rose & Frank, Ind. Hall, Havre, 14 cs.
A. B. Newman, Bayern, Hamburg, 3 cs.
Marco Zuni, Conte Rosso, Genoa, 90 cs.

RAGS, BAGGING, ETC.

Castle, Gottheil & Overton, Galileo, Antwerp, 37 bls. rags.
Castle, Gottheil & Overton, Rochambeau, Havre, 54 bls. bagging.
Stone Brothers & Sherwin Company, by same, 11 bls. rags.
G. W. Millar & Co., Westerdijk, Rotterdam, 2 bls. rags.
R. F. Downing & Co., Inc., by same, 105 bls. rags, 201 bls. bagging.
Rudolph Wolf, by same, 56 bls. rags.
Castle, Gottheil & Overton, by same, 1 bl. rags.
American Wood Pulp Corporation, Bayern, Hamburg, 268 bls. rags.
E. J. Keller Company, Inc., by same, 27 bls. rags, 13 bls. new cuttings.
Meyers, Lipman, Woolstock Company, by same, 43 bls. rags.
Muttick Brothers, by same, 47 bls. rags.
Goldman, Sachs & Co., by same, 167 bls. rags.
Guaranty Trust Company, Finland, Antwerp, 180 bls. flax waste.
B. D. Kaplan, Adriatic, Liverpool, 611 bls. rags.
Equitable Trust Company, by same, 604 bls. rags.
J. Spunt & Co., Dacre Castle, Shanghai, 239 bls. cotton waste.
Castle, Gottheil & Overton, Hudson, Havre, 55 bls. new cuttings, 233 bls. rags.
E. J. Keller Company, Inc., by same, 651 bls. rags.

OLD ROPE

Brown Brothers & Co., City of Lincoln, Hull, 171 coils.
Irving National Bank, United States, Copenhagen, 175 coils.
American Exchange National Bank, Southwestern Miller, London, 100 coils.

First National Bank of Boston, Finland, Antwerp, 169 coils.
First National Bank of Boston, Westerdijk, Rotterdam, 73 coils.

CASEIN

T. M. Duche & Sons, East Side, Bordeaux, 248 bags.

WOOD PULP

J. Anderson & Co., United States, Copenhagen, 150 bls.
M. Gottesman & Co., Inc., Georgia, Sebenico, 4,000 bls.
H. Hollesen, President Taft, Bremen, 102 bls.
Tidewater Papermills Company, H. D. McLean, Liverpool, N. S., 8,210 bls., 821 tons.
Kelly & Co., C. F. Gordon, Liverpool, N. S., 7,700 bls., 770 tons.

BOSTON IMPORTS

WEEK ENDING MAY 27, 1922

R. F. Hammond, America, Bremen, 500 bls., 100 tons wood pulp.
Burmon & Bolousky, Rochambeau, Havre, 40 bls. rags.

PORTLAND IMPORTS

WEEK ENDING MAY 27, 1922

Poland Paper Company, Falco, Gothenburg, 6,456 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING MAY 27, 1922

American Wood Pulp Corporation, Falco, Gothenburg, 2,100 bls., 304 tons wood pulp.
Johanson & Co., by same, 3,585 bls., 635 tons wood pulp.
Scandinavian-American Trading Company, by same, 1,270 bls., 254 tons wood pulp.
Borregaard Company, by same, 1,200 bls. wood pulp.
J. Andersen & Co., by same, 600 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 27, 1922

Baring Brothers & Co., Southwestern Miller, London, 434 bls. rags.

Receiver Named for W. Whitmer & Sons

PHILADELPHIA, May 26, 1922.—Federal Judge Thompson today appointed A. J. Stevens receiver in equity for William Whitmer & Sons, Inc., a \$3,000,000 lumber concern which, through nine subsidiaries, owns and operates extensive timber lands, pulp and lumber mills in Virginia, West Virginia, North Carolina and elsewhere.

The principal subsidiary of the Whitmer company, the Parsons Pulp & Lumber Company, was placed in the hands of a receiver by Judge Thompson a few days ago.

The bill in equity contains no statement of the assets and liabilities of the concern, but it is declared Whitmer & Sons is solvent, but temporarily embarrassed by lack of operating capital. The receivership is a friendly one, it was said, and was deemed advisable for a quick rehabilitation of the company.

Atlantic Paper & Pulp Co. Burned

SAVANNAH, Ga., May 29, 1922.—Fire, said to have been caused through a stroke of lightning, damaged the plant of the Atlantic Paper and Pulp Company last week, to an extent exceeding \$50,000, according to estimates of the officials of the company.

The buildings destroyed were the lime shed and storage building, the main building containing the wood reducing machinery being saved. The fire is said to have originated when the lightning struck a tree nearby and, following along an electric cable, entered by the cable chute and set fire to the shed.

I. H. Fetty, who is president of the Atlantic Paper and Pulp Corporation was in New York city at the time of the fire and wires were sent to him last night apprising him of the loss.

According to officials of the company the plant will be forced to close down for a time.

TAYLOR, BATES & CO.

Members New York Stock Exchange
Members New York Cotton Exchange

100 Broadway, New York
Tel. Rector 1140



Branch Office
41 East 42nd Street
Tel. Murray Hill 5631



St. Louis Southwestern Ry. Co.

1st Cons. Mort. 4% 1932
To Yield About 7.35%
to Maturity

Descriptive circular upon request

MG. SULPHITE PAPER

Pure or mixed with any percentage of Mechanical Wood Pulp.

Basis 24 x 36" --10 lbs. to 60 lbs.,

Highest Quality at Lowest Market Prices.

*For Samples and Quotations
Kindly Apply to*

FERNSTROM PAPER CO., Inc.

Scandinavian Paper Mills' Representatives
150 Nassau Street New York City
Telephone: Beekman 5891

Also at
LONDON STOCKHOLM SAN FRANCISCO

Manufacture of Pulp and Paper

IN FIVE VOLUMES

Being prepared by the Joint Committee on Vocational Education of the Pulp and Paper Industry.

Volumes I, II and III now issued.

Volumes IV and V are expected during the year.

The work is adapted to the classroom, to home study and for use as a reference work. Every firm and individual connected with the industry or interested in the pulp and paper business should own one of these sets.

The volumes issued are on sale at \$5.00 a volume and orders should be placed with the Technical Association of the Pulp and Paper Industry, 18 East 41st Street, New York, N. Y.

June 1



EVERYTHING IN

PULP & PAPER

J. E. PATTON CO., INC.

342 Madison Ave.
New York City

(Cable address - Pulp.N.Y.)



Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, May 31, 1922.

ALUM.—The demand for all grades of alum continues to be somewhat slack, but there are ample evidences that the market is attaining a surer footing. Lump is quoted at 3.50 cents a pound, ground at 3.65 and powdered at 3.90.

BLEACHING POWDER.—While bleach is still being quoted by many dealers at the figure of 1.60 cents a pound, it is generally felt that this price can be bettered for large spot quantities. Paper manufacturers are not requiring any great amount of the product at this time, and no drastic change in the status of the market is anticipated until the usual summer depression has come and gone.

BLANC FIXE.—Practically no change has been evident in this market during the past week with the exception of the fact that demand has been slowly and regularly increasing. The quotations given on the product appear to be quite firm, \$40 to \$50 per ton being the price of the pulp, depending upon quality and quantity, and 3.50 to 3.75 cents a pound being the quoted price on dry.

CASEIN.—Heavy competition for the small Argentine supply available has caused the market for casein to firm considerably. Added to this, the fact that the product was taken off the free list last week by the Senate in the new tariff bill and a duty imposed, should have a strengthening effect upon the market. Europe is now consuming the greater part of Argentine's supply of this product and at prices American buyers cannot afford to pay. While it is still holding at 10.00 cents a pound, New York, merchants are not too anxious to sell at this figure.

CAUSTIC SODA.—Foreign demand for caustic soda is still on the increase. Domestic prices average 3.26 cents a pound, works, and this figure is not expected to vary much in the near future, according to dealers.

CHINA CLAY.—With considerable clay on the ground in Europe, the demand in this country is still insufficient to take care of England's production although there is a steady activity. These clays are quoted at \$13 to \$18 a ton, while domestic washed are priced at \$8 to \$10 and the unwashed at \$6 to \$8.

LIQUID CHLORINE.—Tank-car lots of chlorine are being quoted at a considerably lower figure than the 5.50 to 7.00 cents a pound which is asked for the product in cylinders of 100 pounds. Activity is light but regular.

ROSIN.—With a steady increase during the past week in the demand, both foreign and domestic, for grades E, F and G, the rosin market continues firm at the price of \$5.20 for barrels of 280 pounds.

SALTCAKE.—Slack acid production is still proving a check on the manufacture of saltcake, and this has tended to give prices an appearance of firmness. Chrome cake is quoted at \$18 a ton and acid cake at \$20 to \$21.

SATIN WHITE.—This commodity continues in the same good demand as blanc fixe and quotations from dealers average 1.50 cents a pound, contract.

SULPHUR.—While many consumers have taken advantage of the lower rates on water shipments of brimstone, the demand has not increased appreciably. Quotations on the ground range from \$15 to \$17 per ton and f. o. b. New York, from \$18 to \$20.

STARCH.—Considerable activity is still apparent in the starch market, the paper maker's grade being quoted at 2.47 and 2.75 cents a pound for bag and barrel quantities, respectively. Pearl starch is now listed at 2.37 and 2.65 cents for these amounts, contract.

SULPHATE OF ALUMINA.—The demand is still a little spotty in the aluminum sulphate market, and the Western invasion of low quotations has somewhat demoralized the situation. Iron free is selling for 2.15 to 2.35 while the plain sulphate is quoted at 1.40 to 1.50 cents a pound.

Market Quotations

(Continued from page 63)

Solid Ledger Stock.	2.00	@	2.25	New Black Soft.	.03	@	.03 1/4
Writing Paper.	1.80	@	2.00	New Light Sec.			
No. 1 Books, heavy.	1.50	@	1.75	Books	.02	@	.02 1/4
No. 2 Books, light.	1.20	@	1.50	Khaki Cuttings.	.02 1/4	@	.03 1/4
No. 1 New Manila.	2.75	@	3.00	Corduroy	.02	@	.02 1/2
No. 1 Old Manila.	1.50	@	1.75	New Canvas.	.07	@	.07 1/2
Container Manila.	1.00	@	1.10	New Black Mixed	2.75	@	3.00
Old Kraft.	1.90	@	2.00	Old			
Overissue News.	.75	@	.80	White, No. 1—			
Old Newspaper.	.50	@	.60	Repacked	.06	@	.06 1/2
No. 1 Mixed Paper.	.45	@	.50	Miscellaneous	.04 1/4	@	.04 3/4
Common Paper.	.40	@	.50	White, No. 2—			
Straw Board, Chip.	.40	@	.45	Repacked	.03	@	.03 1/2
Binders' Bd. Chip.	.40	@	.45	Miscellaneous	.02 1/4	@	.02 3/4
Domestic Rags—New.				Thirds and Blues—			
Price to Mill, f. o. b. Phila.				Repacked	1.65	@	1.80
Shirt Cuttings—				Miscellaneous	1.40	@	1.55
New White, No. 1	.09 1/4	@	.09 3/4	Black Stockings	1.75	@	2.25
New White, No. 2	.05	@	.06	Roofing Stock—			
Silesias, No. 1.	.04 1/2	@	.05	No. 1.	.90	@	1.00
New Unbleached.	.08 1/2	@	.08 3/4	No. 2.	.80	@	.90
Washables	.03	@	.03 1/2	No. 3.	.70	@	.80
Fancy	.04 1/4	@	.05	No. 4.	.70	@	.80
Cottons—according to grades—				No. 5A.	nominal		
Blue Overall.	.04	@	.04 1/4	B.	nominal		
New Blue.	.02	@	.02 1/4	C.	nominal		

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper				Wood, Vat Lined.	47.00	@	
Bonds	.06 1/4	@	—	Filled News Board.	37.50	@	
Ledgers	.07 1/4	@	.09	Solid News Board.	42.00	@	45.00
Writings	—	@	.05	S. Manila Chip.	52.50	@	75.00
Superfine	.11 1/2	@	.13	Pat. Coated.	70.00	@	
Fine	.08 1/2	@	.09 1/4				
Books, S. & S. C.	.06	@	.07	Old Papers			
Books, M. F.	.05 1/2	@	.06 1/2	Shavings—			
Books, coated.	.07 1/2	@	.08 1/4	No. 1 Hard White	3.50	@	3.75
Label	.08 1/2	@	.08 3/4	No. 1 Soft White	3.00	@	3.25
News sheets	3.05	@	3.08 1/2	No. 1 Mixed.	1.50	@	1.75
News, rolls.	3.75	@	4.00	Ledgers & Writings	.03 1/2	@	—
Manilas				Solid Books.	1.75	@	2.00
No. 1 Manila	\$6.75	@	—	Blanks	1.30	@	1.45
No. 1 Fibre	6.00	@	6.25	No. 2 Books Light.	.60	@	1.75
No. 1 Jute.	8.50	@	9.00	Folded News, over-			
Kraft Wrapping	7.00	@	—	issues	\$11.25	@	12.50
Common Bogus	3.00	@	—	Mixed paper.	47.50	@	50.00
				Gunny Bagging	.70	@	.75
Boards				Manila Rope	4.25	@	4.50
(Per Ton Destination)				Common Paper	.35	@	.40
Chip	\$33.50	@	—	Old News.	.80	@	—
News, Vat Lined.	35.00	@	37.50	Old Kraft.	1.75	@	1.80

TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

Paper				Sulphite, bleached.	.90.00	@	95.00
(Mill Prices to Jobbers f. o. b. Mill)				Sulphate	70.00	@	—
Bond—				Old Waste Papers			
Sulphite	.11	@	.12 1/2	(In carload lots, f. o. b. Toronto)			
Light tinted	.12	@	.13 1/2	Shavings—			
Dark tinted	.13 1/2	@	.15	White Env. Cut.	3.75	@	—
Ledgers (sulphite)	—	@	.13	Soft White Book	—	@	—
Writing	.10 1/4	@	.13 1/4	Shavings	3.25	@	—
News, f. o. b. Mills				White Bl'k News.	1.60	@	—
Rolls (carloads)	3.50	@	—	Book and Ledger—			
Sheets (carloads)	—	@	4.25	Flat Magazine and			
Sheets (2 tons or				Book Stock (old)	1.45	@	—
over)	—	@	4.50	Light and Crum-			
Book—				pled Book Stock	1.30	@	—
No. 1 M. F. (car-				Ledgers and Writ-			
loads)	9.50	@	—	ings	1.80	@	—
No. 2 M. F. (car-				Solid Ledgers.	1.80	@	—
loads)	8.50	@	—	Manilas			
No. 3 M. F. (car-				New Manila Cut.	1.90	@	—
loads)	8.00	@	—	Printed Manilas.	.90	@	—
No. 1 S. C. (car-				Kraft	2.25	@	—
loads)	10.00	@	—	News and Scrap—			
No. 2 S. C. (car-				Strictly Overissue	.90	@	—
loads)	9.00	@	—	Folded News.	.80	@	—
No. 1 Coated and				No. 1 Mixed Pa-			
litho.	15.00	@	—	pers	.60	@	—
No. 2 Coated and				Domestic Rags—			
litho.	14.00	@	—	Price to mills, f. o. b. Toronto.			
No. 3 Coated and				Per lb.			
litho.	13.25	@	—	No. 1 White, shirt			
Coated and litho,				cuttings	.09 1/4	@	.10
colored	15.25	@	—	No. 2 White shirt			
Wrapping—				cuttings	.05 1/4	@	.05 3/4
Grey	4.50	@	—	Fancy shirt cut-			
White Wrap	5.00	@	—	tings	.04 1/4	@	.04 1/2
"B" Manila	5.50	@	—	No. 1 Old whites	.04	@	—
No. 1 Manila	6.75	@	—	Thirds and blues	.02	@	.02 1/4
Fibre	6.75	@	—	Per cwt.			
Kraft, M. F.	8.00	@	—	Black stockings.	1.75	@	1.85
M. G.	8.15	@	—	Roofing stock:			
				No. 1.	1.35	@	—
Pulp				No. 2.	1.20	@	—
(F. o. b. Mill)				Roofing stock:			
Ground wood.	\$25.00	@	32.50	Manila rope	.04 1/4	@	.04 3/4
Sulphite easy bleach-				No. 2.	.01 1/4	@	—
ing	.60.00	@	65.00	Gunny bagging	1.00	@	1.25
Sulphite news grade.	50.00	@	60.00				

The Home of Quality

PAPER BAGS

This Registered Trade Mark Octagon

Sacks and Specialties

ESTABLISHED 1901

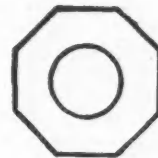
SCHORSCH & CO.

Manufacturers

500 East 133d Street : New York



FACTORY
132ND TO 133RD ST. & BROOK AVE



on a Paper Bag Vouches for Its Good Quality

Clafin Continuous Beaters

Have no superior for
Paper or Boards

The CLAFLINS now in use have demonstrated the fact that they will do better BEATING, BRUSHING and REFINING, using $\frac{1}{4}$ the floor space, $\frac{1}{2}$ the power and $\frac{1}{2}$ the COST of any other type of beater in use today.

Let us figure on your next installation.

THE CLAFLIN ENGINEERING CO.

LANCASTER.

OHIO

“DRAPER” FELTS

For Any Grade of Paper or Pulp

ARE GUARANTEED

To Give Entire Satisfaction

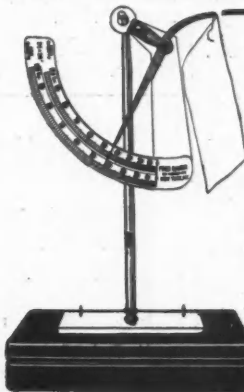
MANUFACTURED BY

DRAPER BROS. CO., CANTON, MASS.

NORWOOD PAPER FINISHING MACHINERY

Write for Information

NORWOOD ENGINEERING CO.
Florence, Mass., U. S. A.



MADE IN U. S. A.

The Baker Universal Paper Scale

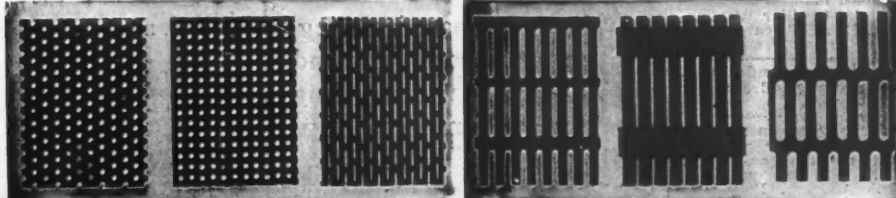
Collapsible, for Desk or Pocket. Set up stands 8 inches high, folded it measures 4x6 inches (coat pocket size). A small piece of paper indicates automatically ream weights per 480 and 500 sheets in sizes 24x36, 20x30, 17x22, 25x38, or any size desired. A scale for every purpose.

FRED BAKER

Manufacturer of Precision Paper Scales
34 West 28th St., New York City
Established 1912
Phone: Chelsea 9135-9136

PERFORATED METALS

All sizes and shapes of Holes



All kinds and thicknesses of Metal

For Centrifugal and Rotary Screens, Drainer Bottoms, Filter Plates, Pulp Washers, etc.

The Harrington & King Perforating Company

618 No. Union Ave., Chicago, Ill., U. S. A.

New York Office, 114 Liberty St.

WANT AND FOR SALE ADVERTISEMENTS

CLASSIFIED RATES

Minimum rate for advertisements of 25 words or less, first insertion, \$1.00.

SITUATION WANTED, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words accepted.

HELP AND MISCELLANEOUS WANTS, and small For Sale Ads, 4 cents a word for each and every insertion. No ads of less than 25 words accepted.

When answering advertisements, please address the Box Number given in ad.

Answers can be forwarded care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

All classified ads for the current issue must be in hand not later than Monday preceding date of publication.

HELP WANTED

WANTED—Boss finisher, mill making high grade bonds and ledgers; located Western Massachusetts. In replying give age, experience and references. Address, Box 5073, care Paper Trade Journal. tf

MACHINE DESIGNER WANTED: One having experience in designing pulp screens, thickeners and wet machines preferred. Plant located half way between Boston and Providence. Address, Box 5043, care Paper Trade Journal. Je-8

WANTED at once. Draftsman, experienced in paper machine design. State full particulars, experience and salary expected. None but experienced men need apply. Address, Box 5092, care Paper Trade Journal. Je-1

WANTED: One good steady Fourdrinier Machine Tender used to running light weight bond. Married man preferred. Address, Box 5104, care Paper Trade Journal. Je-8

WANTED: Boss finisher and shipping clerk for 3-machine mill-making Sulphite Specialties, state age and experience. Good location. No labor trouble. Only competent men need apply. Address, Box 5108, care Paper Trade Journal. Je-1

POSITION OPEN for first class assistant superintendent in mill making Book Papers, also operating Greenwood Mill in connection therewith. Only a man who has had experience in both lines and understands the handling of help will be considered. All letters treated confidentially. Address, Box 5110, care Paper Trade Journal. Je-8

WANTED: First class thoroughly experienced machine tender for modern mill. One with experience on M.G. Tissue and light weight papers preferred. Give full details of qualifications, experience and reference in first letter. Address, Box 5111, care Paper Trade Journal. Je-8

WANTED: Two first class machine tenders and two beater engineers for book and railroad writing mill on Pacific Coast. None but A-1 men need apply. Send references in first letter. Address, Box 5112, care Paper Trade Journal. Je-8

WANTED: Experienced man on Langston corrugator. Must be familiar with asbestos paper. Address, Box 5121, care Paper Trade Journal. Je-1

WANTED—First class super calender man. Good pay for right party. Address, Box 5125, care Paper Trade Journal. Je-8

WANTED: One calender man on glassine and book papers. Good pay to right party. State whether married or single. Previous employment. All correspondence treated confidentially. Address, Box 5126, care Paper Trade Journal. Je-15

OPPORTUNITY: A rare opening for an experienced man as assistant to general manager of large Box Board Mill. A thorough knowledge of up-to-date costs necessary but not a part of the job. Address, Box 5127, care Paper Trade Journal. Je-8

HELP WANTED

WANTED: Clay Coated Board Salesman who has had practical experience in mill as well as sales experience. Good position open for right man. Address, Box 5128, care Paper Trade Journal. Je-8

WANTED: Experienced Machine Tender. Cylinder Machine. Tissue Mill. Give references. Address, Box 5130, care Paper Trade Journal. Je-8

WANTED: Good, steady reliable tyer for tying paper in a finishing room. Mill located in the West. Steady work. Address, Box 5131, care Paper Trade Journal. Je-1

WANTED: Boss Machine Tender and Beater Engineer for Mill making container board. Must be A-1 man, strictly sober and reliable. None other need apply. State wages and references in first letter. Address, Box 5136, care Paper Trade Journal. Je-15

WANTED: Responsible Paper Salesman with established following in converting and large consuming trade; New York and vicinity. Reply with full particulars. Address, Box 5137, care Paper Trade Journal. Je-8

WANTED: Outside Paper Salesman, prefer one familiar with fine papers. State experience, where, when and with whom employed. Address, C. F. Earl, care M. J. Earl, Reading, Pa.

NIGHT SUPERINTENDENT wanted for one machine board mill manufacturing .009 straw and straw board and chip board for set-up box work. Middle aged married man preferred. State salary and also references in your first letter. Mill located in the South. Address, Box 5138, care Paper Trade Journal. Je-22

WANTED—Machine Tender for 120-inch Fourdrinier machine making Dry and Water Finish Fibres. Address, Box 5146, care Paper Trade Journal. Je-1

WANTED: Experienced and reliable Toilet Paper Machine Operator. Steady position. Good pay. Address, Box 5141, care Paper Trade Journal. Je-1

BOARD MILL SUPERINTENDENT

required for Mill in England. 3 multi-cylinder Beloit Machines. Must be capable of taking charge of mechanical and power side (steam and electrical), as well as the manufacturing. State experience fully and give particulars regarding salary, age, family, etc. Apply marked, "PRIVATE," Thames Paper Co., Purfleet, Essex, England.

Je-8

HELP WANTED

WANTED: First Class Back Tender for News Machine; Feed, six fifty per minute. Wages, 97 cents per hour. Have references and don't write unless you can do the work. Good mill and good town in Michigan. Address, Box 5142, care Paper Trade Journal. Je-8

SITUATIONS WANTED

WANTED: By reliable party good paper jobbing business requiring \$25,000 to \$50,000 investment. All communications held confidential. Address, Box 5129, care Paper Trade Journal.

POSITION WANTED by practical paper maker and mechanic and good organizer. What kind of position have you to offer? Address, Box 5079, care Paper Trade Journal. Je-2

PAPER SALESMAN in New York City who can produce a large volume of business with adequate co-operation, desires connection. Drawing account on Commission basis. Correspondence invited. Address, Box 4635, care Paper Trade Journal. tf

WANTED POSITION—As superintendent. Twenty-one years' experience; used to Specialties, Colors and Wrapping, all grades of Boards and Fibres. Knows how to handle help. Can keep up repairs. Used to Fourdrinier and Cylinder Machines. Address, Box 4786, care Paper Trade Journal. tf

DOES YOUR MILL pay? If not, why not have a superintendent with proven ability and experience that will make it pay? Address, Box 4977, care Paper Trade Journal. Je-2

SUPERINTENDENT of ability open for position with good company making box board, container board, wall board, Bristol board or straw. A man that understands a plant thoroughly and gets good results. Address, Box 4997, care Paper Trade Journal. Je-3

MASTER MECHANIC desires position. Twenty years' experience in mills of all grades of paper and pulp, also on steam, water and electric power. Best references. Address, Box 5014, care Paper Trade Journal. Je-15

WANTED—Position as superintendent. Twenty-five years' experience on book, coating, hanging, and tissue papers. Familiar with rag, wood, jute, and old paper stock. Fourdrinier and cylinder machines. Address, Box 5087, care Paper Trade Journal. Je-2

EXPERIENCED BOSS BEATER man wants position. Twenty-five years' experience with leading and largest mills making most all grades and colors. Best references. Address, Box 5054, care Paper Trade Journal. Je-1

BEATER ENGINEER: Open for position. Experienced on all grades of Box Boards, tests, etc., also bonds, ledgers and book. Address, Box 5068, care Paper Trade Journal. Je-1

EXECUTIVE with managerial ability, trained office manager, accountant and cost expert, student of Walton School of Commerce, Alexander Hamilton Institute and Industrial Extension Institute; specially experienced in paper mill administrative problems, seeks position of trust and responsibility. Highest references given. Address, E. J. B., P. O. Box 760, Cincinnati, Ohio. Je-8

SUPERINTENDENT of ability open for position June 1. High grade man on Kraft and Specialties. I have the ability plus a determined desire to work and make every effort to develop my opportunities. Address, Box 5099, care Paper Trade Journal. Je-1

SITUATIONS WANTED

WANTED position as superintendent or assistant superintendent, 19 years' experience on box board and container board. Good on repairs and can get results. Good references. Address, Box 5052, care Paper Trade Journal. Je-3

WANTED: By a New York Manager and Representative of an out of town Manufacturer of Toilet Paper and Paper Towels, similar connection with reputable manufacturer. Have been in the line over 20 years, over 15 years of which I have spent with my concern. Address, Box 5114, care Paper Trade Journal. Je-1

MANAGER AND SUPERINTENDENT: Two men with many years of experience in rebuilding and bringing mills up highest efficiency. If you require the best that practical experience and training can give. It is at your disposal on a salary basis; on salary and a percentage of net profits on increased production. If your mill is not on a paying basis, write us at once. Our experience covers the following on cylinder machines. Boards: Test, fancy box, single and double patent coated; Jute, chip (fancy and plain, single manila lined, bleached manila lined); Tag (Oak, manila and filler folder); and milk bottle cap. Specialties: Albums, Kodak, Book Covers, Electric Papers, Socket and Shell Papers; Battery Boards; Bristol (solid index and filler); Paraffin papers and wrappings. We have intimate knowledge of raw material markets and can furnish the best of skilled help. Address, Box 5115, care Paper Trade Journal. Je-8

A THOROUGH PAPERMAKER with twenty-eight years manufacturing experience, considerable wholesale and jobbing experience desires to connect with some good house as manager or buyer, high grade references furnished on request. Address, Box 5116, care Paper Trade Journal. Je-8

SUPERINTENDENT of many years' experience in producing Box Boards is seeking a connection where quantity and quality production at a minimum cost will be recognized. Have best of references, for efficiency and maintaining harmony among employees. Address, Box 5117, care Paper Trade Journal. J1-13

TECHNICAL MAN with practical operation experience in Soda Pulp manufacture is open for engagement. Has developed technical control methods on mill operations and supervised the recovery of pulp making chemicals. Details furnished on inquiry. Good references. Address, Box 5122, care Paper Trade Journal. Je-8

EXPERIENCED MECHANICAL ENGINEER seeks new connection Paper or Pulp mill. Capable and with record of maintenance at low cost. Familiar with foreign Mills operations. Best references. Address, Box 4981, care Paper Trade Journal. Je-1

SUPERINTENDENT now employed as such work who had practical experience on Cylinder, Harper, Fourdrinier and Combination machines, well posted on nearly all grades of paper, also practical experience on ground wood and sulphite, also mill construction and upkeep of same. Past records show good results. Would prefer commission proposition, also invest capital with reputable company. Address, Box 5132, care Paper Trade Journal. Jy-6

AN EXPERIENCED ACCOUNTANT wants to locate with live paper mill or box concern. Employed at present, but has best of reasons for desiring new connection that promises a future. Young married man with family, but will consider any location that offers advantages. Address, Box 5133, care Paper Trade Journal. Je-8

POSITION WANTED: Inside, Paper House or Mill Agency, by man with considerable experience with printing papers. Has also been selling and is acquainted with trade in New York. Will start at a small salary. Address, Box 5139, care Paper Trade Journal. Je-8

UNIVERSITY GRADUATE with several years' paper mill experience wishes position with future. Will do anything, go any place. Address, Box 5140, care Paper Trade Journal. Je-8

SITUATIONS WANTED

I HAVE about twelve years' experience in Toilet Paper, Towel and Napkin business. Practical experience in converting and printing departments and thoroughly familiar with all work and machinery. Am capable office man; experienced shipping and billing clerk. Traffic manager and sales manager. Have about five years' traveling experience covering the southern portion of the United States from Maryland to California. Also familiar with exports to the Latin Americas. Twenty-eight years of age. Desires position preferably "inside" with actual manufacturer, and one who would be interested in developing my towel and napkin cabinet, which is entirely different and much simpler than any on the market. Address, Box 5144, care Paper Trade Journal. Je-1

YOUNG MAN, 25, married, wishes to connect with Paper Mill. Has had experience in Paper Mill cost accounting, payrolls and mill systems; also selling experience. At present calling on printers and publishers. Feels qualified to fill almost any inside position or be useful in Sales Department. Address, Box 5145, care Paper Trade Journal. Je-15

FOR SALE

FOR SALE: 14 Calender Rolls, 53" face, 3' to 14" diameter. 2 No. 1 Claflin Engines. 1 small Jordan Engine. 1 6" Horizontal Water Pump. 2 Air Fans. Complete triple-deck frames for 44 Dryers. Will arrange terms to suit. Chesapeake Paper Board Co., Baltimore, Maryland. tf

FOR SALE: Two Griley Unkle Extractors. One in use a very short time, the other has not been installed. Any reasonable offer would be accepted. The Mac Sim Bar Paper Company, Otsego, Michigan. Je-1

FOR SALE: 20 flint machines. Five completely set up and in good condition. All parts necessary for assembling the other fifteen. Address, Box 5134, care Paper Trade Journal. Je-1

FOR SALE. Printing press. One 7 Single Color. Cottrell Rotary. Excellent condition. Sacrifice. Mr. Dudley, McCall Company, 236 West 37th Street, New York City. Telephone Longacre 2190. Je-8

FOR SALE: One Dietz Toilet Machine, will handle 76" Jumbo Rolls, cut sheets 4 1/2 x 5. Machine has no slitter bars, but have slitters. Address, Box 5135, care Paper Trade Journal. Je-22

FOR SALE**New Multi-Cylinder Board Machine***(Packed ready for immediate delivery)*

7 Vats, 3 Presses, 1 pair Smoothing Rolls, 120-42" Dryers, 3 Stacks Calenders—120" wide on face, complete with Winder, Duplex Cutter and Slitter.

This machine is modern in every respect, only having just been completed. Trimmed width 112/114". For further particulars apply:

Box 5041 care Paper Trade Journal.

JE-1

MISCELLANEOUS

SWIFT, GEORGE W., JR., Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods. Bordentown, N. J. 8-24-22

WANTED FOR CASH 81" toilet paper perforators. Address, Box 5143, care Paper Trade Journal. Je-1

**The Want Columns
of the
Paper Trade Journal
are
Result Getters
—
TRY THEM**

Rebuilt Paper Mill Machinery**IN STOCK AND GUARANTEED***Not Where Is and As Is*

FOURDRINIER TISSUE MACHINE—One 96", one 68".
FOURDRINIER PARTS—Pusey & Jones 118", 100", Kutter Trowbridge 96".
PRESS PARTS FOR PAPER MACHINES—Pusey & Jones bell crank housings with rolls 18"x117", Black & Clawson swing arm housings with rolls.
DRYERS—Four 48"x111", thirteen 36"x95", four 48"x68", one 84"x67", eleven 42"x66".
CHILLED CALENDERS—One 72" five roll; one 66" five roll; one 54" five roll; two 58" six roll.
DILLON DOCTORS—For Machine Calenders 60" to 120" face.
SLITTERS AND WINDERS—One 120" Warren, one 108", 36" Kidders.
REELS—Pusey & Jones two drum upright 48" to 114".
BEATERS—Five 72"x42" Noble & Wood; one Dilts 62"x50" iron tub; one Jones 62"x52"; seven Horne 36"x36"; three Downingtown iron tub 54"x42"; one Dillon 60"x48" wood tub; one Dilts 50"x42" wood tub; one Emerson 53"x52" wood tub. Two No. 2 Claflins, two No. 1 Claflins. Two Emerson 54"x60" wood tub.
JORDANS—One Wagg Majestic, two No. 2 Dillon Improved, one Large Horne, three Monarch, one Jones Standard, two Pope Brushing Engines.
SCREENS—One 12 plate, six 10 plate open side Packer, two 6 plate, one Moore & White auxiliary.
STUFF PUMPS—Deane triplex 9"x8", Gould triplex 8"x10", Sandusky triplex 4"x6", 2-6" post.
REVOLVING SHEET CUTTERS—Five 61" Hamblet, four 61" Finlay, one 50" Hamblet diagonal, one 42" Finlay.
REAM CUTTER—One 48" Acme.
SUPER CALENDERS—One 45", one 42", one 36" Holyoke.
WET MACHINES—Four 72" Bagley & Sewall Hydraulic, 1-52".
ROTARY BOILERS—Two 8"x20". One Manistee Hog Chipper.
We have a large number of pumps and over five hundred calender, press and couch rolls in stock.

FRANK H. DAVIS COMPANY**175 Richdale Ave., Cambridge 40, Mass.**

GIBBS-BROWER BULLETIN

We Offer for Sale the Mill of the Rock Falls Box Board Co. at Rock Falls, Illinois

Only 100 miles west of Chicago. Two Paper Machines 100,000 lbs. per day production of various grades of boards. Railroad sidings at the mill. 650 H. P. water power. Up to date and complete.

The reason this Mill is offered for sale is because only part of present stockholders are consumers of board. They own majority of stock and are willing that either mill be sold outright or to retain their holdings and arrange for sale of 50% interest, preferably to some other consumer of board.

Price and terms reasonable and the opportunity is yours!

GIBBS-BROWER COMPANY
Paper and Pulp Mill Brokers

261 Broadway New York City

Telephone—Barclay 6829

OUR MOTTO: "Service First."

Chicago Office: 181 Quincy St., Chicago, Ill.



RED CAP FIBRE

and other

High Grade
Sulphite

Wrapping Papers

Mills
Austin, Pa.
Sales Office
527 Fifth Ave.,
New York

Missisquoi Pulp and Paper Company

SHELDON SPRINGS VERMONT

White and Tinted Bristols—White
Blanks—Index Bristol and Special-
ties in Card Boards.

The 1922 Edition of Lockwood's Directory Of the Paper and Allied Trades

An encyclopedia of the Paper and Pulp Industry and Allied lines, thoroughly revised and up-to-date. Its contents include complete lists of

PAPER AND PULP MILLS, ALSO CLASSIFICATION OF THEIR PRODUCTS, MAKERS OF PAPER SPECIALTIES, GENERAL PAPER MERCHANTS, PULP, RAG AND PAPER STOCK DEALERS, CONVERTERS OF PAPER, MILL OFFICIALS AND THEIR CONNECTIONS, WATER-MARKS, BRANDS, STATISTICAL INFORMATION, TRADE ASSOCIATIONS AND AUTHENTIC LIST OF WHOLESALE AND RETAIL STATIONERS.

Price \$7.00 Express Prepaid

Send in Your Order Now

Lockwood Trade Journal Co., Inc.
10 East 39th Street New York

BLUE RIDGE FIBRE

Bleached Soda Pulp

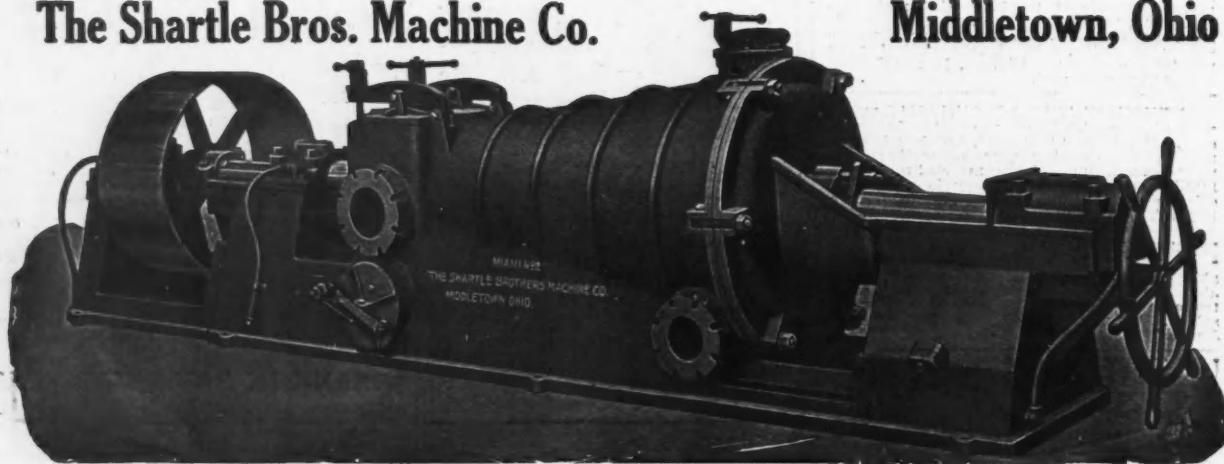
Manufactured and sold by

COLUMBIAN PAPER COMPANY
BUENA VISTA, VIRGINIA

Samples and prices upon application

The Shartle Bros. Machine Co.

Middletown, Ohio



COLORS FOR PAPERMAKERS

KUTTROFF, PICKHARDT & CO.
INCORPORATED

128 Duane Street - - - New York
BOSTON - 157 Federal St. PHILA. - .111 Arch St.
PROV. - 52 Exchange Pl. CHI. - 305 W. Randolph St.

JAMES ROSENBERG, PRES. L. W. BOWMALL, Vice Pres.

AMERICAN WOODPULP CORPORATION

FOREIGN AND DOMESTIC
CHEMICAL and MECHANICAL
WOODPULPS

Rags, New Cuttings, Bagging, Etc.
Chemicals of All Descriptions

New York—347 Madison Ave.

BRANCHES:
Stockholm—Sweden
Helsingfors—Finland

Holyoke—J. B. Woodruff, Inc.
Kalamazoo—F. D. Haskell
Dayton—R. R. Reed

HEINE

LARGE-UNIT
BOILERS



LONGITUDINAL AND
CROSS DRUM TYPES
WASTE-HEAT BOILERS
All conform to ASME CODE

Heine Boiler Company Saint Louis U.S.A.

BOILER MANUFACTURERS FOR 40 YEARS

THE WATERBURY FELT CO.



FELTS and JACKETS

For Every Grade of Paper and Pulp

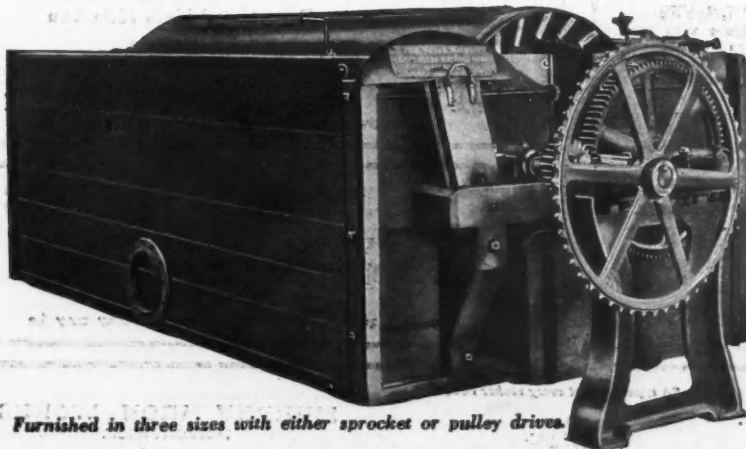
Correspondence and Orders
Solicited

Manufactured at
SKANEATELES FALLS
New York

THE WOOD'S MACHINE

Distinctive performance and intensified confidence in this machine as a Pulp Thickener, Save-All, Washer or Water Filter insure success in its building.

On the market but a few years, our installations number more than Eighty-five. Twenty-nine sold the past year.



Furnished in three sizes with either sprocket or pulley drives.

MADE BY
GLENS FALLS MACHINE WORKS
GLENS FALLS, N. Y.

Try our Split Cams for your Flat Screens

SIMPLICITY, in cylinder and vat construction, operation automatic, and without couch roll, doctor or any complicated moving parts.

DEPENDABILITY, in its simple revolving cylinder only, with nothing to get out of order, requiring little attention, and having a patented principle of maintaining wires always clean, insuring continuous performance.

PRODUCTIVENESS, enormous, through clean wires, large screening surface, patented unique method of discharge and freedom from shut-downs.

DURABILITY, by rigid construction, ample bearing surfaces, nothing to injure wires and highest grade materials.

All these enhance its value and involve upon you the duty of investigation.

FREDERICK L. SMITH
21 EAST 40TH STREET, NEW YORK
**PULP AND PAPER MILL
ENGINEER**

GEORGE F. DREW

MILL ARCHITECT AND ENGINEER
Consulting and Operating
BRUNSWICK, MAINE
SPECIALTY: Pulp, Paper and Saw Mills
Cotton, woolen, worsted, cordage, silk mills, and their equipment.
Appraisals, adjustments.

TIMBER ESTIMATING
P. T. COOLIDGE
Forest Engineer

31 Central Street Bangor, Maine
Maps and reports prepared with care and accuracy.

WILLIAM T. FIELD
Consulting Engineer

286 Broadway, New York, N. Y. Flower Bldg., Watertown, N. Y.
DESIGNS ESTIMATES REPORTS

HARDY S. FERGUSON CONSULTING ENGINEER
Member AM. SOC. C. E., Member AM. SOC. M. E.,
Member Eng. Inst. Can.
280 FIFTH AVENUE, NEW YORK CITY
Paper, Pulp and Fibre Mills, Including Building and Complete
Mechanical Equipment, Water Power Development, Dams,
Storage Reservoirs and Other Hydraulic Structures,
Examinations, Reports, Estimates of Cost, Designs,
Specifications, Valuations

VITALE & ROTHERY
FOREST ENGINEERS

527 Fifth Avenue New York, N. Y.

GEORGE F. HARDY

M. AM. SOC. C. E., M. AM. SOC. M. E., M. ENG. INST. CAN.
Mill Architect and Consulting Engineer
Langdon Building, 309 Broadway, New York
SPECIALTY: Paper, Pulp and Fibre Mills, Water Power Develop-
ments, Steam Power Plants, Plans and Specifications
Evaluations, Reports, Consultation
Cable Address: "Hardistock," A B C 5th Edition, Bedford, McNeill.
Western Union—Bentley's.

J. O. Ross Engineering Corp.

30 E. 42nd St.
CHICAGO NEW YORK CITY BOSTON
VAPOR ABSORPTION SYSTEMS

**J.H. WALLACE
& COMPANY.**
TEMPLE COURT BUILDING
NEW YORK CITY, U.S.A.
CABLES: TRIPLEX, N.Y.

**PULP
AND
PAPER
ENGINEERS
& CHEMISTS**

**INDUSTRIAL DESIGN
PLANT IMPROVEMENT
LABORATORY TESTS**

THOMAS L. TOMLINES & SON
CONSULTING ENGINEERS

ASSOC. M. AM. SOC. C. E.; 317-319 CITY BANK BLDG.,
M. AM. SOC. M. E. SYRACUSE, N. Y.
Paper, Pulp and Fibre Mills, Hy- Steam Power Plants, Plans and
draulic Developments, Hydro- Specifications, Efficiency
Electric Plants Engineering
CONSULTATION AND REPORTS

ENGINEERS PLANNING POWER TRANSMISSIONS
Secure Data and Estimates of "MORSE" DRIVES
SAVE Construction, Specs, Light, Fuel Producing More with Less
MORSE CHAIN CO. ITHACA, N. Y.

Engineering Service, Assistance, Bulletins
Baltimore New York Chicago Pittsburgh Montreal
Boston Kansas City Cleveland San Francisco Minneapolis
Charlotte, N. C. Detroit Philadelphia Atlanta St. Louis

Limited Resources Require Careful Management
Timber Estimates, Reports and Maps Help You

JAMES W. SEWALL

Forest Engineer
OLD TOWN, MAINE DAVIDSON BUILDING,
WASHINGTON, D. C.
Largest cruising house in America

THE BRADLEY SALES AGENCY

Is open to listings of Eastern Canadian Timberlands. Hardwood and Freehold Pulpwood Lands are in active demand at present.

263 St. James St., Montreal, P. Q.

SLITTERS and SPECIAL MACHINES

for use in paper industry
C. BENNINGHOFEN & SONS

Hamilton, Ohio
Send us your requirements regardless of what they may be

SANFORD RILEY STOKER CO.
WORCESTER, MASS.

**RILEY
STOKERS**

BOSTON NEW YORK
CINCINNATI

PHILADELPHIA
CHICAGO



PITTSBURGH
ST. PAUL

MURPHY IRON WORKS
DETROIT, MICH.

**MURPHY
FURNACES**

BUFFALO DENVER
CLEVELAND

"A type to meet every stoker need"

THE
MANAGEMENT ENGINEERING AND DEVELOPMENT Co.
7TH FLOOR CITY NATIONAL BANK BLDG.,
DAYTON, OHIO.

DESIGN, CONSTRUCTION AND OPERATION
OF
PULP, PAPER AND FIBRE MILLS
WATERPOWER DEVELOPMENT
STEAM POWER PLANTS.

PLANS AND SPECIFICATIONS
EVALUATIONS AND REPORTS
CONSULTATIONS

STEBBINS ENGINEERING & MFG. CO.
Mill Architects Watertown, N. Y.

**Sulphite and Soda Mill
Equipment**

Specialty: ACID SYSTEMS, DIGESTER
AND ACID PROOF LININGS
GUARANTEED.

*Service department always ready for emergencies.
Only high class experienced men employed.*

Salomon Bros. & Co.
IMPORTERS OF
All Grades of Rag and Paper Stock
200 FIFTH AVENUE, NEW YORK

COTTON WASTE :: LINTERS :: RAMIE

WOOD FLOUR

Various degrees of fineness and either fibrous or granular.
Made from first growth Spruce and Pine, by approved processes.

UNION WOOD FLOUR CO., INC.
Hudson Falls, N. Y.

UNITED STATES TESTING COMPANY, Inc.
316 Hudson Street CHEMISTS New York City

Microscopical Examination, Physical Tests and Chemical Analysis
of Paper. Official Chemists to the American Paper and Pulp As-
sociation, Association of American Woodpulp Importers, etc.

We analyze Fuels, Chemicals, Dyestuffs, Intermediates, Gasoline,
Oils, Paints, Soaps, Greases, Waxes, Water for Drinking or Boiler
Purposes, Woodpulp, etc.

UNION TALC COMPANY
Finest Grades of Agalite

132 Nassau Street New York

"WATERBURY"
Felts-Jackets
ORISKANY, N. Y.

OUR TIGHT FITTING, DIAMOND "W" JACKETS
WILL NOT LICK UP AT ANY SPEED
1869 {MADE ONLY BY} 1921
{GUARANTEED BY}

H. WATERBURY AND SONS COMPANY, ORISKANY, N. Y.

E. BUTTERWORTH & CO., Inc.
CHARLES H. WOOD, Pres. LEWIS JENNINGS, Treas.
Boston Office, 136 Federal St. New York Office, 1123 Broadway

PAPER MAKERS' SUPPLIES

Agents for "S" Brand and Snow Brand Bleached Sulphite Pulp

GREEN BAY WIRE WORKS
GREEN BAY, WISCONSIN
Manufacturers of
FOURDRINIER WIRES

Cylinder	Washer	Save-all
Brass	Made of Bronze	Monel

Penn Paper and Stock Company
**PACKERS OF ALL GRADES OF
WASTE PAPER**

240 N. FRONT STREET PHILADELPHIA

STRATFORD PAPER CO. 160 Cornelison Ave.
Jersey City, N. J.

High Grade Fourdrinier Tissues in Stock for Immediate Delivery

Paper Stock

NOW IS THE TIME TO BUY OUR RAW MATERIALS

Out of our forty different grades of paper stock you are assured a steady, reliable source
for procuring raw materials in practically every branch of paper making.
Having specialized for 35 years in this one field you can depend upon a clean, well-packed,
uniform product throughout; fulfillment of delivery promises; and because of our output of 300
tons daily, big tonnage at all times. Write us your wants.

Mendelson Bros. Paper Stock Co., General Offices: 619 So. Michigan Ave., Chicago, Ill.
Long Distance Phone, Harrison 246 and 1257

The John W. Higman Co.
29 Broadway New York City

QUALITY CLAYS

FOR ALL PURPOSES
ENGLISH AND AMERICAN

Papier-Zeitung

BERLIN SW 11 (GERMANY)

Founded by Carl Hofman, 1876

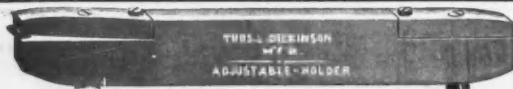
appears three times a week

Covers the whole paper trade (paper making, transforming, stationery). More than 12,500 bonafide subscribers all over the world.

Subscription: 4 Dollars

Your Card in This Space
Will Bring Results

Rates on application



Special Shaped Carbon, Black Diamond POINTS FOR TURNING Paper, Cotton Chilled Iron and Hardened Steel Calendar Rolls, Hard Rubber, Fibre, etc.
Successor to John Dickinson. Established 1796.
Agents for Great Britain, C. W. BURTON, GRIFFITHS & CO.,
Ludgate Square, London.
Manufactured by THOS. L. DICKINSON, 26 Gold St. NEW YORK

WILLIAM B. DILLON

DILLON & BARNES

Paper Mill Products and Supplies

52 VANDERBILT AVENUE, NEW YORK
Telephone, 7353 Murray Hill

IDEAL LOCATION FOR PAPER PRODUCTS INDUSTRY

Unlimited supply of raw materials, including pulp-wood, on both sides of St. Mary's river, with plenty of cheap electric power and good transportation facilities, together with entirely satisfactory labor conditions, make Sault Ste. Marie, Michigan, ideally situated for paper products industries.

The Commercial Club is especially interested in Sulphate process industry. Unlimited supply of forest products in near vicinity, guarantee raw material for long period of time. Present operators using hardwood only, will be glad to co-operate by furnishing surplus softwood or will exchange softwood for hardwood in connection with other operations.

Address Civic & Commercial Association
Sault Ste. Marie, Michigan

SLITTERS AND WINDERS

SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J.

Established 1895

DANIEL M. HICKS

(INCORPORATED)

PAPER MILL SUPPLIES

200 Fifth Avenue

New York City

Manufacturers
of
All Special
Small Roll
Products



Adding
Machine,
Cash Register,
Die Wiping,
Hand Rolls,
Etc., Etc.

PAPER MANUFACTURERS CO., Inc., Phila., Pa.

SHERMAN PAPER COMPANY

Manufacturers of Roll Newsprint

ENTIRE PRODUCT FOR 1922 CONTRACTED

Mills at
Felts Mills, Great Bend and Lefebvre, N. Y.
Main Office
Trust Co. Building, Watertown, N. Y.

TRADE
CAMACHINE
MARK
SLITTERS AND WINDERS
CAMERON MACHINE CO. BROOKLYN, N. Y.

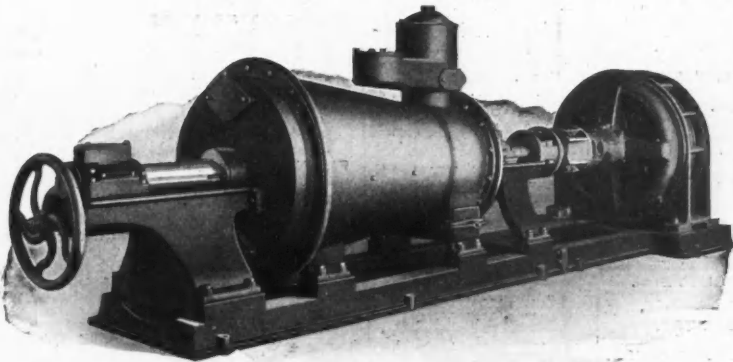
No Question
Of Satisfaction
if you specialize on

LAWRENCE GROCERS' BAGS

James Lawrence, President

The Lawrence Bag
Company
Miamisburg, Ohio

THE DILLON JORDAN



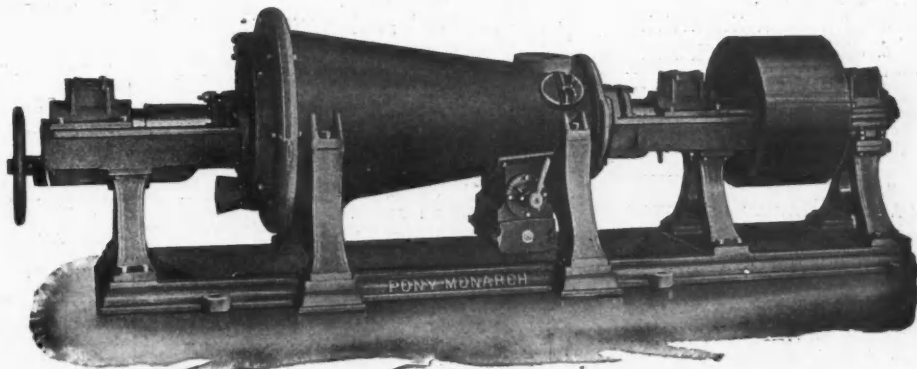
Our latest Improved Machine, three sizes; belt or direct connected motor driven. All Bearings self-oiling, adjustable and water-cooled. Fitted with Standard Steel Knives, Special Heat Treated Steel, Bronze, or Manganese Steel Plug and Shell Lining.

For full particulars apply to

DILLON MACHINE CO., Inc.
Builders of Paper Mill Machinery
Lawrence, Mass.

**WE MAKE
BEATERS AND
JORDANS OF
QUALITY**

**SIX SIZES OF
JORDANS,
BEATERS,
FROM 3/4 LBS.
TO 3000 LBS.**



The Noble & Wood Machine Co., Hoosick Falls, N.Y.



BLEACHED SULPHITE

CLASSIFIED INDEX TO ADVERTISEMENTS

ADDING MACHINE ROLLS.		CHEMISTS.		FLOOR COVERINGS.	
Paper Manufacturing Co.....	74	United States Testing Co.....	73	L. Sonneborn & Sons.....	—
AGALITE.		CLAY.		FLOOR HARDENER (Concrete).	
Union Talc Co.....	73	Atterbury Bros.....	Front Cover	L. Sonneborn & Sons.....	—
U. S. Talc Co.....	80	John W. Higman Co.....	74	FOURDRINIER WIRES.	
ALUM.		Miner Edgar Co., The.....	38	Appleton Wire Works.....	80
The Kalbfleisch Corp.....	42	Paper Makers Chemical Co.....	61	Buchanan Bolt & Wire Co.....	76
Pennsylvania Salt Mfg. Co.....	80	Star Clay Co.....	80	Cable Excelsior Wire Mfg Co.....	80
Superior Chemical Co.....	61	Western Paper Makers Chemical Co.....	61	Cheney, Bigelow Wire Works.....	78
Winkler Bros., Inc.....	79	CLUTCHES (Friction, Etc.).		Eastwood Wire Mfg Co.....	80
ARCHITECTS AND ENGINEERS.		Hill Clutch Co.....	8	Green Bay Wire Works.....	73
George F. Drew.....	72	COGS.		Lindsay Wire Weaving Co.....	79
Hardy F. Ferguson.....	73	N. P. Bowsher Co.....	80	Joseph O'Neill Wire Works.....	79
William T. Field.....	72	Menasha Wood Split Pulley Co.....	—	The W. S. Tyler Company.....	79
George F. Hardy.....	72	COMPRESSORS (Air).		FURNACE (Automatic).	
Management Engineering and Development Co.....	73	The Nash Engineering Co.....	57	Murphy Iron Works.....	72
F. L. Smith.....	73	CONVEYORS (Pulpwood).		GAUGES (Calliper).	
Stebbins Engineering Co.....	73	Jeffrey Mfg. Co.....	—	Farrel Foundry & Machine Co.....	25
Thomas L. Tomlines & Son.....	72	Weller Mfg. Co.....	57	GAUGES (Pressure, Indicating and Recording).	
Vitale & Rothery.....	72	CORDAGE.		Bristol Co., The.....	—
Joseph H. Wallace & Co.....	72	Columbian Rope Co.....	—	GUMMING AND GLUING MACHINERY.	
ASBESTINE PULP.		CUTTERS.		Potdevin Machine Co.....	7
International Pulp Co.....	Front Cover	Smith & Winchester Mfg. Co.....	8	INVESTMENTS.	
ASH-HANDLING MACHINERY.		DIE CUTTERS.		Taylor, Bates & Co.....	65
Jeffrey Mfg. Co.....	—	Hoggon & Pettis Mfg. Co.....	2	IRON EXTRACTORS.	
BALL MILLS		Independent Die Co., Inc.....	8	Oakes Co., Roland T.....	—
The Crossley Machine Co.....	42	DIGESTERS.		KNIVES, ETC.	
BARKERS.		American Welding Co.....	59	Bolton & Son, J. W.....	9
Valley Iron Works.....	21	DRINKING CUPS.		Machinery Co. of America.....	9
BEARINGS (Collar Oiling).		F. N. Burt Company, Ltd.....	60	LUBRICANTS.	
Hill Clutch Co.....	9	Vortex Mfg. Co.....	33	Vacuum Oil Co.....	—
BEATER PADDLES.		DRIVES (Gear).		MICROMETERS.	
Menasha Wood Split Pulley Co.....	—	Farrel Foundry & Machine Co.....	25	Ashcroft Mfg. Co.....	60
BEATING ENGINES.		DRIVES (Silent Chain).		E. J. Cady Co.....	—
Appleton Machine Co.....	35	Morse Chain Co.....	72	Foreign Paper Mills, Inc.....	3
Beloit Iron Works.....	14	DRYER EXHAUSTS.		MICROMETER CALIPERS.	
Claffin Engineering Co.....	67	The Nash Engineering Co.....	57	Lobdell Car Wheel Co.....	4
Dayton Beater & Hoist Co.....	—	DRYING SYSTEMS.		MILL COGS.	
Dillon Machine Works, Inc.....	75	Open Coil Heater & Purifier Co.....	—	N. P. Bowsher & Co.....	80
Dilts Machine Works, Inc.....	61	W. F. Pickles.....	—	MILL INSTALLATIONS.	
Downingtown Mfg. Co.....	78	Ross Engineering Co., J. O.....	72	The Layne Ohio Co.....	23
Emerson Mfg. Co.....	61	DYES, ANILINE.		MOTORS.	
Noble & Wood Machine Co.....	75	Calco Chemical Co.....	—	B. F. Perkins & Son, Inc.....	11
Valley Iron Works.....	21	Heller & Merz.....	12	MOTOR TRUCKS.	
BELTING.		Mathieson Alkali Works.....	29	Packard Co.....	—
Goodyear Tire & Rubber Co.....	—	National Aniline & Chemical Co.....	—	OILS AND GREASE.	
BOILERS.		White Tar Aniline Corporation, The.....	4	Vacuum Oil Co.....	—
Heine Boiler Co.....	71	DYE STUFFS.		PACKING.	
BRONZE CASTINGS.		Dupont de Nemours & Co., E. I.....	—	Jenkins Bros.....	4
Hyde Windlass Co.....	13	ELECTRIC HOISTS.		PAINTS AND VARNISHES.	
BUCKETS (Elevator).		Shepherd Electric Crane & Hoist Co.....	—	Du Pont de Nemours Co., E. I.....	—
Hendrick Mfg. Co.....	10	ENVELOPE MACHINES.		PAPER BAG MACHINERY.	
CALENDER ROLLS.		Potdevin Machine Co.....	7	Potdevin Machine Co.....	7
Appleton Machine Company, The.....	35	F. L. Smithe Machine Co.....	—	Smith & Winchester Mfg. Co.....	8
Farrel Foundry & Machine Co.....	25	EVAPORATORS.		PAPER BAG MANUFACTURERS.	
Lobdell Car Wheel Co.....	4	Zaremba Company.....	—	Lawrence Bag Co.....	74
Norwood Engineering Co.....	67	FAN AND BLOWING SYSTEMS.		Schorsch & Co.....	67
B. F. Perkins & Son, Inc.....	11	Garden City Fan Co.....	—	PAPER BOX BOARDS.	
Textile Finishing Machinery Co.....	—	FAN PUMPS.		C. L. La Boiteaux Co.....	5
CARBON TOOLS.		Valley Iron Works.....	21	PAPER CUTTERS.	
Thomas L. Dickinson.....	74	FELTS AND JACKETS.		Hamblet Machine Co.....	2
CASEIN.		Appleton Woolen Mills.....	8	PAPER DEALERS.	
Casein Mfg. Co.....	3	Draper Bros. Co.....	67	Fernstrom Paper Co.....	65
CENTRIFUGAL PUMPS.		Fitchburg Duck Mills.....	—	R. F. Hammond.....	Front Cover
Valley Iron Works.....	21	F. C. Hayck & Son.....	11	PAPER EXPORTERS.	
CHAINS.		Knox Woolen Company.....	7	Hudson Trading Co.....	3
Jeffrey Mfg. Co.....	—	Lockport Felt Co.....	—	Parsons Trading Co.....	Front Cover
CHEMICALS, COLORS, ETC.		Orr Felt & Blanket Co.....	59	Fred C. Strype.....	38
Arnold Hoffman & Co., Inc.....	—	Shuler, Benninghofen Co.....	—		
Du Pont de Nemours Co.....	—	Waterbury Felt Co.....	71		
Heller & Merz Co.....	12	Waterbury & Sons Co., H.....	73		
Kuttloff, Fickhardt & Co.....	71	FELT ROLLS.			
Mathieson Alkali Works.....	29	Rodney Hunt Machine Co.....	60		
White Tar Aniline Corporation, The.....	4	FILTERING SYSTEMS.			
C. K. Williams & Co.....	80	Norwood Engineering Co.....	67		

Buchanan & Bolt Wire Company

ESTABLISHED 1878 AT HOLYOKE, MASS.

Makers of Highest Grade Fourdrinier Wires, Dandy Rolls, Cylinder Covers, Brass Wire Cloth
of all Meshes for Paper, Pulp and Coating Mills—Quality Guaranteed

We make a specialty of Fine Wires for Magazine and Book Papers

CLASSIFIED INDEX TO ADVERTISEMENTS

PAPER MANUFACTURERS.	Page	PRESS ROLLS.	Page	STOCK REGULATORS.	Page
Bayless Mfg. Co.	70	Rodney Hunt Machine Co.	60	Trimbe Machine Works	—
Becker Paper Corporation	—	PLUGS.	—	SUCTION BOX COVERS.	—
Brown Company	5	Menasha Wood Split Pulley Co.	—	Manasha Wood Split Pulley Co.	—
Collins Mfg. Co.	6	PLUGS (Wood).	—	SULPHITE, BLEACHED AND UNBLEACHED.	—
Diamond State Fibre Co.	Front Cover	O. L. Bartlett	—	J. Andersen & Co.	4
Eastern Mfg. Co.	75	PULP STONES.	—	The Booregaard Co., Inc.	5
Eaton Dikeman Co.	12	International Pulp & Stone Co.	Front Cover	Brown Co.	5
Fort Howard Paper Co.	5	Lombard & Co.	60	Butterworth & Co., Inc., E.	73
Franklin Paper Co.	—	PUMPS.	—	Canadian Robert Dollar Co.	39
Hammermill Paper Co.	—	Frederick Iron & Steel Co.	7	Columbian Paper Co.	70
Hanna Paper Corporation	5	Hayton Pump & Blower Co.	—	Craig-Becker Co., Inc.	3
Howard Paper Co.	59	The Layne-Ohio Company	23	Eastern Manufacturing Co.	75
Missisquoi Pulp & Paper Co.	70	PUMPS (Vacuum).	—	Mead Sales Co., The	—
Mountain Mill Paper Co.	12	The Nash Engineering Co.	57	Parsons Pulp & Lumber Co.	12
Poland Paper Co.	—	PRESSURE BULKERS.	—	Price & Pierce, Ltd.	Front Cover
St. Regis Paper Co.	5	B. F. Perkins & Son, Inc.	11	Pulp & Paper Trading Co.	4
Sherman Paper Co.	74	RAG CUTTERS.	—	SULPHUR.	—
Stratford Paper Co.	73	B. F. Perkins & Son, Inc.	11	Texas Gulf Sulphur Co.	6
Wausau Sulphate Fibre Co.	38	Taylor, Stiles & Co.	—	Union Sulphur Co.	61
West Virginia Pulp & Paper Co.	5	REAM CUTTERS.	—	TANKS (Water, Oil, etc.).	—
PAPER AND PULP MACHINERY.	—	Geo. T. McLaughlin Co.	—	W. E. Caldwell Co.	7
Appleton Machine Co.	35	RECORDING INSTRUMENTS.	—	G. O. Jensen Co.	—
Bagley & Sewell Co.	78	Bristol Co.	—	New England Tank & Tower Co.	79
Baker Mfg. Co.	14	REGISTERS.	—	Stearns Lumber Co., A. T.	2
Beloit Iron Works	27	Standard Register Co.	—	Tokheim Oil Tank & Pump Co.	—
Bird Machine Co.	—	ROLL GRINDERS.	—	Woolford Wood Tank Co.	—
Black-Clawson Co.	—	Farrel Foundry & Machine Co.	25	TIMBER ESTIMATES.	—
Clark-Aiken Co.	10	Lobdell Car Wheel Co.	4	The Bradley Sales Agency	72
Frank H. Davis	69	ROSIN.	—	P. T. Coolidge	72
Downingtown Mfg. Co.	78	Hercules Powder Co.	3	James W. Sewall	73
Farrel Foundry & Machine Co.	25	ROSIN SIZE.	—	TRANSMISSION MACHINERY.	—
Glens Falls Machine Works	71	Arabol Mfg. Co.	79	H. W. Caldwell Co.	9
Improved Paper Machinery	39	Paper Makers Chemical Co.	61	Hill Clutch Co.	8
Sandy Hill Iron & Brass Co.	10	Western Paper Makers Chemical Co.	61	Reeves Pulley Co.	—
Shurtle Bros. Machine Co.	70	ROTARY BLEACHING BOILERS.	—	Weller Mfg. Co.	57
Smith & Winchester Mfg. Co.	8	Biggs Boiler Works Co.	—	TURPENTINE.	—
Trimbe Machine Works	—	SAVEALLS.	—	Hercules Powder Co.	3
Valley Iron Works	21	Bird Machine Co.	27	TWINES.	—
Waterville Iron Works	—	SATIN WHITE.	—	American Manufacturing Co.	35
PAPER MILL AGENTS.	—	The Kalbfleisch Corp.	42	National Patent Reed Sales Co.	—
Dillon & Barnes	74	Paper Makers Chemical Co.	61	VALVES.	—
McIver, Dana T.	2	Western Paper Makers Chemical Co.	61	Crane Co.	31
PAPER AND PULP MILL BROKERS.	—	SCALES (Paper).	—	Jenkins Bros.	4
Gibbs-Brower Co.	70	Fred Baker	67	VAPOR ABSORPTION SYSTEMS.	—
PAPER SPECIALIST.	—	E. J. Cady & Co.	—	Ross Engineering Co., J. O.	72
Charles W. Bell	—	Foreign Paper Mills, Inc.	3	VENTILATING FANS.	—
PAPER STOCK.	—	SCREENS.	—	B. F. Perkins & Son, Inc.	11
Atterbury Bros.	Front Cover	Beloit Iron Works	14	Ross Engineering Co.	72
Butterworth & Co., Inc., E.	73	Bird Machine Co.	27	VEGETABLE PARCHMENT PAPERS.	—
Castle, Gotheril & Overton	79	Central Mfg. Co.	27	Kalamazoo Vegetable Parchment Co.	38
Gumbinsky Bros.	80	Wm. A. Hardy & Sons Co.	59	WATER SUPPLIES.	—
Hicks, Daniel M.	74	Union Screen Plate Co.	76	The Layne-Ohio Company	23
Mendelson Bros. Paper Stock Co.	73	SHREDDERS (Pulp and Paper).	—	WOOD FLOUR.	—
Penn Paper & Stock Co.	73	Valley Iron Works	21	Union Wood Flour Co.	73
Salomon Bros. & Co.	73	SKYLIGHTS.	—	WOOD PULP IMPORTERS.	—
Train-Smith Co.	Front Cover	E. Van Noorden & Co.	79	American Wood Pulp Corp.	71
PAPER TESTERS.	—	SLASHERS.	—	J. Andersen & Co.	4
Ashcroft Mfg. Co.	60	Ryther & Pringle Co.	—	Ira Beebe & Co.	12
Foreign Paper Mills, Inc.	3	SLITTERS AND REWINDERS.	—	The Booregaard Co., Inc.	—
B. F. Perkins & Son, Inc.	11	Beloit Iron Works	14	M. Gottesman & Co.	—
Thwing Instrument Co.	—	C. Benninghofen & Son	72	Hammond, R. F.	Front Cover
Valley Iron Works	21	Cameron Machine Works	74	E. J. Keller Company	12
PAPER TUBE MACHINERY.	—	Dietz Machine Works	10	Lagerloef Trading Co.	12
Dietz Machine Works	10	Samuel M. Langston Co.	74	Mead Sales Co., The	—
Grissinger Machine Works	60	STARCH.	—	Nilsen, Lyon & Co., Inc.	37
PAPER WAXING MACHINERY.	—	Corn Products Refining Company	6	A. J. Pagel & Co., Inc.	19
Farrel Foundry & Machine Co.	25	STEAM SPECIALTIES.	—	J. F. Patton & Co., Inc.	65
Potdevin Machine Co.	7	Crane Co.	31	Perkins-Goodwin Co.	37
PERFORATING MACHINES.	—	Open Coil Heater & Purifier Co.	—	Scandinavian-American Trading Company,	Front Cover
Dietz Machine Works	10	STITCHING MACHINERY.	—	Rodney Hunt Machine Co.	60
Harrington & King Perforating Co.	67	Saranac Machine Co.	—		
Hendrick Mfg. Co.	10				
Charles Mundt & Sons	61				
Manhattan Perforated Metal Co.	—				
PIPE (Genuine Wrought Iron).	—				
Reading Iron Co.	—				

Fitchburg, Mass., U. S. A. UNION SCREEN PLATE COMPANY Lennoxville, P. Q. Canada

UNION BRONZE SCREEN PLATES **ROLLED BRASS**
(Best phosphorized Cast Metal) (Union Quality)

Old Plates RECLOSED and RECUT to accurate gauge.

UNION BRONZE SCREWS for Screen Plates UNION BRONZE SUCTION BOX PLATES

Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS

THE ORIGINAL THE BEST

Over One Thousand in Successful Operation Recommended by Screen Makers



BAKER MANUFACTURING CORPORATION

Formerly

BAKER & SHEVLIN COMPANY

Sole Manufacturers of

THE MAGAZINE GRINDER

Have you seen the article which was read before the Paper Makers' Convention on Relative Efficiency of the Automatic Magazine and Pocket Grinders? If not, and you are interested, kindly advise and we will send you a copy.

BAKER MANUFACTURING CORPORATION, Saratoga Springs, N.Y.

COUCH ROLLS—DRUM ROLLS

Rubber Covered Press Rolls

Gun Metal Covered Press Rolls

Felt rolls of wood, steel tube and copper covered. Highest quality material. Best of workmanship.

DOWNINGTOWN MANUFACTURING CO.

EAST DOWNINGTOWN, PA.

U. S. A.

ESTABLISHED 1842

FOURDRINIER WIRES

DANDY ROLLS

CYLINDER

MOLDS

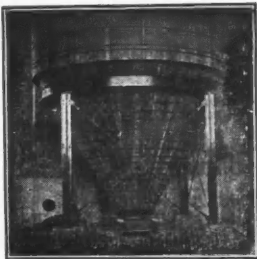
CHENEY BIGELOW WIRE WORKS
 SPRINGFIELD, MASS.

MANUFACTURERS

Paper Mill Wire Cloth, Bank
 and Office Railings and Grill Work

ALUM
FOR THE PAPER MAKER
 Manufactured by
The Jarecki Chemical Co.
QUALITY SERVICE
 Sole Selling Agents
ISAAC WINKLER & BRO.
 CINCINNATI :: :: NEW YORK

NEW ENGLAND TANK & TOWER CO.



**WOOD TANKS
 FOR ALL
 PURPOSES**

Everett Station, Boston, Mass.
 New York Office: 30 Church St.

For reliable running and average long life

Lindsay Fourdrinier Wires

ARE UNSURPASSED

We make them for the largest and fastest machines.
 Cylinder Wires all sizes.

The Lindsay Wire Weaving Co.
 COLLINWOOD STA. CLEVELAND, OHIO

Dry Rosin Size



Brittle and easily soluble. Cheapest size out.
 Cheaper than mill made size. Also our hot and
 cold water sizes; standard quality. Cleaner,
 more uniform and economical than either mill
 made sizes or those offered by our competitors.
 Also Arabol Paper Size, Splicing Gums, Con-
 densed Paste Powder, Paper Makers' Starches.

Arabol Manufacturing Co.
 100 William Street NEW YORK

WE specialize in durable Fourdrinier
 Wires and Cylinder Wires in any
 metal desired up to and including 120 mesh
 in plain woven, double warp, triple chain,
 and twisted weaves.

Save two-thirds the cost and three-quarters
 of the expense of putting on brass and bronze
 wires by using our nickel alloy wires.

Joseph O'Neill Wire Works
 Port Chester, N. Y.
 Established 1906

FOREIGN and DOMESTIC
 Paper Stock
 New Cuttings
 and Rags

CASTLE, GOTTHEIL & OVERTON

Jute Stock
 Sizing, Sulphite
 and Soda Pulps

200 FIFTH AVE. NEW YORK

Van Noorden Skylights

*To work by the Sun
 Means twice the work done.*




"DAYLITE"

are as
Indispensable

To a modern Paper
 Mill as its important
 inner equipment.
 "DAYLITE" means
 Nature's light with-
 out weather or con-
 densation drip.

E. VAN NOORDEN & CO. 103 Magazine St.
 Boston, Mass.

"TYLER" FOURDRINIER WIRES



RUN straight and true and are
 long-wearing.
 Widths up to 250 inches, in brass,
 bronze and phosphor bronze.
 Also Cylinder Faces and Washer Wires.

THE
W. S. TYLER COMPANY
 Cleveland, Ohio

EASTWOOD
WIRE MFG. CO.
FOURDRINIER WIRES
BELLEVILLE, NEW JERSEY, U.S.A.

Mill Cogs
ON SHORTEST POSSIBLE NOTICE

We make all kinds of Mill Cogs and have special facilities that will be of great service to you. We make a specialty of "ready dressed" cogs which are

READY TO RUN

the moment driven and keyed. Write at once for circular "G" and instruction sheets, free.

THE N. P. DOWSHER CO., South Bend, Ind.
Established 1882.

AGALITE FILLER
UNITED STATES TALC CO.
GOVERNEUR NEW YORK

NATRONA
Porous Alum
MANUFACTURED BY
PENNSYLVANIA SALT MFG. COMPANY
PHILADELPHIA

THE WM. CABLE
EXCELSIOR WIRE MFG. CO.

Established 1848
Incorporated 1870-1896

Manufacturers of
Superior Fourdrinier
Wires
Brass, Copper and
Iron Wire Cloth of
Every Description.
Best Quality of
Wire Rope.

Write for Price List
74-90 Ainslie St. BROOKLYN, N. Y.

C. K. WILLIAMS & CO., EASTON PA.



Proprietors of the Fenna, Dry Paint and Color Works and the Helios Dry Color, Chemical and Copperas Works of Allentown, Pa.

Manufacturers, Miners and Importers of Coloring Materials, such as Venetian Reds, Red, Brown, Black, Yellow, Oxides, Chrome and other Ochres, also Paper Fillers—as Agalites, Mineral Pulp, Talc, China and other Clays.

**COLORS FOR PAPER
MANUFACTURERS' USE**

Rags are the most expensive paper-making material. Lower your ultimate costs with America's best

"G.B." 3RDS & BLUES

Inquiries solicited

GUMBINSKY BROS. CO.

America's Largest Packers of Rags and Waste Paper
2261 South Union Ave., Chicago, Illinois

STAR CLAY CO.
MINERS & MANUFACTURERS OF
WHITE CHINA CLAY
ESPECIALLY ADAPTED TO PAPER MAKERS USE.
MERTZTOWN, PA.

**FOURDRINIER
CYLINDER
WASHER**

WIRES

50 years' experience as wire makers
insures highest quality of product

**"Appleton Wires
Are Good Wires"**

Appleton Wire Works Appleton, Wis.