

MEMBER OF THE A. B. C.  
FIFTIETH YEAR

# PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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John Aspegren, Pres. B. Lindell, Treas.  
J. A. Millar, Gen. Mgr.

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WOOD PULP

PAPER

# PAGE 19!



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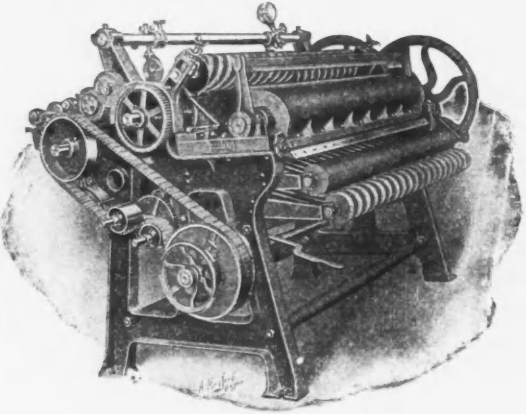
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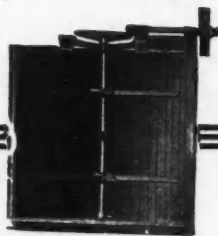
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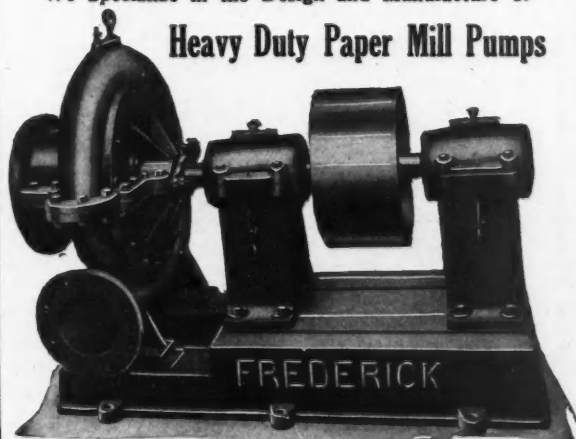
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### PAPER BAG MAKING MACHINERY

AS ILLUSTRATED AND DESCRIBED IN BULLETIN NO. 10

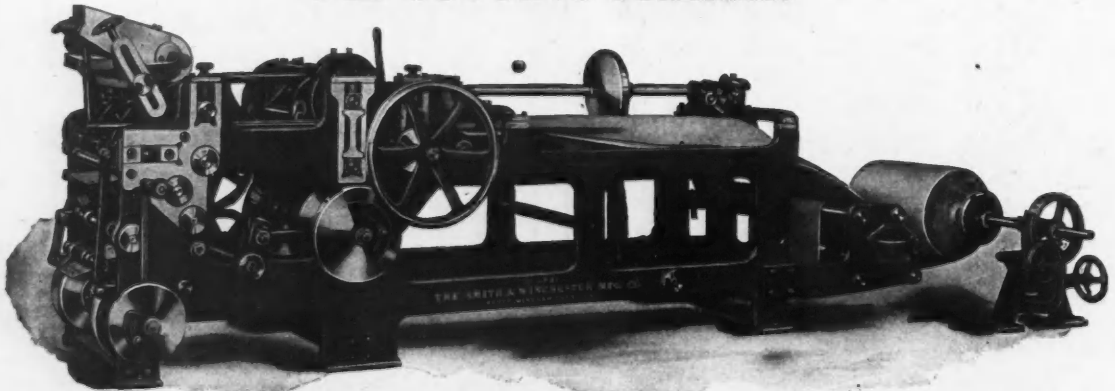
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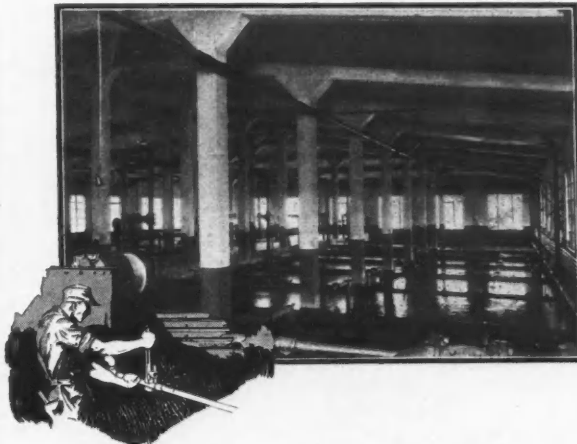
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3



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Bulletins on Reading Wrought Iron Pipe will be gladly sent you upon request.



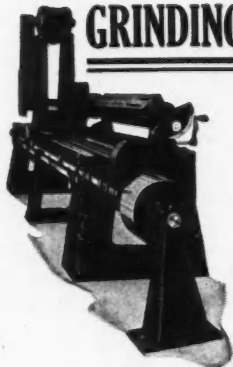
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Our new machines represent the highest development ever reached in fitting paper knives with full automatic machine tool precision. Half the floor space of the older type grinders.

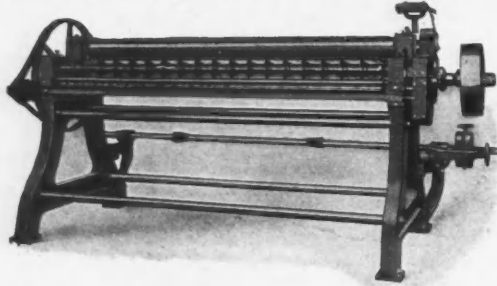
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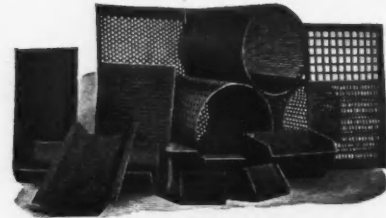
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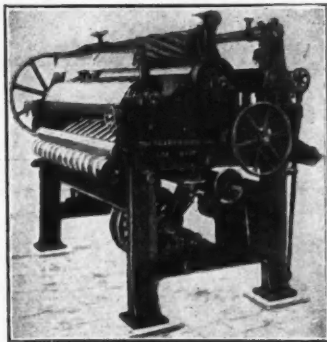
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**PAPER MILL MACHINERY**  
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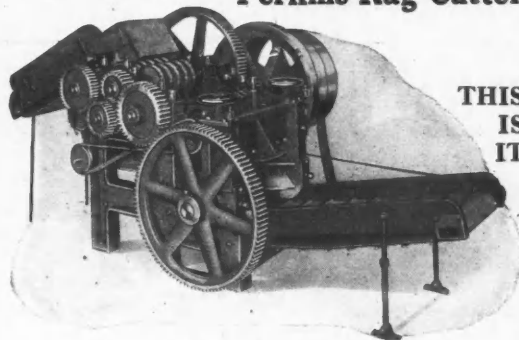
Revolving Paper Cutters—Rag Cutters—Cylinder Paper  
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 and Paper Calendars—Fan and Stuff Pumps—Engine  
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ACID RESISTING BRONZE

HARD LEAD

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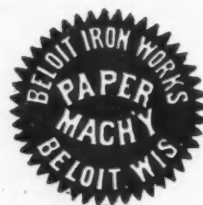
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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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Vol. LXXIV. No. 14

NEW YORK AND CHICAGO

Thursday, April 6, 1922

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## PRODUCTIONS OF ALL PAPERS DURING MONTH OF FEBRUARY

According to Statistics Stocks of All Grades Except Board, Hanging, Bag and "Other Grades," Increased During the Month—News Print Mill Stocks Equalled Six Days' Average Output; Book Paper Mill Stocks Equalled Thirteen Days' Average Output; Paper Board Mill Stocks Equalled Ten Days' Average Output and Wrapping Paper Mill Stocks Equalled Twenty-five Days' Output.

[BY OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 5, 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 February, 1922. This summary is compared with the month of February, 1921, 1920, 1919 and 1918. The average production is based upon the production for the years 1917-1921, inclusive, and the average stocks are based upon the stocks carried for the years 1918-1921, inclusive. 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.

The variation in the number of mills from one period to another is due, in part, to the fact that some mills do not run continuously on the same 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 February, 1922, compared with February, 1921, 1920, 1919 and 1918, together with average production and stocks.

Grade News Print (Standard and Special Grades of News):	Num- ber of Mills	of month hand first Stocks on Production		Ship- ments		Stocks month end of on hand
		Net tons	Net tons	Net tons	Net tons	
February, 1922.....	65	26,550	97,786	96,521	27,815	
February, 1921.....	88	32,417	103,040	96,281	39,176	
February, 1920.....	84	16,934	114,235	103,214	27,955	
February, 1919.....	66	21,219	103,248	98,996	25,471	
February, 1918.....	66	28,928	93,504	94,418	28,014	
Average.....	...	...	101,200	...	25,307	
Standard News:						
February, 1922.....	50	21,784	91,050	89,936	22,898	
February, 1921.....	67	27,109	94,823	88,639	33,293	
February, 1920.....	69	14,576	105,342	95,123	24,795	
February, 1919.....	51	16,489	94,224	91,170	19,543	
February, 1918.....	50	27,232	83,474	85,820	24,886	
Average.....	...	...	91,724	...	20,900	
Book (M. F., S. S. C. and Coated):						
February, 1922.....	84	38,463	69,408	68,537	39,334	
February, 1921.....	94	28,880	56,687	51,980	33,587	
February, 1920.....	96	23,546	85,532	80,644	28,434	
February, 1919.....	91	34,038	62,616	63,870	32,784	
February, 1918.....	91	28,982	64,160	64,784	28,358	
Average.....	...	...	67,459	...	30,305	
Paperboard, Total (Straw- Fibre, Leather, Chip, etc.):						
February, 1922.....	205	62,731	153,704	152,527	63,908	
February, 1921.....	242	58,479	123,832	121,588	60,773	
February, 1920.....	242	43,228	176,855	175,416	44,667	
February, 1919.....	232	53,217	125,208	118,973	59,452	
February, 1918.....	232	34,714	142,968	142,687	34,995	
Average.....	...	...	145,222	...	49,989	
Boxboard:						
February, 1922.....	122	29,483	107,842	108,129	29,196	
February, 1921.....	139	28,696	89,785	89,123	29,361	
Average.....	...	...	102,511	...	26,048	
Wrapping (Kraft, Manila, Fibre, etc.):						
February, 1922.....	126	54,506	62,035	57,290	58,251	
February, 1921.....	145	45,241	46,352	40,317	51,276	
February, 1920.....	147	25,653	61,574	55,754	31,453	
February, 1919.....	161	51,397	45,480	37,325	59,552	
February, 1918.....	161	43,305	53,074	59,942	36,437	
Average.....	...	...	54,418	...	43,482	

Bag (all kinds):					
February, 1922.....	39	3,790	14,560	14,885	3,465
February, 1921.....	37	3,466	7,603	7,771	3,298
February, 1920.....	44	2,343	17,777	16,622	5,498
February, 1919.....	37	3,896	10,592	10,115	4,173
February, 1918.....	37	5,372	13,158	15,388	3,142
Average.....	...	...	12,213	...	3,362
Fine (Writing, Bonds, Ledgers, etc.):					
February, 1922.....	101	35,331	26,663	26,190	35,804
February, 1921.....	106	34,748	19,242	16,593	37,397
February, 1920.....	110	28,791	29,202	25,733	32,260
February, 1919.....	113	36,075	24,600	23,052	37,623
February, 1918.....	113	32,675	25,303	32,626	25,359
Average.....	...	...	24,541	...	35,192
Tissue (Toilet, Crepe, Fruit Wrappers, etc.):					
February, 1922.....	92	7,036	15,273	14,286	8,023
February, 1921.....	99	9,122	9,372	9,640	8,854
February, 1920.....	100	5,850	14,745	13,811	6,784
February, 1919.....	88	6,344	9,432	8,369	7,407
February, 1918.....	88	6,026	11,631	11,680	5,977
Average.....	...	...	11,293	...	6,737
Hanging (No. 2 Blank, Oatmeal, Tile, etc.):					
February, 1922.....	19	7,089	7,211	8,689	5,611
February, 1921.....	25	4,799	7,522	4,918	7,403
February, 1920.....	22	960	8,654	8,076	1,538
February, 1919.....	21	2,666	8,260	8,368	2,558
February, 1918.....	21	6,464	4,047	4,335	6,176
Average.....	...	...	6,394	...	4,693
Felts and Building (Roof- ing, Sheathing, etc.):					
February, 1922.....	44	9,559	30,783	28,678	11,664
February, 1921.....	51	13,553	19,556	21,130	11,979
February, 1920.....	51	6,585	33,618	31,668	8,535
February, 1919.....	46	9,466	13,368	14,238	8,596
February, 1918.....	46	8,287	22,691	22,739	8,239
Average.....	...	...	23,023	...	8,853
Other Grades (Specialties not otherwise classified):					
February, 1922.....	90	19,916	24,394	24,447	19,863
February, 1921.....	94	18,236	14,760	13,461	19,535
February, 1920.....	84	14,005	22,308	21,378	14,935
February, 1919.....	58	11,254	12,528	12,202	11,580
February, 1918.....	58	13,210	22,651	22,803	13,058
Average.....	...	...	18,078	...	14,466
TOTAL—all Grades:					
February, 1922.....	...	264,971	501,817	492,050	274,738
February, 1921.....	...	248,941	407,966	383,679	273,228
February, 1920.....	...	167,895	564,500	532,336	200,059
February, 1919.....	...	229,572	415,132	395,508	249,196
February, 1918.....	...	207,963	453,187	471,402	189,748
Average.....	...	...	463,841	...	220,386

The following stocks were reported on hand at terminal and delivery points on February 28, in addition to the mill stocks shown in the tabulation: News print, 522 tons; book paper, 3,365 tons; fine, 17 tons; paper board, 140 tons; wrapping, 5 tons; and "other grades," 329 tons.

Stocks of all grades, except boxboard, hanging, bag, and "other grades," increased during the month. Stocks of all grades reported by manufacturers at the end of February amounted to 279,116 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 206,479 tons.

### Ratio of Stocks to Average Production

Comparing the stocks on hand at the domestic mills on February, 28, 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 stock equal 10 days' average output.
- Wrapping paper mill stock equal about 25 days' average output.
- Bag paper mill stocks equal about 7 days' average output.
- Fine paper mill stocks equal about 34 days' average output.
- Tissue paper mill stocks equal 16 days' average output.
- Hanging paper mill stocks equal slightly more than 20 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 January, 1922, compared with January, 1921, as shown by the records of the Department of Commerce, were as follows:

	January, 1922		January, 1921	
	Pounds	Value	Pounds	Value
<b>Imports:</b>				
News Print .....	164,964,408	\$5,941,351	138,896,868	\$8,763,375
Book Paper .....	43,549	4,606	742,905	103,207
Wrapping .....	2,278,808	81,355	718,130	35,024
Hanging .....		37,057		38,148
All other grades (a) .....		133,166		377,796
<b>Exports:</b>				
News Print .....	5,073,172	216,254	4,943,438	394,995
Book Paper .....	1,767,737	190,406	11,421,465	1,930,926
Paper Board .....		224,485		1,066,968
Wrapping .....	2,154,006	154,608	4,208,386	598,604
Bag .....		105,446		260,024
Fine .....		165,866		1,372,442
Tissue .....		69,077		111,978
Hanging .....		38,306		101,820
All other grades (a) .....		268,677		1,060,386
TOTAL Imports .....		6,197,535		9,317,550
TOTAL Exports .....		1,433,125		6,898,143

News print is the only grade of which the United States is a heavy importer. The bulk of this tonnage, the value of which amounted to \$5,941,351 for January, 1922, is imported from Canada. The value of the exports of news print in January, 1922, amounted to \$216,254, which is about 42 per cent of the news print imported.

The value of the total imports of all grades was about 3 per cent less than for December, 1921. The value of the total exports for January, 1922, was \$5,465,018 less than the value of the exports for January, 1921, and \$4,764,410 less than the value of the imports for January, 1922.

News print, book, wrapping, paperboard and fine were the principal grades exported, as to value.

**Loss of Production**

The idle machine time reported to the Commission for February, 1922, is shown by grades in the attached tabulation. This does not include the machines in 21 mills which were closed down completely. 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 February, 1921, is given by grades and reasons for purposes of comparison.

Grade	Lack of Orders		Repairs		Other Reasons		Total	
	1922	1921	1922	1921	1922	1921	1922	1921
	Number of machines .....							
Total hours idle .....								
<b>News Print:</b>								
Number of machines .....	17	28	9	10	10	5	36	43
Total hours idle .....	4,338	4,351	937	2,795	1,102	331	6,377	7,477
<b>Book Paper:</b>								
Number of machines .....	96	141	22	15	17	4	135	160
Total hours idle .....	12,265	22,694	1,155	3,060	1,432	1,015	14,852	26,769
<b>Paperboard:</b>								
Number of machines .....	171	201	18	31	62	57	251	389
Total hours idle .....	25,374	46,956	1,115	5,369	13,850	14,144	40,339	66,469
<b>Wrapping:</b>								
Number of machines .....	68	94	22	12	22	27	112	133
Total hours idle .....	7,749	17,010	2,015	2,029	2,564	4,599	12,328	23,638
<b>Bag:</b>								
Number of machines .....	16	14	3	3	6	3	25	20
Total hours idle .....	2,214	3,647	111	274	474	687	2,799	4,608
<b>Fine:</b>								
Number of machines .....	78	106	8	36	55	13	141	155
Total hours idle .....	14,828	16,183	881	4,094	3,412	1,879	19,121	22,156
<b>Tissue:</b>								
Number of machines .....	50	101	31	7	32	10	113	128
Total hours idle .....	6,656	20,584	1,367	357	5,559	2,750	13,582	23,691
<b>Hanging:</b>								
Number of machines .....	17	18	1	4	1	0	19	22
Total hours idle .....	2,622	2,125	227	219	39	0	2,888	2,344
<b>Belts and Building:</b>								
Number of machines .....	19	23	9	1	7	15	35	39
Total hours idle .....	3,564	4,987	465	40	708	2,253	4,737	7,280
<b>Other Grades:</b>								
Number of machines .....	48	58	1	11	18	17	67	76
Total hours idle .....	7,401	12,037	72	2,359	3,986	3,633	11,459	18,029
<b>Total number of machines .....</b>	<b>580</b>	<b>784</b>	<b>124</b>	<b>130</b>	<b>230</b>	<b>151</b>	<b>934</b>	<b>1,065</b>
<b>Total hours idle .....</b>	<b>87,011</b>	<b>150,574</b>	<b>8,345</b>	<b>20,596</b>	<b>33,126</b>	<b>31,291</b>	<b>128,482</b>	<b>202,461</b>

**Escanaba Paper Co. Resumes**

[FROM OUR REGULAR CORRESPONDENT.]

ESCANABA, Mich., April 3, 1922.—The Escanaba Paper Company, which has been down for the past four months, started up again Monday morning, April 3, at full capacity.

**Plans for Salesmen's Meeting**

Paper salesmen eligible to membership in the Salesmen's Association of the Paper Industry will not be permitted to attend the annual banquet of the salesmen's association on Tuesday, April 11, during the annual Paper Week in New York. This was the decision reached by the second annual monthly luncheon of the New York members of the salesmen's association last week, when a score of New Yorkers sat down at the Arkwright Club to discuss plans for the annual convention of the association.

Reservations are coming in in such promising numbers that it was decided that it would be unwise to throw the banquet open to eligible salesmen who are not sufficiently interested in the association to join. Membership applications, however, will be received until shortly before the banquet.

Many paper mill executives are being specially invited, and all of the "big bosses" will be eligible to attend the banquet, at which the chief speaker will be Congressman Daniel A. Reed, one of the East's best-known inspirational speakers.

The luncheon at the Arkwright Club was devoted almost entirely to the plans for the banquet. The registration fee will be \$10, which will include the buffet luncheon at noon, the price of the evening banquet, and include a lady guest at the banquet. The plan adopted last year of having dancing as a feature of the evening's program was reported to be meeting with great favor. There will be dancing between courses, and after the speaking program.

**Federal Commission Acts on Alaska Projects**

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 5, 1922.—The Federal Power Commission has approved the application for preliminary permit in Project No. 61 of the Wrangell Pulp and Paper Company of Wrangell, Alaska, for a preliminary permit to develop 12,000 horsepower on Grant and Harding Creeks, tributaries of the Bradford Canal.

The application of L. J. Vogter of Tacoma, Wash., for a preliminary permit to develop power at Swan Lake and Fish Creek, Tongass National Forest, Alaska (Project No. 60, Alaska), was rejected. The proposed project is in conflict with a proposed

project of Paul Butler of the Butler Paper Corporation. Mr. Vogter was unable to make any showing of ability to carry out his proposed project. As he had been informed six months ago that the application would be rejected unless he could make further showing, the above action was taken.

## J. T. CAREY IN WATERTOWN TO DISCUSS STRIKE MATTER

**Mr. Carey Says Question of Renewing Agreements Which Expire May 1 in Most Mills Will Be Taken Up Soon and Hastened to a Conclusion—Feeling Seems to Prevail That There Will Be No Trouble With the Men Under Mr. Carey, but That the Pulp Workers May Start Something—The Ultimate Outcome, It Is Believed, Would Result in a Victory for the Manufacturers.**

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., April 3, 1922.—Jeremiah T. Carey, president of the International Brotherhood of Paper Makers, reached this city Saturday noon for a few days' conference with various locals in this part of the state. The bad storm which he said prevailed in Albany before he started made it impossible for him to drive his automobile and equally difficult for him to reach the various mill towns he planned to enter. He said it was his plan to discuss the situation with the striking employees of the local International Paper Company Saturday night and then go to Pyrites, Deferiet and Norwood.

"The question of renewing the agreements which expire on May 1 in most mills will probably be taken up within about ten days and then hastened to a conclusion," he said in answer to a query on that point. "I would not say that I am up here for the purpose of taking up that subject with the locals, but it is probable that the subject will be discussed while I am here." He agreed that it was possible that the men in his union might be receiving a fair wage compared to the prices the manufacturers are able to obtain, and this led to the conclusion that there need be little fear of serious difficulties in the mills on May 1 growing out of the papermakers' dissatisfaction. He said he had no idea of the attitude that might be taken by the pulp and sulphite workers under the leadership of J. P. Burke.

The agreements promulgated by the arbitration board last year expire on May 1, and there is no provision for renewal. This must be adjusted between the employees and the employers. As far as can be learned no discussion of the subject has been held between labor leaders and local manufacturers.

A feeling seems to prevail here that there will be no trouble with the men under Mr. Carey, but that the pulp workers may start a fuss. In such event there would be nothing to require the skilled papermakers to stop work if the lower priced laborers should not be able to perfect an agreement and decided to strike.

From some of the mill towns comes the report that many of the unskilled workmen are not satisfied and are willing to work nine hours a day. With such a condition obtaining it is believed that there would be difficulty in holding the ranks together in case of a strike in which the papermakers did not join, with the ultimate outcome a victory for the manufacturers and practically the open shop.

### Harry C. Kinnie Returns From West

Harry C. Kinnie of the Bagley & Sewall Company and City Councilman, returned Friday night from a nine weeks' trip to the coast. Since leaving Watertown he has traveled nearly 10,000 miles visiting the paper manufacturing trade across the continent and from the Gulf of Mexico to within a few miles of the Alaska border.

He visited the Grand Canyon in Colorado for two days on his trip west and returned through the Canadian Rockies. He passed days in San Diego, Los Angeles, San Francisco, Portland, Seattle, Vancouver, Ocean Falls in British Columbia, which is 300 miles below the Alaskan border, Victoria and Port Angeles out on the peninsula. Business and pleasure were combined on the trip and

Councilman Kinnie said it was somewhat of an acquaintanceship visit to paper manufacturers and customers and that he would not comment on the business success of his trip.

"There are lots of men out of work out there," he said, "and they are about where we were six months ago so far as economic conditions are concerned. The lumber business out there is booming, but the paper manufacturing business is just fair. The cost of living is higher than in the East and taxes are ridiculously high."

### Hanna Paper Corp. Meets

The annual meeting of the Hanna Paper Corporation was held in local offices Monday forenoon. The election of Carl Martin as assistant treasurer was the only change made in the election of officers and directors.

Floyd L. Carlisle, president; D. M. Anderson, vice-president; R. B. Maltby, vice-president and secretary and treasurer; F. P. Wadley, assistant treasurer; Carl F. Martin, assistant treasurer; Paul C. Hodskins, assistant secretary; is the list of officers of the company.

President F. L. Carlisle said that no business of importance was taken up at the meeting, beyond the election of directors and officers.

### Plans for Paper Machinery for Siam

WILMINGTON, Del., March 30, 1922.

EDITOR, PAPER TRADE JOURNAL:

Our attention was called to the article on page 49 in the March 16 number of the PAPER TRADE JOURNAL, with reference to the experimental paper mill to be shortly installed in Siam. We are particularly interested in the reference to the mill being patterned after the one established by the Canadian Government at McGill University at Montreal, and in justice to all concerned we feel compelled to acquaint you with the true facts leading up to this installation.

Commencing about three years ago, on the request of the Siamese Minister in Washington, the Bureau of Standards, Washington, D. C., carried on experiments as to the possibility of successfully making pulp and paper from banana stems, bamboo, and several different kinds of grasses. This work at the Bureau was at first in charge of Mr. Durkin, who was succeeded later by F. A. Curtis, the present chief of the Paper Section, and Mr. Curtis was finally advised about eighteen months ago to prepare estimates on the cost of a complete plant very similar in every respect, except as to size, of the equipment in the Bureau at Washington.

Mr. Curtis had the assistance of this company in preparing his plans and specifications, and we finally secured the contract for furnishing the paper machine, as well as considerable of the auxiliary equipment.

For your further information we are enclosing copies of our March, 1919, April, 1920, and July, 1921, *Super-Calender*, illustrating and describing the experimental machines we have furnished in the past, and also the Siamese machine.

We wish to state that all credit will be due Mr. Curtis for the successful installation and operation of this mill.

Yours very truly,

THE PUSEY & JONES COMPANY.

### New Plant for Dennison Mfg. Co. at Marlboro, Mass.

MARLBORO, Mass., April 3, 1922.—The Dennison Manufacturing Company, manufacturers of tags, paper goods, etc., with a large plant at Framingham, Mass., has awarded contract to the Abertaw Construction Company, of Boston, for a new plant at Marlboro.

The first unit will be a large fireproof building and will house several hundred hands.

# ROBERTSFORS A.-B. ROBERTSFORS, SWEDEN

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for immediate shipment, limited quantities  
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## SPECULATION IN CANADA ON REQUEST FOR SULPHITE DUTY

**If This Legislation Goes Into Effect, Despite the Opposition of American Publishers, It Will Be a Severe Blow to the Pulp Industry of Canada—Pulp Competition, It Is Pointed Out Comes from European Countries Rather Than from Canada—Contracts on Pulp Filled by the Saguenay Pulp and Power Co. Said to Have Reached \$16,250,000 in Ten Years—Delivers News Print in Record Time.**

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 3, 1922.—There has been considerable speculation here over the announcement that the Senate Finance Committee at Washington has given a definite assurance to sulphite manufacturers of the United States that impending tariff legislation will provide a duty of 10 per cent on all imports into the United States of every kind of wood pulp. It is admitted that if this legislation goes into effect, despite the opposition of American publishers, it will be a severe blow to the pulp industry of Canada, but it is thought that the suggestion is meant more in the nature of a threat to be used in connection with the agitation to secure the removal of the restrictions placed by the Canadian provincial governments on the export of pulpwood cut on Crown lands. In this connection it is recalled that some two years ago there was a suggestion to prohibit the export of coal, sulphur and other raw materials to Canada unless the free export of Canadian pulpwood was allowed. The proposal was vetoed by President Wilson. As regards the competition of Canadian pulp producers with those in the United States, it is pointed out that the competition comes more from European countries than from Canada, and surprise is expressed that the United States government has not had recourse to anti-dumping legislation.

The importance of the United States market for Canadian pulp is seen by the figures of the Trade and Commerce Department at Ottawa of reports for the ten months ending January 31, 1922. These amounted to \$21,542,000, but the previous year's total (11 months) was over double, \$54,837,082. The normal average would lie between the two, representing a very substantial total.

### Pulp Exports to United States

Eleven months ending January 31,	1922	1921
Sulphate (kraft) .....	\$6,287,736	\$10,977,585
Bleached sulphite .....	5,802,483	11,811,119
Unbleached sulphite .....	5,551,994	20,813,457
Groundwood .....	3,900,267	11,234,921
Total .....	\$21,542,090	\$54,837,082

If the proposal of the Senate Finance Committee goes into effect, there will be an immediate demand on the government here to put an export tax on pulpwood, which will affect the large quantities now cut on private lands and now exported freely to the United States. Many United States pulp and paper mills are dependent upon this source for pulpwood.

For the ten months ended January 31, 1922, the exports of pulpwood from Canada were 630,540 cords, equal to about 420,000 tons of paper when manufactured. The value set down for this was \$7,926,536, or about \$12.50 a cord. The year before the exports were 1,243,112 cords, equal to 800,000 tons of paper.

### A \$16,000,000 Profit

An analysis made of the contract between English pulp dealers and newspaper owners with the Saguenay Pulp and Power Company shows that the net profit accruing to the company over the period of 10 years covered by the contract will reach \$16,250,000,

or an average of \$1,625,000 a year. This is computed on the contract agreement, which will allow the company a net profit, after interest, depreciation, etc., and all operating expenses, of \$10 on every ton of sulphite pulp. Taking the total amount of groundwood to be supplied at 1,100,000 tons, the profit on this alone would be \$11,000,000. Taking the sulphite total at 350,000 tons, the profit on this would be \$5,250,000.

### Record Delivery of News Print

A feat of unusually bright service was performed last week when the Chicago *Tribune*, finding itself suddenly faced with a news print shortage, on Friday sent an S. O. S. order to the Abitibi Pulp and Paper Company at Iroquois Falls, Ont., for a thousand tons of paper for instantaneous delivery.

The company had the news print in stock, and passed on the S. O. S. to the Canadian Pacific agent at North Bay, who immediately despatched forty cars over the Temiskaming & Northern Ontario route, through hundreds of miles of forest and plain to the mills. These cars were loaded up immediately upon their arrival, and started on their journey with their \$70,000 cargo—thundering on to North Bay over the T. & N. O. lines, then connecting up with a new engine, and pounding away over the C. P. R. lines to Detroit, where they were switched on over the Michigan Central road to Chicago, achieving the run in record passenger train time—fifty hours and twenty-five seconds—arriving on Sunday in time for the Monday's edition.

The tens of thousands of readers who purchased the paper on the Chicago streets little knew the stress under which they were furnished it.

Northern Ontario still supplies a half of the news print of Canada, the total production of which is about 2,500 tons per day.

### Newfoundland Scheme Falls Through

The legislature of Newfoundland has been notified by the premier of withdrawal by the Reid-Newfoundland Railway Company of its proposition for extensive water-power development and establishment of paper making and other industries along the Humber River, on the west coast of Newfoundland. The proposition, in which an English firm also was interested, called for government guarantee of certain securities.

### Riordon Co. Making Progress

R. Montague Davy, chairman of the Creditors' Committee in charge of the affairs of the Riordon Company, Limited, has issued a statement to creditors to the effect that satisfactory results have attended the operations at the Hawksbury and Kipawa mills, and as a result the company's bank loans, which, of course, were secure, have been reduced by \$803,277, and they now stand at \$2,442,103 for the Imperial Bank and \$1,167,959 for the Bank of Montreal. In addition, accrued back wages have been discharged. Furthermore, the committee has arranged with the board of directors of the Riordon Company that all creditors' claims will bear interest from November 19, 1921, and that all creditors so desiring may obtain a note confirming this fact. The committee hopes to issue a further letter in about one month's time.

### To Represent Stone & Andrew in Worcester

WORCESTER, Mass., April 3, 1922.—Roy E. Knight, formerly Secretary of the Charles A. Esty Paper Company of Worcester, has recently been added to the sales force of Stone & Andrew, Boston, as resident salesman in charge of Worcester and surrounding territory.

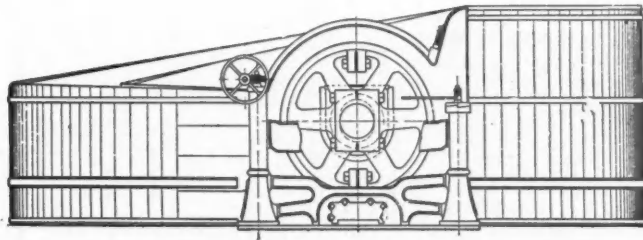
Mr. Knight is well known in the trade, both in his home territory and outside, and he has a host of friends who wish him well in his new opportunity. Stone & Andrew have a most complete line of all grades of white papers and specialties, and are the exclusive New England Distributors for many high grade mills.



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One company manufacturing liner and wrapping paper solved the problem of obtaining reasonable profit at present day prices and keen competition by cutting production costs through the installation of a "NIAGARA BEATER." The NIAGARA, which is beating charges of old paper and shavings, is giving a production of forty (40) tons per day. It has replaced three (3) pulpers and one (1) mixing engine.

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*Ask the Mill That Owns One*

## Valley Iron Works Company

*Sales Office*  
334 Fifth Ave., N. Y. C.

*Plant:*  
Appleton, Wis.

## CHICAGO PAPER DEMAND IS SLOWLY INCREASING

April Certain to Develop Stronger Buying Tendency—Slow But Steady Progress Reported—Additional Demand on the Road from Catalog Houses—Competition Is Keen and Much Energy Is Expended in Effecting Sales—Slump in Strawboard During the Week—To Build New Bourke-Rice Envelope Co. to Replace One Lately Destroyed by Fire—Other News of the Chicago Trade.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, April 3, 1922.—That April will develop more concrete signs of a stronger buying tendency in the paper field is the general consensus of opinion in Chicago. Most of the trade here looks forward to a growing better business during this month, which is expected to show encouraging signs during the first and second weeks. During March business strengthened quite a little.

This process was not sudden, but as a jobber said today, "A steady improvement, even though slow, is healthier than a sudden turn from poor buying to very good buying."

"Paper is a commodity which depends to a large extent upon how industry in general feels about using it for publicity purposes," said one paper merchant here. "A certain amount is used regularly, of course, but above that amount depends on the attitude of paper consumers toward the advisability of going after business intensely. Just as soon as business in general feels that there is some advantage in advertising real heavy, and the catalog houses are ready to publish, there will be a much increased demand for paper, and that time is gradually growing nearer and nearer."

Competition is very keen in Chicago among the selling factors. However, even under existing conditions, the business is going forward in a very orderly manner, and rumors of price cuts which crop up every now and then, are answered with the remark that there is always some one who will "cut off his nose to spite his face." However, there are few merchants in the city who are holding their prices very far above any others in his branch of the industry. In fact, one member of the trade watches the market so closely that he calls each competing house daily before making any quotations.

There has been a slump in the call for strawboard here during the past few days. Up to the middle of last month, strawboard was in fairly good demand, but from that time on the demand began decreasing until it is again at low ebb.

### To Build New Envelope Factory

J. W. Bourke, president of the Bourke-Rice Envelope Company, whose plant was destroyed in the near west side fire last month has announced plans to establish one of the most complete and modernly equipped envelope factories in the middle west. This will be located at 520-22 South Clinton street, where an entire new equipment force will be installed. Immediately after the blaze had totally ruined its factory, Mr. Bourke arranged for temporary quarters with the Bradner-Smith & Company, 175 West Monroe street, and was able within 24 hours to say, "business as usual, and though our factory is still burning, we can still sell you envelopes."

### Jack Neblung Goes to New York

Jack Neblung, who for many years has been identified in Chicago as local manager of Louis De Jonge & Co., recently left to assume the management of the New York City office of this company. Mr. Neblung has a wide acquaintance in Chicago and surrounding territory, and his friends were all sorry to see him leave. Just prior to his departure a party

was tendered to him, when he was presented by local members of the trade, with a mahogany desk set.

### To Handle Ware Coated Paper Co. Line

Frank A. Sanborn, the Chicago manager of the McLaurin-Jones Company, with offices in the Transportation Building here, announces that he is now handling for distribution a complete line of Ware Coated Products, produced by the Ware Coated Paper Company Division of the recent combination of New England houses. Mr. Sanborn says that these products are receiving a favorable reception here.

### To Exhibit at Candy Convention

At the last regular meeting of the Container Club, which was held in New York City last month, it was decided that the organization would participate in a confectionery convention coming to Chicago next month to the extent of being among the exhibitors at the Exposition in connection with the event, and show the various products of the membership, as well as the feasibility of shipping candy in paper board and fiber containers.

### General Views of the Trade

George Goodsir, vice-president of the McLaurin-Jones Company, of Brookfield, Mass., was a visitor to Chicago recently, looking over business conditions here and making his headquarters at the Chicago office.

Harry G. Williams, Chicago manager of the C. L. La Boiteaux Company, has returned to Chicago, after spending two weeks on the East Coast of Florida.

J. W. Anderson, formerly identified with the Fox River Paper Company in Chicago, is now with the A. C. Allen Paper Company and will handle fine papers for this company. Mr. Anderson has a host of friends wishing him success in his new connections. He is well known in this territory.

Plans are being put into form to make the Pageant of Progress on the Municipal Pier, Chicago this year, a bigger and greater success than the initial event was last year. The show will be held from July 29 to August 14th, this year. Booths have been arranged for, each 10 by 20 feet, and the officers in charge are offering decorators' service to any exhibitors desiring it. One entire section was taken in this annual exposition last year, by the paper and allied industries.

The Republic Envelope Company wiped out by the big fire which destroyed a business block on the near west side last month, has taken temporary quarters until it is ready to locate in a new home, at 1211 Webster building.

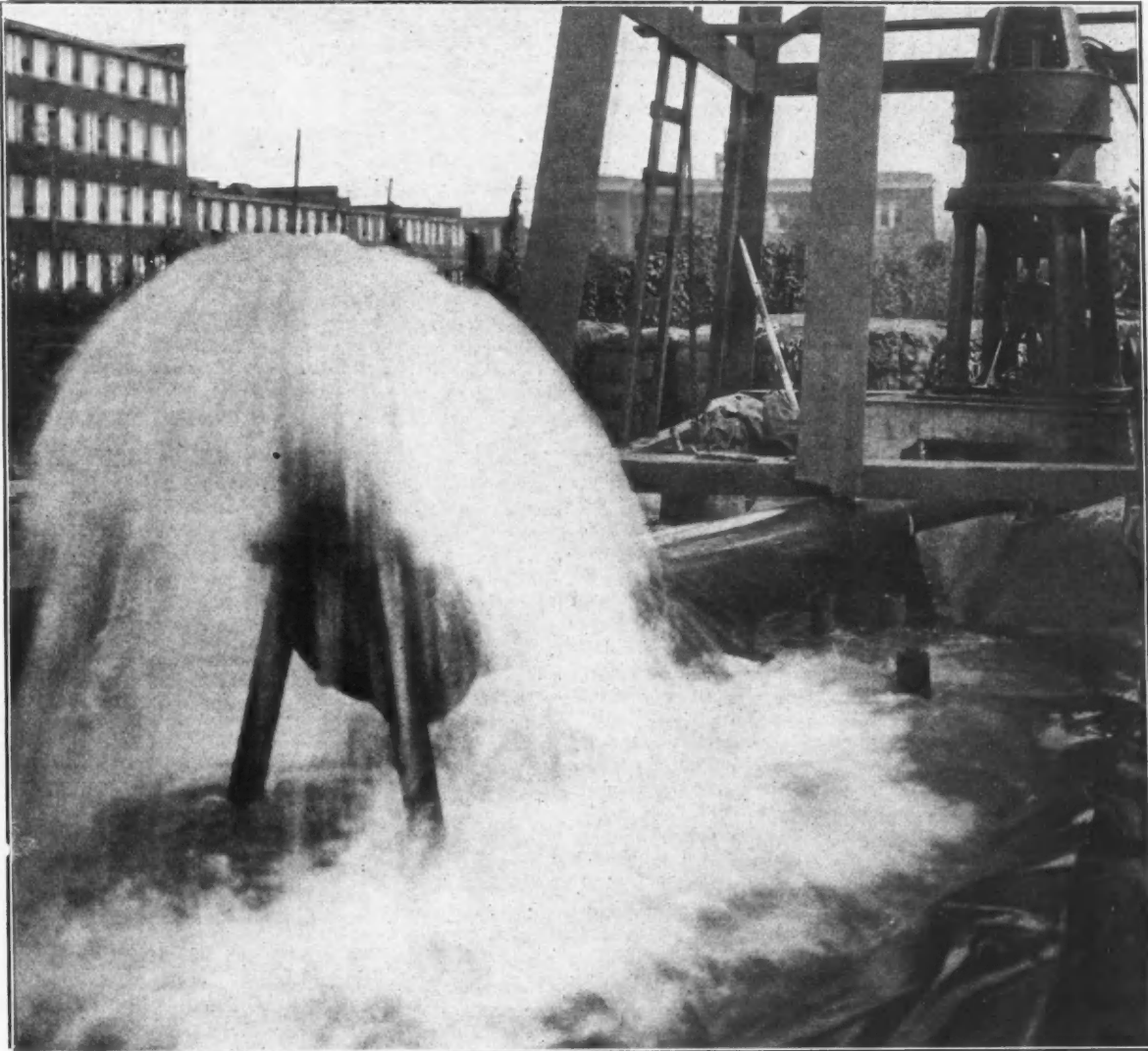
### Price of Brass Fourdrinier Wires

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
No. 65 mesh .....	52-53
No. 70 Mesh .....	56-57
No. 75 mesh .....	61-62
No. 80 mesh .....	61

### Marathon Paper Class Doing Good Work

ROTHSCHILD, Wis., April 3, 1922.—The class in pulp and paper making which was organized here shortly after the first of the year meets every Tuesday evening in the general office of the Marathon Paper Mills Company. The discussions are becoming very interesting and the work is progressing more satisfactorily.



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

## PAPER MILLS IN WISCONSIN MAKE WAGE READJUSTMENTS

**Some of the Mills Made Wage Reductions as Early as February but the Majority Postponed Action Until April 1—Mill Men Hold to the Belief That There Cannot Be a Thorough Revival of Business Until There Is a Complete Readjustment of Prices and Costs in Relation to Each Other—Paper Business in Fox River Valley Shows Some Decline in Past Few Weeks—Escanaba Resumes.**

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 3, 1922.—Dozens of Wisconsin employers, including a number of paper mills, announce wage readjustments. Some of the mills had made the readjustments as early as in February, but the majority postponed action until April 1.

Mill men hold to the belief that there cannot be a thorough revival of business until there is a complete readjustment of prices and costs in relation to each other. So long as costs of producing a commodity are out of proportion to the price received for it or the price of a commodity is out of proportion to other prices, there cannot be the complete adjustment necessary to revival of industry and return of prosperity.

### Slight Decline in Business

There has been a slight decline in the paper business in the Fox River valley in the last few weeks, paper mill men said. The decline is nothing serious, but it is noticeable. There have been several ups and downs in the business since the revival set in last fall. Business picked up the latter part of November and was fairly good until near the start of the year, when there was a seasonal decline. Business picked up again in February, but there has been a decline in the last few weeks. Paper mill men expect these ups and downs, with each peak higher than the preceding one, until next fall, when they believe the entire industry will be on a firm footing and business near normal.

### White Rapids Paper Co. Formed

The White Rapids Paper Company has been organized in Wisconsin with a capital stock of \$200,000. Signers of the incorporation papers are T. Eugene Orbison and J. C. Lymer, of Appleton, and Ed. M. Hooper, of Oshkosh.

The company was organized for the development of water power, manufacture of paper and sale of surplus power as a private company. No immediate development or building is contemplated, organizers of the company state.

It is said the company owns valuable water power rights in northern Wisconsin which will be developed when the time is opportune.

### Blasting Out Ice Jams

Blasting has been resorted to by the Consolidated Water Power and Paper Company to remove ice jams from near the powerhouse at Stevens Point. The ice was found to be three and four feet thick and little affected by the warm weather of the last few weeks. It was feared that if the ice was not removed from in front of the gates it would pile up and possibly break down the gates when the river neared flood stage.

### Cellucotton Co. to Add Machine

Business of the Cellucotton Products Company of Neenah has increased so rapidly that it is necessary to install a new cellucotton machine and more apparatus to manufacture cellucotton specialties. The cellucotton mill was originally established in the old National Textile Company mill, but now preparations are being made to move it into the old Badger plant of the Kimberly-Clark Company. A paper machine in the Badger mill is to be converted into a cellucotton machine, it is said. Cellucotton is made into sanitary pads for which the demand is enormous.

### Fatal Accident at Biron Mill

Two men were killed and ten others barely escaped with their lives on Sunday, March 26, when a head gate to flume under the Biron division mill of the Consolidated Water Power and Paper Company gave way and a torrent of water rushed through the mill. Twelve men were in the flume when the gate broke, but ten were rescued from the Wisconsin River into which they were washed.

One of the dead men, Fred Getzlag, was entangled in wires and crushed against the side of the flume. John Symanski was washed into the river, where he was drowned. His body has not been recovered.

Damage to the mill and to paper stock ran between \$5,000 and \$10,000. The mill was closed down until it was sure that Symanski's body was not in the debris in the flume. A new head gate was finished in about three days so the flow of water could be checked. A large part of the grinder room was under water for two days and the motors were slightly damaged.

The accident occurred when a crew of men were in the flume, which is under the grinder room, preparing to install a new set of grinders. A pump in an opening created by a coffer dam had ceased to work and the men were preparing to repair this pump when the head gate gave way. All the men, with the exception of Getzlag, who would easily have escaped if he had not become entangled in wires, were swept into the Wisconsin River, where they were rescued with considerable difficulty.

The cause of the accident has not been determined. The head gate apparently was in excellent condition. It had held back water under similar conditions for many years and inspection had shown no weaknesses.

One machine of the mill resumed operations on Wednesday evening after the accident, after it was definitely determined that Symanski's body was not under the mill. Motor trouble delayed starting the other machine for a few days longer.

This was the first fatal accident at the Biron mill in several years. Company officials said to their knowledge the gate was in good condition and had withstood similar strains many times in the last several years.

### Hungerford & Terry, Inc., Remove

Hungerford & Terry, Inc., engineers and manufacturers of water filters, removed on April 1 from the Pennsylvania Building, Philadelphia, to Clayton, N. J., where they have recently completed a large concrete factory and office building equipped with the very latest machinery for the manufacture of their products.

The company long since outgrew its former quarters and its constantly increasing business necessitated this removal. It is now in a position to meet any increased demands that may arise for its new paper mill filter. The factory is only 18 miles from Philadelphia and has exceptional facilities for procuring all necessary materials for the manufacture of its apparatus. At the present time the total daily capacity of Hungerford filters exceeds 750,000 gallons a day.

### Little Demand for Pulpwood in Maine

[FROM OUR REGULAR CORRESPONDENT.]

BANGOR, Me., April 5, 1922.—Very few Maine concerns will be in the market this year for pulpwood. Throughout the state there are huge piles of peeled wood for which there is little demand, despite very low prices offered.

One concern is reported to have lost \$1,500,000 on wood cut at top prices, and others are reported to have dropped anywhere from \$50,000 to \$210,000. Among the heavy losers are many farmers who cut wood, and in hopes of getting top prices held the product too long. Many of these men have gone into bankruptcy.



# Regrinding Calender Rolls

Your new rolls are perfectly round, with perfectly parallel faces, or with perfectly crowned faces. They wear, however, the best of them — get out of round and lose their first trueness with hard usage.

You must then either send them back to the maker for regrinding or you can regrind them yourself on the same roll grinder which we use for this purpose, and which contributes to the high quality of Farrel rolls.

There follow some noteworthy features of Farrel roll grinders, a heavy machine for precise work—

*Particularly fitted for putting the proper and important crown on the bottom rolls.*

*Made both for straight and crown grinding and in two styles, for rough and finish grinding.*

*Two emery wheels mounted on a swing rest to give absolute parallel grinding.*

*Made for variable speed regulation, either with alternate or direct current, assuring constant speed irrespective of the diameter of the roll.*

*Farrel Calenders and chilled rolls are known for the highest in quality.*

*We are the largest makers in the world of these products.*

Write for Bulletin 756 and prices

## F A R R E L

Established 1848

Foundry & Machine Company

Ansonia, Conn.

Branch Plant:  
Buffalo, N. Y.

## ORDERS SMALL BUT BETTER IN PHILADELPHIA MARKET

**Improvement Most Marked in Fine Paper—While Demand for Cheaper Grades of Coarse Papers Is Still Slow There Is Nevertheless a Betterment in Conditions and Prices Are Near Stabilization—Vice President William S. Wilcox in Charge of Brook Paper Department, Vice President Thomas S. Furlong in Charge of Fine Paper Department and E. T. Walter, Jr., to Withdraw from Ward Co.**

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, April 3, 1922.—The fine paper trade enjoyed the largest percentage of the better business of the week, and while none of the lines are of outstanding activity, there is a good steady inquiry for all. In the coarse paper division, the market for the cheaper grades still is rather sluggish, but its tendency nevertheless is upwards, and there is now a near stabilization of prices. The better grades of kraft are in a steady but growing demand, with prices hardening.

In rags and paper stock there is just about enough business afoot with the majority of the houses to warrant keeping warehouses open and the forces of sorters and packers at work, but not enough to produce any profit. Even thus, however, the dealers are fairly well satisfied because the days when every team load of stock left the warehouse represented a loss, have passed, and the days of the even break have succeeded.

### Changes in D. L. Ward Co.

Far exceeding in interest and probably in importance any news development relating to the personnel of the trade in this city for a decade or more, is the announcement made at the close of the week that there were about to withdraw from the D. L. Ward Company organization, Vice-president William S. Wilcox, in charge of the book paper department; Vice-president Thomas S. Furlong, in charge of the fine paper department, and Vice-president E. T. Walter, Jr., in charge of the coarse paper department. The importance of the change is suggested by the official positions held by these men, two of whom, Mr. Wilcox and Mr. Walter, also were directors of the Ward company. Miss Pearl E. Chillson, confidential secretary to George W. Ward, also will leave that organization when the others do on April 15. It is understood authoritatively, although not officially, that the three vice-presidents will associate themselves in a paper distributing business, which, like the Ward company, will carry all lines of production. Though the trade is discussing most earnestly in connection with the report of the changes possibility of the taking over by the new organization of the S. D. Warren, the Valley Paper Company and other accounts, no definite information on this point has been announced further than the positive statement by the Ward company that the Warren account will remain with it. While gossips in the trade for months have been discussing the possibility of the withdrawal of Mr. Wilson and his associates, actual news that they had announced their intention of withdrawing came with a sense of great surprise and for a while was discounted as being merely the revival of the six months' old rumor. However, at the close of the week, the authoritative statement was made that on April 15 they would sever their connections with the Ward firm. Until that time, those most directly concerned are withholding statements of their future plan.

Mr. Walter has been longest in the service of the Ward company. He began with it almost twenty years ago and was regarded as an almost irremovable part of the organization. He is generally credited with being one of the best informed authorities in the coarse paper business in all the trade.

Mr. Furlong has been active in the paper business for more than

a score of years. He was with the old firm of I. N. Megargee & Co. for many years, and subsequently with its successor, the Megargee, Hare Company, for several years until its absorption by the D. L. Ward Company in July, 1919. Mr. Wilcox also is recognized as one of the best posted men on book papers in the entire trade. He came to the Ward company about four years ago from the Ticonderoga Pulp and Paper Company and he enjoyed a very wide acquaintanceship in the trade.

### Address by Joseph A. Borden

Executives or representatives of the sales organizations of nearly all the fine paper distributors of the city were in attendance at the meeting on Wednesday night of last week of the Typotheta of Philadelphia at the Meridian Club, Chancellor and Camac streets, attracted by the presence there of Joseph A. Borden, director of the service department of the American Writing Paper Company, who delivered an address specifically designed to develop a larger market for printing and thereby for printing papers through a nationally conducted campaign of co-operation between the company and organizations of printers, engravers, lithographers, stationers and other converters of paper. Though the Garrett-Buchanan Company is the sole distributor for the American Writing Paper Company in this city, recognition was given to the fact that the campaign which it is conducting through the printing and distribution of a series of booklets addressed to printers, salesmen of printing and buyers of printing, is general in its scope, by no means applies specifically to the American Writing Paper Company, and is therefore beneficial to the entire industry, and so representative of the Whiting, Patterson Company, Regal & Co., the D. L. Ward Company, the Molten Paper Company, the Whitaker Paper Company, E. Latimer, Jr., and others joined with the Garrett-Buchanan representatives.

Mr. Borden emphasized the necessity on the part of the printing trade of immediately counteracting the popular sentiment that the most of printing and of printed advertising is unduly high. A serious problem in the printing and paper industries faced those interested in it, he said, because the printing industry has expanded so much in the past three years that if all the presses in all the printing and lithographing industries were to be run at 100 per cent capacity, there would not be enough paper mill machinery in existence to supply its needs. The paper manufacturer, he said, realized this condition and was giving thought to some plan which would enable the printers to fill up the enormous gap created by idle equipment, this taking the form of curtailing grade and of standardizing paper to reduce its cost, and that they entertained the hopes that the printers would co-operate by developing their sales departments to a higher degree. Said he, "To create more printing salesmen and to imbue them with a knowledge of the real value of printed advertising will take time, but it will have to be done. To make the large number of business concerns of this country use printed salesmanship regularly as a regular part of their business procedure, is no easy task. I am hopeful, therefore, that all will interest themselves in the plan worked out by the American Writing Paper Company for one year's intensive effort, the company standing ready to pay all the bills and supply all the materials—the ammunition—and the printers merely to do the shooting."

Mr. Borden then entered into a lively and interesting discussion of the series of manuals which have been and are being published by the American Writing Paper Company and which will be distributed as printer manuals to local Typotheta who co-operate, to be distributed by them to members and printing salesmen, and a second series, the consumer manuals, to be sent by the local Typotheta to the buyers of printing. The third unit in the campaign deals with salesmanship in print and is of an educational value. He closed by pointing out that the campaigns proposed were not an advertising scheme to boost the interests of the American Writing

(Continued on page 28)



***There Is But One Way  
To Buy Liquid Chlorine in Bulk***

And insure absolute economy of purchase with convenience and safety in handling and storing.

***Buy it—shipped in the***

***Mathieson***

***Multiple-Unit Chlorine Tank Car***

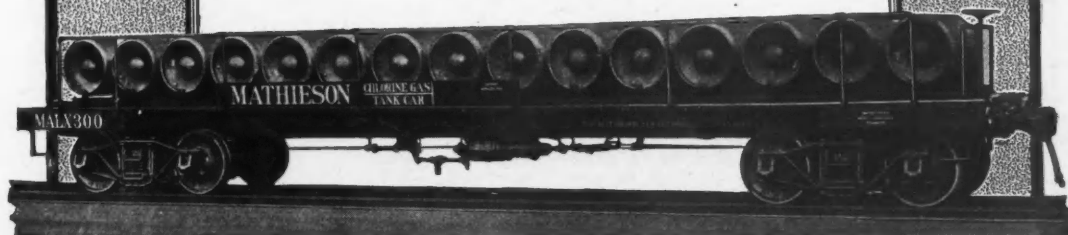
(Patents Pending)

(A specially designed car carrying 15 one-ton individual containers of seamless, forge-welded steel, pressure tested to 500 lbs. per square inch complying with Interstate Commerce Commission specifications; inspected internally and cleansed before each charging.)

Mathieson "EAGLE-THISTLE" Brand Liquid Chlorine has an unimpeachable reputation for purity. Buying it in bulk by the Multiple-Unit Tank Car makes it the most economical to use.

Several plans for connection to your system can be suggested by us which will satisfy the most critical, and will save a large item of labor and meet the highest "Safety First" ideals.

We'll be glad to quote price  
and send detailed information



**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.



## ORDERS SMALL BUT BETTER IN PHILADELPHIA MARKET

(Continued from page 26)

Paper Company or to sell its products, but were general in their nature and beneficial to the entire industry, because just in proportion as consumption of the printed page was increased, benefits would accrue to all the paper-making industry and the American Writing Paper Company as one of its elements, there being in the series of booklets not a single word applying only to the company with which he is connected.

### Paper Stock by All-Water Route

History was made in the local annals of paper stock transportation during the week by the arrival in this port of a barge from New York on an all-water route system. It carried 100 tons of stock which were loaded in New York and three days afterwards reached Pier 78 South Wharves, foot of Snyder avenue, to continue its journey down the river, up the Schuylkill and through the canal to the plant at Manayunk of the Philadelphia Paper Manufacturing Company. The inland waterway trip was made by the Delaware and Raritan Canal to Bordentown and then down the Delaware. This is believed to be the first time that a cargo of stock has thus been shipped. The estimated waterway freight is \$150, against about twice that amount for all-rail transportation. The Universal Waste Paper Products Company, which organized the water transportation system and which for some time has been using barges to ship stock from Snyder avenue wharf to Manayunk, has it believes solved the problem of cheap transportation, and during the week it added another barge to its local service. There are now four of these barges which under convoy of a tug make trips from Philadelphia to Manayunk on a conservative basis, it is estimated that the freight cost is cut \$1 a ton, a decidedly important factor these days. The transportation system is under the personal supervision of Manager W. G. Biles.

### General News of the Trade

The plant of the Consolidated Paper Tube Company, formerly located at Beverly, N. J., is being removed this week to its new headquarters in the building at Twentieth and Erie avenue. The new quarters will give the firm 20,000 square feet of working space in the three-story factory, which has been leased and its location directly on the line of the Reading Railway gives it shipping facilities much superior than at its old plant. Removal was made solely to secure these improvements in transportation. The buildings formerly occupied by the Consolidated Company at Beverly have been sold to the Beverly Wallpaper Company, which proposed to use the mills as a wallpaper printing establishment. A line of paper tubes, cores and allied products are made in the plant and are sold to Auer & Twitchell, which also will remove from the Drexel Building to occupy the executive offices on the second floor of the new plant. Owners of the Consolidated Company are: J. F. Auer, president; Earl M. Twitchell, treasurer, and B. G. Bradbury, secretary. Installation of the machinery and equipment shortly will be completed. Auer & Twitchell are also distributors under its own brand for a line of bleached white towels.

After long experimenting, the Schuch Machine Company, Third and New streets, has perfected and is about to place on the market a shredding machine which it claims will slit all kinds of paper stock into one-eighth inch wide paper strips suitable for use as a substitute for excelsior or sawdust for a wide variety of packing purposes. A suggestion is made that the machine also advantageously can be used in paper mills for preparing trims for re-beating and that paper stock dealers installing it can turn waste to better account than packing it for the mills. Several sizes of the shredder are made, the smaller having a capacity of about two tons a day and taking paper up to 24 inches in width.

Larger quarters have been taken by the Melchior Paper Company and it is now in course of removal from Room 416 to Room

364, the Drexel Building. The firm, though only recently organized, has had a steady growth, specializing in sealing papers and pastes. Its newest product is a reinforced water-proof sealing tape, suitable for heavy and long distance packing purposes, made by the McLaurin-Jones Company, of Brookfield, Mass. Paul S. Melchior is president and William Melchior, secretary-treasurer.

Wedding bells rang twice during the week in the Levis home. On Saturday of last week there was solemnized the marriage of Charles Megargee Levis, vice-president of Curtis Brothers, Inc., to Mrs. F. William Curtis at her home on West 16th street, Wilmington. Two days before, Miss Agnes Howland Levis and Thomas J. Myer were united in marriage in St. Vincent de Paul Church, Germantown. Both Mr. and Mrs. Charles Megargee Levis are socially prominent. She is a daughter of the Corbitt family, socially prominent in Wilmington and he is a member of the Union League, Philadelphia Cricket and other clubs. Mr. Levis is just approaching three score years and for the present will reside at the bride's Wilmington estate, Kenett Side.

Completion of the building in Camden, N. J., of the Franklin Paper Company, which recently took city offices at 10th and Market streets, is announced. About a year ago, fire destroyed the several buildings which were located on a five-acre tract in South Camden. The reconstructed buildings took the place of comparatively new buildings erected a short time before the fire and were devoted to the manufacture of leatherette and specialty papers of a similar type. Until further arrangements are made for the continuance of the manufacture of these papers, the newly completed buildings will be used for storage purposes. Special machinery in the meantime will be installed and as soon as completed opened up for manufacturing.

### News of the Boston Trade

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., April 3, 1922.—An exhibition that created much attention and favorable comment this week was held at the John Carter House, under the auspices of the Hampden Glazed Paper and Card Company, represented by W. S. Fowler. The original cover designs submitted in the recent Sunburst Cover Paper prize contest were on display. These original designs have been exhibited all over the country. The exhibition rooms at the Carter House were well filled during the three-day exhibition.

Mr. Hall, treasurer of the Carter House; Max Frank; H. E. Waite, sales manager, and R. B. Pierpont, manager of the Providence branch of the Carter House, will be among a large delegation of leading paper merchants of this city to attend the paper convention in New York next week.

The Dickerman Box Company, of this city, lost heavily in a fire in its plant here this week.

### E. J. McDonnell Presented With Gold Watch

BOSTON, Mass., April 3, 1922.—E. J. McDonnell, for the past twelve years superintendent of the Tileston & Hollingsworth Company, was called to the finishing department of the mill on last Monday, and on behalf of the employees, Maurice A. Duffy, of the office, presented him with a beautiful gold watch, a desk set and a pair of gold cuff-links, the latter being the gift of the mill office force.

Mr. McDonnell's departure from the Tileston & Hollingsworth Company to start the Marr-McDonnell Company at Mt. Holly Springs, Pa., was the occasion which caused the presentation, an exhibition of remarkable attachment that has always existed between the employees and himself. He goes into his new venture with the sincere good wishes of all who know him.





## We have plenty of *Proof-*

Let us prove that white water stock can be recovered profitably.

Given: A Bird Save-All.

Proof:

The Bird Save-All automatically removes the valuable fibre from the white water and returns it for profitable use without labor cost.

The Bird Save-All is so moderate in price that the initial investment does *not* offset the savings.

The Bird Save-All is inexpensive to operate; the cost is negligible; the stock recovered is practically clear gain.

Let us cite you a concrete example.

### 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

## Obituary

### John Russell

KALAMAZOO, Mich., March 29, 1922.—John Russell, 70 years old, died Tuesday night, 11:50 o'clock, at the New Borgess Hospital. He has been in poor health since November last.

Mr. Russell, during his years of activity, was prominent in the paper industry of the Kalamazoo valley district. During a long period he was superintendent of the Superior division of the Bryant Paper Company, retiring nine years ago to enjoy a well-earned rest.

He was born in Lancaster, England, and came to America when still a young boy. He has lived in Kalamazoo about 40 years, accumulating a competency for his declining years.

The immediate survivors are the widow, one son, John Russell, Jr., and a daughter, Miss Gertrude Russell.

### Bids and Awards for Paper

WASHINGTON, D. C., April 5, 1922.—The purchasing officer of the Government Printing Office has received the following paper bids:

5,000,000 6½ x 10½" manila envelopes: Sherman Envelope Company, at \$3.02 per M.; Brown Bag Filling Machine Company, \$3.19.

1,400 lbs. 22½ x 28½—280, white railroad board: Holyoke Card and Paper Company, at \$33.00 per ream; Old Dominion Paper Company, at \$26.32; Mathers-Lamm Paper Company, \$20.25; D. L. Ward Company, \$27.00; R. P. Andrews Paper Company, \$31.25; Carter, Rice & Co., \$35.25.

5,150 lbs. 30 x 40—51½, No. 16, map paper, sample B: George W. Millar & Co., Inc., at \$1.625 per lb.; Dobler & Mudge, \$1.875; Old Dominion Paper Company, \$1.15249; R. F. Andrews Paper Company, \$1.7625; Barton, Duer & Koch Paper Company, \$1.7625; The Whitaker Paper Company, \$1.975.

8,000 lbs. 22½ x 28½—200, manila cardboard: Old Dominion Paper Company, \$.0574 per lb.; Dobler & Mudge, \$.06; Carter, Rice & Co., \$.06; Wilkinson Bros. & Co., \$.0611; R. P. Andrews Paper Company, \$.055; Mathers-Lamm Paper Company, \$.055; Maurice O'Meara Company, \$.057.

The Mathers-Lamm Paper Company has been awarded the contract by the purchasing officer of the Government Printing Office for furnishing 33,600 lbs. (160 reams) of 21 x 32—210 of manila card board at \$1.057 per lb., bids for which were opened on March 15.

The R. P. Andrews Paper Company will furnish 50,000 lbs. (50,000 sheets) of 26 x 38, No. 50, chip board at \$1.06425 per lb., bids for which were opened on March 20.

The Whitaker Paper Company will furnish 3,700 lbs. of 24 x 38—74 rope manila paper at \$1.034 per lb., bids for which were opened on March 27.

The R. P. Andrews Paper Company has been awarded the contract by the purchasing officer of the Government Printing Office for furnishing 5,150 lbs. (100 reams) of 30 x 40—51½, No. 16, lithographic finish map paper at \$1.473 per lb., bids for which were opened on March 29.

The Bureau of Supplies and Accounts, Navy Department, will open bids on April 18 for 1,000 boxes, 50,000 sheets, of 9 x 14½" carbon paper.

The purchasing officer of the Government Printing Office has received the following bids:

3,700 lbs. rope manila paper, 24 x 38—74: Maurice O'Meara Company, \$1.043 per lb.; Domestic Mills Paper Company, 11 cents; Dobler & Mudge, \$1.043; The Whitaker Paper Company, \$1.034; R. P. Andrews Paper Company, \$1.038; Old Dominion Paper Company, \$.107; George W. Millar & Co., Inc., \$1.090.

126,000 paperoid filing jackets, 4 x 9 x 1½": R. P. Andrews Paper Company, \$15.65 per thousand; J. Josephson & Sons, \$32.50; Typewriter and Office Supply Company, \$21; Keystone Envelope Company, \$19.40; United States Envelope Company, \$28.75 and

\$27; The U. S. Paper Goods Company, \$21.50; The Whitaker Paper Company, \$21.21; Charles G. Stott & Co., Inc., \$26.95; The Globe-Wernicke Company, \$31.62.

50,000 white linen shipping tags, No. 7, 5-13/16 x 27/8": Campbell Paper Box Company, \$4.25 per thousand; Dobler & Mudge, \$2.89, \$3.25, \$3.65, \$3.77, \$4.11; Old Dominion Paper Company, \$2.94, \$3.30, and \$3.46; International Tag Company, \$3.84; American Tag Company, \$3.21; The Denney Tag Company, Inc., \$2.78; Dennison Manufacturing Company, \$3.63 and \$4.02; The Whitaker Paper Company, \$3.00, \$3.39, and \$3.56; R. P. Andrews Paper Company, \$2.87, \$3.23, and \$3.37.

Bids will be opened at the Government Printing Office on April 7 for 2,190 lbs. of 21 x 32½—109½ of salmon commercial ledger paper.

### Scandinavian Pulp and Paper Industry Depressed

According to the most recent information available to the Paper Division of the Department of Commerce, the Scandinavian paper industry remains depressed. The kinds of paper which apparently are in best demand are wrapping paper and news print. There are no evidences of recovery in the fine paper market. Generally speaking, it may be said that the chemical wood pulp industry has brighter prospects at present than the paper industry.

In the middle of February an unsatisfactory condition in the paper market in Sweden was reported. At that time, however, the demand for chemical wood pulp was improving. The British paper mills in February were beginning to operate a number of paper machines which had for some time been idle. The demand for pulp for these machines was beginning to make itself felt on the Swedish market. During January and the early part of February a number of minor purchases of Swedish sulphite pulp were made by these British mills. The following prices were obtained:

Bleached sulphite .....	£20/10 to £23 per ton
Easy bleaching sulphite.....	£15 to £16 " "
Strong sulphite .....	£14 to £15 " "

C. I. F. British port.

In February the Swedish sulphite pulp producers were also experiencing an increasing demand from France, Spain, Italy, and Belgium. The paper manufacturers in these four countries, however, are seldom willing to order more pulp than is sufficient to cover the requirements of the day. They evidently find the political and economic situation too uncertain to negotiate any considerable contracts for gradual delivery throughout the year. However, it is reported that the paper mills in these four countries are now operating at nearly full time; consequently the continuance of a fairly good demand is anticipated.

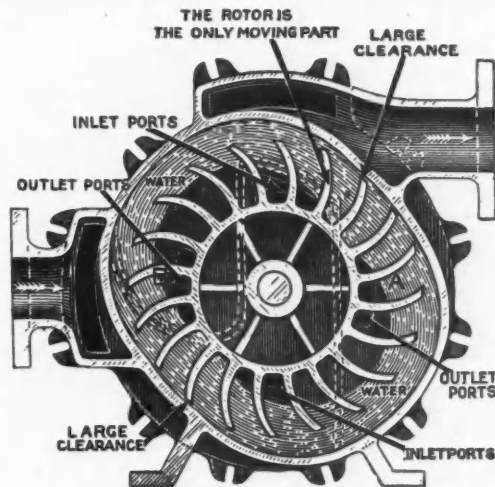
February witnessed a depression both in the paper and pulp markets of Finland. This last winter was characterized by such bitter and lasting cold that the ice conditions on the Finnish coast made traffic there difficult. Most of the export business had to be handled through the one port of Hango, with the resulting traffic jam in that port and in lack of business for other Finnish ports. The depressing effect of the difficulties attendant on the ice is shown by the fact that in the middle of February there were in the port of Hango no less than 8,000 tons of chemical wood pulp for export which it had been impossible to ship.

Reports from Norway dated February stated that the paper industry in that country, which for the most part manufactures for export, is working at greatly reduced time. Low prices prevail in the paper market. Wrapping paper and news print are in the strongest position of any kinds of paper. The market for ground wood is very quiet, as is usual at this time of year. There is a moderate demand for chemical wood pulp, although prices are low. The total production of chemical wood pulp in Norway in 1921 was much less than in 1920, being estimated at 150,000 tons compared with 224,000 tons in 1920.

# 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.

# 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.



## PRACTICAL QUESTIONS AND ANSWERS FOR MILL MEN

A Department for the Solution of the Troubles, Large and Small, That Are Encountered by the Workers in the Mills in the Course of Their Duties in Making Paper and Pulp — All Mill Men Are Invited to Send in Both Questions and Answers—A Free Exchange of Ideas Is Desired — By Active Co-operation This Department Can Be Made a General Clearing House for Information in Regard to Practical Paper Making.

### How Long the Wet Felt Should Run

**QUESTION No. 2559.**—How long should the wet felt run on a machine which is running at an average speed of 190 to 200 feet per minute? Our first felts average three to four weeks and the second felt about seven weeks. We run on a fine grade of book paper.

**ANSWER No. 2559.**—The lives of your felts are considerably shorter than they should be, for you should get at least a third more wear out of them. A whole lot depends in the first place on whether the felts are the quality that they should be. You must have the best quality of felts to get the maximum wear. It will not do you any good to try to get good long runs on your felts if you are using an inferior grade. If you are using the best felts possible and you are getting short runs, then you must look to your machine for the reason that you are not getting the time out of them that you should. It would be well for you to look over your felt frames and see that your felts are not turning any surplus rolls. Cut out all the rolls that are unnecessary. The more rolls that you are using the shorter the time you can use the felts. Every roll added that is not necessary shortens the wear of your felts. You must never take your felts off of the machine after once they have been put on. Wash your felts on the machine and do not try to wash them and put them back on. If you do this you will weaken the fibers and the loss in wear is very great. When you wash your felts on the machine try washing with a good quality of powdered soap which has been dissolved in hot water. Use about one-half a pail of soap to a barrel of water. Let the felt run in the soap for about five minutes and then run with good fresh water for about twenty to thirty minutes. Rope out and you are ready to run again. When you start up a new felt do not stretch the felt out too tight, for you will take all the life out of it if you stretch the felt out too tight to start with. Do not stretch the felt out until you have put the water on it, for felts shrink considerably after being wet. If you follow the above suggestions you will no doubt lengthen the life of your felts.

### Getting Rid of Wire Marks

**QUESTION No. 2560.**—Can you tell me the best known method of getting rid of the wire mark on a machine using a jacket or couch? I am having this trouble on papers used for book.

**ANSWER No. 2560.**—Of course your wire marks come from having your couch weighted down too much. You can weight down your couch just enough so that the wire marks will not show, but if weighting still shows it will be necessary for you to discard the levers entirely providing you cannot get the marks out on the presses. Another thing is that if you weight down the couch lightly the web of paper will go into the first press in a moister condition. This gives the first press a chance to obliterate the wire marks and to impress the felt mark or nap. Of course, this is another condition that is not wanted. The first press should be weighted enough to remove all the water possible and at the same time not have the paper crush. The second press should be weighted

lightly provided there is not a third press on the machine. If there is a third press, the second press can be weighted down quite heavily. Then the weighting of the third press will depend upon how the felt and wire marks show.

Again, the coarser the wire the more easily it is to have the paper show the wire mark. A wire should be at least a No. 80 and no coarser. Then the felts should be finely woven. If you have the proper clothing on the machine it is not necessary to have either wire marks or felt marks.

### New Marble Paper Machine

After eight years of experimentation M. Rheinauer, inventor for the Anderson Marble Paper Company, has succeeded in constructing a machine which will print marble paper heretofore made only by hand at a considerable expense. The new machine bearing U. S. patent No. 1,405,163 issued January 31, 1921, and other foreign patents will print marble paper in jumbo rolls without stopping.

Marble paper has been made in Europe for upward of 100 years and manufacturers there have been considered to be most expert in the business. Mr. Rheinauer has sent samples of his new product to German manufacturers of long experience in making marble paper and they have reported it to be wholly successful and have placed an order for fifty reams of each of several varieties of the paper made in standard sizes 20 by 25 and 19 by 30.

### Freeport Sulphur to Construct New Mine

The Freeport Sulphur Company, New York and Freeport, Tex., awarded contract on March 24 to Dwight P. Robinson & Co. for the design and construction of a complete sulphur mining plant at Hoskins Mound, Tex. Cloyd M. Chapman has been retained by the Freeport Sulphur Company as consulting engineer.

The company now operates a large sulphur mining plant at Freeport, Tex., consisting of four units which were built by Westinghouse, Church, Kerr & Co., which has been merged into Dwight P. Robinson & Co. in the period from 1913 to 1918. This plant contains one of the largest installations of oil-burning boilers in the world.

The new plant is one of several industrial undertakings recently awarded to Dwight P. Robinson & Co., and indicates renewed activity generally in industrial construction.

### New American Writing Service Houses

[FROM OUR REGULAR CORRESPONDENT.]

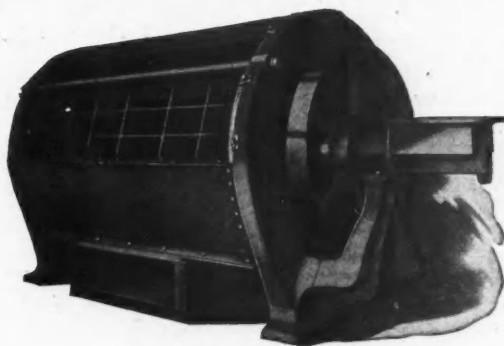
HOLYOKE, Mass., April 3, 1922.—The Acme Paper Company of St. Louis has recently been appointed an American Writing Paper Company service house. The Carpenter Paper Company of Montana and the Lincoln Paper Company of Lincoln, Neb., have also been appointed. Eagle-A service houses.



# "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.

## New York Trade Jottings

W. E. Byron-Baker, chemist for the York Haven Paper Company, York Haven, Pa., is in town this week on company business.

Linton & Co., of 537 South Dearborn street, Chicago, have opened a New York sales office at 2262 Woolworth Building, New York City.

Perkins-Goodwin Company announce that Frank E. Dunaway, well-known in the trade, has become a member of their Pulp Department.

Edward Montreuil, of E. & M. Lamort, France, is visiting this country in the interests of the "Marcel Lamort" rotary screen for paper mills.

International Paper Company declared the regular quarterly dividend of \$1.50 a share on the preferred stock, payable April 15 to stock of record April 7.

Ray S. Hatch of the Hammersly Manufacturing Company, Garfield, N. J., has returned from a cruise through the Caribbean and the Panama Canal, and will be in New York Thursday, April 6.

A dinner meeting at the Union League Club of the finance committee of the American Paper and Pulp Association was held Tuesday evening, April 4, to prepare a financial report for the Association.

J. H. O'Connell, president of the American Pulp and Paper Mill Superintendents Association, will be in the city the week of April 10 to attend the Annual Convention and the meetings of the Technical Association in particular.

The Wilson Paper Stock Company, dealer in all grades of waste paper, removed, April 1, from 367 West 12th street, 241 West 17th street, and 136 West 18th street, to new quarters and warehouse at 452-454 West 19th street.

Texas Gulf Sulphur has a large stock of brimstone—over 1,000,000 tons above ground, and is now producing about 1,500 tons daily. January shipments were over 50,000 tons. Sales are running at approximately 400,000 to 500,000 annually.

The Frank L. Scott Company has resigned the Eastern sales agency of the Oval Wood Dish Corporation, taking effect March 31, 1922. The new Eastern sales office will be at 2262 Woolworth Building, New York City. The address of the Chicago office remains the same—537 So. Dearborn street.

O. M. Porter, of the American Paper and Pulp Association, spent a few days the first of the week in Springfield, Mass., in conference with association officials making plans for the convention meetings of the Glazed and Fancy Paper Manufacturers Association and the Gummed Paper Manufacturers Association.

The Seymour Company which has occupied the corner of 24th street and 7th avenue for eleven years, has purchased the property at 323 to 327 West 16th street which it will occupy after improvements have been made. The six-story building and basement has a frontage of 75 feet and 26,000 square feet of floor space.

Nicholas J. Barrett, 500 Broome street, has just concluded for the Estate of Thomas Barrett, of which he is sole trustee, a long-term lease on 566-568 Seventh avenue, Times Square district, and 105th street and Third avenue, on a net annual rental basis. The amount involved is about \$1,250,000 in rents. Extensive alterations will be made to both properties by the new tenants.

Frank H. White, of 100 Hudson street, New York, manager of the White-Washburn Company, Inc., with which he has been connected for many years severed his connection April 1, 1922. He is now associated with and will represent the Wallabout Paper Specialties Corporation, 516 Fifth avenue, room 805, telephone, Vanderbilt 3581. The corporation is manufacturer of toilet paper.

The play, "The Spirit of Conservation," given last Monday at Selwyn Theater, by the New York City Federation of Women's Clubs, as a part of the Forest Conservation Week Program was carried off in excellent style and considered to be a great success. O. M. Porter, W. B. Bullock, and Dr. Hugh P. Baker, of the American Paper and Pulp Association, took active parts in the play.

The program for conservation week, heartily endorsed by Governor Miller, includes an address on Great American Conservationists and Naturalists, to be given at the Hotel Astor, April 7 at 2 P. M., and a discussion of Conservation and Nature Study for Children, to be held April 8 at 10:30 at the Children's Museum, Brooklyn. Good speakers, music, and moving pictures are on the program for both days and admission is free.

Union Bag and Paper Corporation will employ funds derived from the new bond issue of approximately \$7,000,000 in taking care of maturities of around \$2,500,000 and to finance some badly needed plant extension. Balance sheet at end of December, 1921, showed working capital of \$1,600,000 against \$4,600,000 at the end of the preceding year. However, the company has passed through the depression and is now gaining steadily.

The Fernstrom Paper Company, 150 Nassau street, New York City, has filed papers of incorporation. It is a selling organization for different Scandinavian Paper Mills and Fernstrom & Co., A/B, General Paper Exporters, Stockholm. It is dealing in M. G. and Unglazed Kraft paper, M. G. and unglazed sulphite paper, greaseproof, glazed and unglazed news print and other kinds of paper manufactured for export in Norway, Sweden and Finland. The Principals are Charles Fernstrom, president and treasurer, Jan Liebig, secretary.

The Kalbfleisch Corporation, producers and distributors of paper making materials, will move their executive offices from 31 Union Square to the 200 Fifth Avenue Building on May 1. Although the Corporation has been well situated at Union Square for 17 years, it is deemed expedient at this time to transfer to the building which is now without question the most important paper center in the Metropolitan district. From the time Morton Kalbfleisch organized the business in Brooklyn some 100 years ago its history has been one of advancement. The Kalbfleisch Corporation owns at present five different plants throughout the country and will by its strategic removal in May pass another mile stone along its progressive course.

### D. H. Newell To Go With Crocker-McElwain

HOLYOKE, Mass., April 3, 1922.—D. H. Newell, it is announced, will shortly become connected with the Crocker-McElwain Company of this city.



**C**UT 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"**

"AdPax" will be the most talked about Wrapping Paper line in the country.

FRED C. STRYPE

320 Broadway, New York

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**

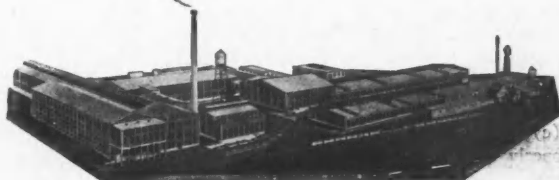
52 VANDERBILT AVE.  
NEW YORK CITY



*Yours for Bigger  
and Better Business*

K·V·P

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



## GUMMED CLOTH SEALING AND BINDING TAPES

By C. H. CROWELL, PRESIDENT, GUMMED PAPER MANUFACTURERS' ASSOCIATION.

For a decade or more many of those interested in the subject have devoted much time and effort in study and experiment to determine the best construction of woven fabrics for binding purposes and a proper and reliable test to accurately determine quality.

For the purposes for which this material is used, it is manifest that the strength of woof threads is the sole determining factor. Many ideas have been advanced and many attempts have been made to regulate or standardize the quality. Perhaps all will agree that up to the present no practical and satisfactory solution of the problem has been found. For many years our company has spent time and money unstintedly in an effort to accomplish some real results of benefit to the industry.

### Results of Experiment

The following are the results of our experience:

First: The well-known puncture test has proven to be utterly inadequate to determine the strength of cloth tape for binding purposes. This is due primarily to the fact that up to the present time the best-known apparatus for making the puncture test must necessarily break the warp threads which, in the ordinary woven fabrics, are very much stronger than the woof threads. The value of binding tape depends solely upon the strength of the latter threads.

Cloth tape produced from the common print cloth construction, counting 64 x 60 threads to the inch, will test approximately 70 points puncture test, and a first quality 60 lb. gummed Kraft paper tape will test the same.

Second: There are many different types of apparatus for determining the tensile strength, but the varying results obtained from different machines are quite disturbing. It would seem, however, that the tensile strength test is of some value, inasmuch as the warp and woof threads can be tested separately. Nevertheless, it is doubtful if this method is of real practical value for many purposes, for it is seldom that pressure is brought to bear on binding tape in the manner in which the strain is exerted by the tensile strength-testing machines.

### Why This Testing Is Not Accurate

In our opinion this method of testing for strength does not produce accurate results, because:

(1) A tensile strength test of a 60 lb. gummed Kraft paper lengthwise the grain, will test approximately 40 per cent more than the woof threads of a 64 x 60 gummed cloth tape.

(2) Bearing in mind these two grades of cloth and paper tapes, it is undoubtedly true, as a matter of practical experience, that paper tape will never stand the strain of the cloth tape for binding purposes. This is evidenced by the fact that the cloth tape is uniformly used instead of paper, although the cost of the latter is approximately only one-sixth of the cost of cloth.

(3) A tearing strength test of the woof threads of a 64 x 60 lb. gummed cloth tape is approximately 100 per cent greater than the tearing strength test lengthwise the grain of a first quality 60 lb. gummed Kraft paper tape.

### Conclusions That Follow

The following conclusions follow irresistibly:

(a) The puncture test proves nothing, because it does not test the woof threads which are the only determining factors of strength.

(b) While it is undoubtedly true that a tensile strength test of woof threads has some significance, nevertheless, woven fabric must be specified. Therefore, it follows that the tensile strength test does not adequately meet the requirements.

(c) The tearing strength test, lengthwise the material to be used, properly and adequately determines its strength for binding purposes.

In our opinion, either cloth or paper binding tape seldom breaks from having a pressure exerted uniformly over a substantial length of the material. The actual giving way is caused by a small puncture or break, following by a pressure or strain which tears the material.

Therefore, it is clear that the question of the adoption of the tearing strength test should receive serious consideration, even though, in the case of a woven fabric, the number of threads per inch must be specified in addition to the specification for strength test. The latter question is one that must be determined by practical experiment.

### Recommendations

We have long maintained these views. In 1917, our company made the following recommendations:

In order to designate the medium grade, we recommend the following specifications as the standard:

Cloth tape to have not less than sixty filling threads to the inch of size not less than No. 38.

For the heavy grade, we recommend the following specifications as the standard:

Cloth tape to have not less than forty-eight filling threads to the inch of a size not less than No. 20.

At this time there had not been any testing machine brought to our attention for determining the tearing strength.

Therefore, we suggested the most practical method under the circumstances. It has long been our contention that inasmuch as the woof threads are the only determining factors, the number or size of warp threads should not be specified.

### No Logical Objections

There seems no logical reason for objecting to this point of view inasmuch as it is absolutely necessary to have a sufficient number of warp threads to hold the woof threads in proper position during the filling and dyeing process, and also to provide the necessary strength to carry the material through the machinery without breaking under the process of finishing.

It is obvious that no greater number of warp threads than this is needed for binding purposes. Specifications calling for more warp threads than is necessary is plainly uneconomical.

Some time ago there was placed on the market at such a moderate price, as to be within the reach of all, a scientifically constructed apparatus for registering the tearing strength test of fabrics. We are demonstrating to the trade a method of making a comparative hand-tearing strength test which requires only a desk rule or straight edge and a pocket knife or cutting blade. It is so simple as to be unquestionable and its accuracy instantly recognized.

Finally, can there be any logical reason why all interested parties should not use their utmost efforts to have the tearing strength test adopted as a standard, especially in view of the fact that both a scientifically constructed instrument for tearing and a simple hand method, free to all, is available?

The term "filling threads" means "woof threads," according to the custom of the trade.

### Denies Rehearing in News Print Case

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 5, 1922.—The United States Court of Customs Appeals has denied the petition of B. R. Lawrence for rehearing in Docket 2100 in the case of the United States against himself in connection with the importation of news print paper.



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# Editorial

Vol. LXXIV New York, April 6, 1922 No. 14  
FIFTIETH YEAR

## Signs of Spring

In proper keeping with the slow shift of winter into spring business itself is thawing out under the persistent urge of the warm economic sun whose rays are slowly coming to bear more directly on the country's industry. The paper business is no exception to the rule of improvement, and so confidence and optimism grows because mills are more active, more machines are running, and plants closed for a long time are again in operation.

Paper men do not have to refer to generalities for proof of betterment. They have facts and figures before them to clinch the argument. Not the least significant of the data showing the strengthening of the market are figures of news print consumption that have lately come to hand. Since news print is the leading factor in the industry, changes in it are indicative to a large extent of improvement or retrogression throughout the entire field. It is very significant that more news print has been consumed in the last December, January and February than was ever consumed in those months heretofore. What is more convincing is that January and February's consumption is an index, fair in every way, for the year's total consumption. In the past five years news print consumption during those two months has varied little from 16 per cent of the total consumption for the year.

The remarkable push back of the news print activity is occasioned in large measure by the large metropolitan dailies whose editions are larger than ever before. In February, 1921, the average edition of 62 of the metropolitan dailies in 21 cities was 21 pages and increased to 23 pages in February, 1922. The average Sunday edition contained 77 pages in February, 1921, and 85 pages in February, 1922, showing an appreciable increase.

While production of news print is gaining throughout the North American continent, publishers are eating rapidly into their stocks, which, if the present demand continues, will soon be as low as in 1920, when a burst of activity struck the market. There is a strong tendency on the part of the phenomena present during the 1920 boom to assemble again, and in anticipation of somewhat similar, yet milder and more lasting results, the news print trade is prone to assume an optimistic attitude.

Not only has consumption this last January and February exceeded that in those months in the greatest previous year (1920), but each month has outstripped the last in steady progression.

January, 1922, consumed 6.5 per cent more news print than January, 1921, and February, 1922, did still better, according to Federal Trade Commission statistics.

February, 1922, consumed 6.8 per cent more than February, 1921, taking into consideration that the latter month contained 29 days on account of leap year.

January, 1922, consumed 10.4 per cent more news print than January, 1921, while February, 1922, consumed 10.7 per cent more than February, 1921, again showing a progressive increase.

January and February, 1922, together, consumed 6.7 per cent

more news print than January and February, 1920, still remembering that February, 1920, had 29 days.

January and February, 1922, together, consumed 10.6 per cent more than January and February, 1921.

The figures upon which the interesting percentages are based are taken from the monthly report of the Federal Trade Commission on United States publishers of publications with circulations of 5,000 or over, representing 92 or 93 per cent of the total consumption of standard news print of the United States.

Since news print is such a large factor in the paper business, its betterment can only indicate that general conditions are working out for the good of the whole industry. Therefore, there is a substantial basis for the growing belief that the paper line is out of the shadow and subject once more to the comforting rays of a sunny era. As a general thing morale has held up well under the colossal strain of depression, but a lack of snap has been apparent everywhere. Now it appears that at last, in reward for patience and long suffering,—not to say hard and tormenting work,—spring has come again in the paper field.

## Foreign Paper Prices Declining

The import price of news print for January continued to show about the same average decline that it has been showing for some months past, according to figures just issued by the Department of Commerce. The average price per pound for the month was \$.036, as compared with \$.0382 for December and \$.0635 for January of last year.

The monthly average import price per cord of pulpwood for January was \$10.51, as compared with \$10.70 for December and \$15.88 for January, 1921.

The monthly average import price per ton of groundwood for January was \$25.18, as compared with \$25.80 for December and \$62.75 for January of last year.

The monthly average import price per ton of unbleached chemical pulp for January showed a slight increase over December, the figure for the former month being \$55.64 and for the latter, \$54.04. The price for January a year ago was \$128.93.

The monthly average import price of bleached chemical pulp per ton, on the other hand, continued to decline, being only \$80.15 for January, as compared with \$82.70 for December and \$184.70 for January of last year.

The monthly average export price per pound of news print for January was \$.043, as compared with \$.045 for December and \$.08 for January of last year.

The average monthly import price per ton of wood pulp for January was \$56.90, as compared with \$58.72 for December and \$95.85 for January of last year.

## Business Making Rapid Recovery

Figures received by the Department of Commerce indicate that business is still making progress in its recovery from the memorable depression of 1921. Progress in business rehabilitation needs to be cautious that it may be built upon a firm foundation. Some backsets may be expected for all of the lesions caused by post-war over-expansion have not healed.

Although in most lines prices have been relatively stable for the past six months, distributors still remember the disaster caused by overstocked shelves in 1920. Forward orders, therefore, are given sparingly and in reduced volume; however, manufacturers are feeling the effect of repeat orders, and the steadily increasing output of mills and factories shows that fundamentally the country is getting back to normal.

Although the recent marked increase in the price of farm products has had a big effect upon the morale of the agricultural districts, not much of this has so far been translated into increased business. Most of last year's crops had left the farmers' hands before the rise came; the increase is, therefore, chiefly a promise of better things to come.

The farmer is inclined to wait and see, both as to whether the price holds and how the crop promises before making further commitments.

### German News Print Statistics

BALTIMORE, Md., March 28, 1922.

Editor, PAPER TRADE JOURNAL:

In your issue No. 1, dated January 5, 1922, appeared an article regarding the proposed duty on foreign news print paper, which called forth some vigorous protests on the part of our German paper manufacturers, and as some of the statements made by Col. Haskell do not exactly agree with the facts, our principals, the *Verband Deutscher Druckpapier Fabriken*, Berlin, commonly called the Syndicate of Trust, very naturally take exceptions to several points and authorized us to reply as follows:

"Col. Haskell is talking about a direct or indirect subsidy granted the German factories by the government. This is not the case.

"Col. Haskell further is badly mixed up in his figures regarding the exportation of news print paper from Germany to the United States. During the month of December, 1920, according to his testimony before the Senate Finance Committee at Washington, the importation amounted to 14,206 tons, while the German Syndicate gives the official figure as only 24,467 tons for the whole year of 1921.

"Our principals also take exception to the statement that German news print paper was sold below \$50 per ton, c. i. f. New York and other Atlantic ports.

"The German Government is practically a partner in every German industrial enterprise, and there are established minimum prices for export which must absolutely be adhered to, otherwise the export permit will be withheld. We know from our experience that factories have sold news print paper at a price below the government export price, but this paper could not and was not delivered. It is possible, however, that lower offers were made by some German dealers, especially when gambling with the exchange, but these dealers could not, cannot and will not get the export permit if they cannot prove to the satisfaction of the government that the official export price is obtained, and this latter price is never much below the quotations of our own American mills.

"If Col. Haskell says that a yearly contract of 50,000 tons was placed in Germany, we surely ought to know this, as we control the exportation of news print paper. We, however, did not receive such an order. It is further not according to facts that Germany has obtainable for export a quantity of 230,000 tons of news print paper. This amount almost equals the total yearly production, at present about 360,000 tons, and our factories naturally have to take care of the quite considerable requirements of the home market before allocating any tonnage for export.

"The so-called German danger is painted again in the darkest colors.

"Also, the statistics covering the German cost of production are

given in misleading figures and cover a period of many months, say, about last spring. In the meantime same were more than doubled.

"The German mills do not get any pulpwood from the government forests; to the contrary, the prices of their raw materials are going higher and higher from day to day. Of course, everybody knows that Col. Haskell had the one object in view of convincing the Senate Committee of the advisability, or even the necessity, of putting an import duty on foreign news print paper, this notwithstanding the fact that the so-called German dumping danger is non-existent.

"In fairness to the German manufacturers, and also to the importers, we consider it our duty to bring above corrections before the Senate Committee and the public in general. It will give everybody an entirely different aspect of the production capacity of the German paper mills and of their intentions. The German share in the importation of news print paper can never amount to much and can under no circumstances have any appreciable influence on the domestic market. It can never reach the proportions of Scandinavia and Finland, as these countries have far better possibilities to extend their export business. The importation of German news print paper will always form only a small proportion of the entire European importation and should never cause serious apprehensions to anybody in the United States."

We might add that according to the reports of our customers, Col. Haskell is making his appeal with rather a bad grace considering the tremendous advances of the price of spot paper during the recent years, which surely were out of all proportion to the cost of production.

The German paper at the time of our first importations was sold at from \$180 to \$200 per ton, a price that every domestic factory could easily compete with, and if Col. Haskell called a still higher price, "a fair market price," his statement certainly does not meet with the approval of his customers.

The writer was the first one to import the German paper and one of the first ones to handle Scandinavian paper in this market, and everybody only remotely connected with the paper business knows very well that the International Paper Company would never have dreamed of reducing the price if the writer had not in the fall of '920 thrown on the American market some thousands of tons of his foreign paper.

ALBRECHT-HERD COMPANY, INC.,  
HUGO P. F. ALBRECHT.

### Paper Merchants to Meet With Manufacturers

The convention of the American Paper and Pulp Association on Thursday, April 13, will be open to the members of the National Paper Trade Association, as a result of the precedent established at the business conference in Chicago last fall. The joint conference was found to be so productive of a better appreciation of the problems of the manufacturers and merchants by each, that the American Paper and Pulp Association has extended an invitation to the merchants' organization to attend the general sessions of the manufacturers on Thursday of Paper Week.

As a result, the formal notice of the National Paper Trade Association is including a special notice to the merchants of the discussion of conditions in the industry by Messrs. Dodge and Crocker which will feature the forenoon convention of the manufacturers. The National Paper Trade Association will have as busy a program during the week as is provided by the manufacturers, but the Thursday forenoon session has been left open for the merchants to attend the manufacturers' meeting.

An additional speaker has been added to the banquet program for the American Paper and Pulp Association, to follow United States Senator Frank B. Willis. Edward James Catell, City Statistician of Philadelphia, will be the additional speaker, and those who have heard him say he has unusual ability in holding the attention of banquet audiences.

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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

## THE ORIGIN OF SO-CALLED "MILDEW" INJURY TO PAPER MAKERS' FELT

From the Research Laboratory of F. C. Huyck & Sons, Albany, N. Y.

BY JEAN MAC INNES.

Manufacturers of paper makers' felts frequently have returned to them, for replacement, or for an allowance on the purchase price, felts which have developed spots variously known as "rust" or "mildew," or sometimes as "acid spots." In many cases the fabric in the areas affected has become rotted and quite unfit for use. Since all felts are carefully inspected, such spots must form during storage or transportation. The author was given the problem of finding the cause of these troublesome spots, and of devising methods for the prevention and control of this "wool disease," since that is what it has proved to be.

### How Experimental Study Was Carried Out

The experimental study was carried out as follows: Pieces of the wool fabric were placed in separate vessels under controlled conditions of temperature and moisture. No true "mildew" (which is a term for fungi, such as form on mouldy bread) appeared on any of the specimens. However, after some time the samples of moist wool developed a brown color, in sharp contrast to pieces of the same fabric which were kept under similar conditions, except that they were kept dry. Accompanying the discoloration of the wool the liquid in the container became white and milky. Under the microscope this liquid was found to be swarming with bacteria. Some of this milky liquid was dropped into tube of nutrient material, on which bacteria will grow and multiply, and several different organisms were found to be present. With the aid of the usual technique of the bacteriologist, these different strains of bacteria were separated from each other and "pure cultures" containing one of the number of types of bacteria present were obtained. Samples of sterilized wool were then inoculated with each of these varieties of bacteria. By this means it was found that only one of the various kinds of organisms which were present was capable of bringing about discoloration. It seems certain then that the bacteria is at least one, and possibly the only, cause of the color on wool known as "rust" or "mildew."

### Bacteria Characteristics

It was then of interest to find some of the characteristics of this particular kind of bacteria, since these lead to its identification, and suggest methods of controlling its development. The organism was, therefore, allowed to grow in a large number of different substances and at different temperatures. A study of these reactions, accompanied with use of the microscope, show the organism to be very

close to the *Bacillus mesentericus*, which is harmless so far as human beings are concerned. The particular species under investigation has apparently not been described in the literature.

Under certain conditions the organism produces a large number of "spores." These differ from the ordinary bacterial cells in that they are thick walled and are consequently very resistant to drying and to high temperatures. For instance, the spores were not killed

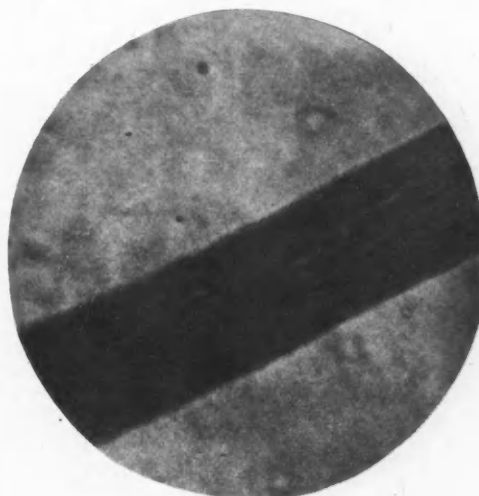


FIG. 1.  
Fiber attacked by bacteria, showing absence of scales.  
(About 1,400 diameters.)

after being exposed to boiling water for ten minutes. They were killed, however, at somewhat higher temperatures. That the organism is very resistant to drying is shown by the fact that it is found to be alive on pieces of wool which have been kept dry for many months. This is of practical importance since, unless extreme measures are taken, the spores will develop into bacteria, which will attack the wool, as soon as moisture and temperature conditions are favorable.

When fibers from the "rust spots" formed by this organism are

put under the microscope, the scales which are characteristic of wool fibers are found to be removed, as is shown in Fig. 1, which is reproduced from a photomicrograph giving a magnification of about 1,400 diameters. For comparison, the normal wool fiber is shown on the same scale in Fig. 2. It is probable that the bacteria remove the scales from the fiber by dissolving the gelatinous substance which holds the scales to the rest of the fiber.

After the attack has proceeded further and the scales are removed, the little "fibrils," of which the main part of the fiber is composed, are separated from each other. When the fibers are attacked at their free ends the fibrils spread out in a brush-like formation under the microscope, while those attacked along the length of the fiber have the appearance of a splintered piece of wood. Both these effects are shown in Fig. 3. If the attack of the bacteria continues long enough the wool fiber will be completely disintegrated into these small splinter-like fibrils. This splintering effect seems to be quite characteristic of the bacterial action. We have never observed this effect with healthy wool fibers, and it does not seem to have been described by other observers.

We do not know how extensively the spores of this bacteria are distributed on wool, but all samples which have been put under the conditions which are favorable for the development of the organism have given the characteristic browned appearance and the disintegrated fibers. It seems probable that the spores of the organism are nearly always present in wool, but that the disease progresses only when the moisture and temperature conditions are favorable for it.

#### Conditions Under Which the Organisms Grow

Some experiments were made to determine the conditions under which the organism grows most rapidly. It was found that it would

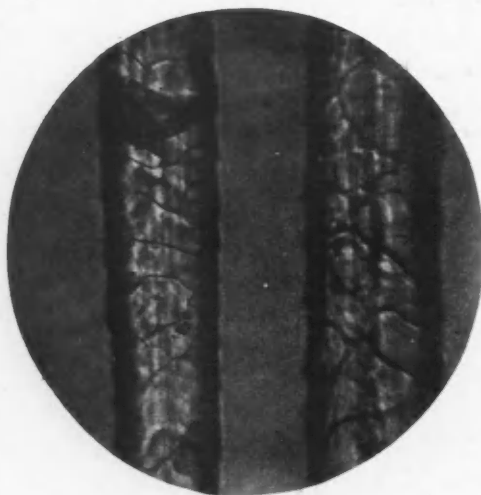


FIG. 2.  
Normal fiber with scales.

grow at temperatures from 50° F. to 98° F., but that it developed much more rapidly at 98° F. than at the lower temperatures. It is likely that the organism will grow still more rapidly at somewhat higher temperatures than this if the wool is not kept dry.

#### How the Trouble Can Be Avoided

Possibly the most important fact about the bacterial growth is that the moisture is necessary for its development. Samples of wool kept for long periods at 98° F. remained perfectly normal if they were dry. Briefly, the disintegration proceeds most rapidly when the wool is damp, but not wet.

Some work was done in an effort to find a method of sterilizing the wool, but no very satisfactory results were obtained, since any of the procedures tried which would kill the spores of the organism were injurious to the wool. No extreme measures are at all necessary, since the trouble can be entirely prevented if the fabric is stored in a dry place, at moderate temperatures. Felts in storage



FIG. 3.  
Fiber attacked by bacteria showing brush-like ends, and splintered appearance.  
(About 500 diameters.)

should, therefore, be kept away from brick walls, from concrete floors and walls and from steam pipes. Also, they should not be placed where pipes carrying cold water are overhead, since water drips from such pipes whenever the humidity is high.

#### Paper Industry Leads in Business Symposium

The paper industry has led all other industries in the presentation of the problems of the paper industry in a symposium which has been printed in daily instalments in the *New York Evening Post*. Several secretaries of paper associations have discussed various features of the trade association problem, the discussion being based on the developments in Washington, where Secretary Hoover is endeavoring to secure wider recognition for the trade association as a factor in the promotion of American business.

Secretary Hoover himself led the discussion, which began March 20, and was followed by O. B. Towne, secretary of the Waxed Paper Manufacturers' Association, and other similar groups in the paper industry. Mr. Towne is a member of one of the important committees of the American Trade Executives' Association. R. S. Kellogg was another to discuss trade association work, showing how the News Print Service Bureau, of which he is secretary, cooperates with the consumers of the product of those mills.

Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, told of the experiences he has had at Washington since coming to the paper industry, and advocated a better recognition by the government of the place of the trade association in industry. E. H. Naylor, secretary of the Fine Paper Associations, whose book on trade association work is a text book for trade association executives, was the fourth of the group of paper secretaries to appear, all four discussing widely different phases of the whole big problem.

Another of the series was Hon. Henry A. Wise, who has been counsel for several associations in the paper industry, as well as other industries,

# THE DETERMINATION OF SIZING QUALITY

## A Preliminary Report on an Investigation of Methods Used for the Determination of Sizing Quality<sup>1</sup>

By FREDERICK T. CARSON,

PAPER SECTION, BUREAU OF STANDARDS

### Introduction

The determination of the sizing quality of paper is at once an important problem and a difficult one. Aside from the importance of a satisfactory test upon which to base specifications for sizing quality, a reliable test method would be of practical value both to manufacturer and consumer in that it would admit of experiments to determine the least amount of sizing materials necessary to produce a given degree of sizing quality. The advantage to the manufacturer is obvious, but another and more important fact, perhaps, is that sizing materials in excess tend to cause deterioration in paper. Moreover, it is a matter of common knowledge among those who have had experience in the testing of paper that the amount of sizing materials in a paper does not necessarily give any definite idea of the degree to which that paper will resist the absorption of ink or other liquids. The importance of investigating the merits of the various methods designed to determine sizing quality will be apparent from an examination of the results tabulated below which were obtained by several paper laboratories on seven samples recently sent out for comparative tests of methods in common use.

In the following tables the samples are graded from 1 to 7 in descending order of sizing quality. A and B divide samples into three groups according to weight or thickness (H — heavy, M — medium, L — light) and grade only within these groups. The classification is not continuous and, therefore, cannot readily be compared with C, D, E, and F. B (2), and E (2) divide into three groups according to sizing quality. C divides into five groups according to sizing quality and is sufficiently continuous for comparison with D, E, and F, in second table.

The second table is a comparison of the results of the four laboratories which make continuous ratings. Agreement of results would be indicated by horizontal lines.

Ratings are based on results from methods as follows:

A, flotation on ink and acid and conductivity methods; B, (1) flotation on acid solution, (2) pen and ink test; C, ink penetration and conductivity method; D, ink flotation; E, (1) Stöckigt method, (2) average of ink streak, Sammet and Stöckigt; F, ink flotation.

TABLE 1.

B.S. No.	A		B		C			D		E		F	
	1M	2M	1M	2M	1	2	3	Time Sec.	1	2	1	2	Time Sec.
4967	1M	2M	1	2	3	96	4	1	5	360			
4969	2M	3M	1	2	1	3:7	2	1	5	960			
4971	3M	4M	1	3	6	38	5	2	6	260			
4972	4M	1L	1	3	5	53	3	1	4	420			
4974	1L	2H	2	5	7	8	6	3	7	165			
4975	2H	1H	3	4	4	85	7	3	3	840			
4981	1H		1	1	2	326	1	1	2	900			

TABLE 2.

B.S. No.	Description	Weight 25x40	C	D	E	F
4967	White writing	54	2, 3	3	4	5
4969	Fine bond	54	1	1	2	1
4971	White bond	54	4, 5	6	5	6
4972	White bond	54	6	5	3	4
4974	Thin bond	30	7	7	0	7
4975	White ledger	96	8	4	7	3
4981	Commercial ledger	96	1	2	1	2

Slight differences in results could not be considered serious, since the sizing quality of all the samples is of the same order of

<sup>1</sup>Acknowledgment is made of many helpful suggestions given in the early stage of the investigation by Dr. L. H. Adams, of the Geophysical laboratory of the Carnegie Institution. Published with permission of the Director of the Bureau of Standards, Washington, D. C.

magnitude. But such gross discrepancies as the above tables indicate emphasize the importance of an investigation of test methods.

While the present investigation is by no means completed it seems desirable to publish a progress report in view of the many inquiries made and the general interest manifested in the problem.

### Discussion of Test Methods in Common Use

"Though the 'sizing' of paper may appear to be a simple process of adding substances of certain water resisting quality, which quality they communicate to the paper, the experienced paper maker recognizes it as a really complicated result, influenced by a great number of factors." The resistance of paper to the absorption of ink and other liquids, the property which the various methods in use are intended to measure, depends, therefore, upon a large number of factors. The principal one of these—the size added—gives the name to the property according to the usual nomenclature. "Sizestrength" and "sizing quality," although used somewhat loosely, are commonly applied synonymously to that quality of paper by virtue of which it is capable of resisting to a greater or less degree the absorption of ink, water or other liquids having no solvent action upon the sizing in paper. These terms are, perhaps, unfortunate in this connection and might be supplanted to advantage by a more comprehensive expression.

From the very nature of the case the rate of absorption of a liquid by paper is an inverse measure of its resistance to the absorption of the liquid, i. e. "sizing quality" and absorptive quality are reciprocal quantities. It is possible, therefore, to define "sizing quality" in terms of the amount of liquid absorbed as follows: The relative "sizing quality" of paper is inversely proportional to the volume rate of absorption per unit area of surface of paper for equivalent conditions of penetrability<sup>2</sup> of liquid and of external influences affecting the penetrability<sup>3</sup> of paper.

Methods ordinarily used for the measurement of the volume of liquid absorbed by a porous body are not applicable to paper on account of the thinness of the sheet and the small volumes to be measured. It is necessary, therefore, to resort to more indirect methods of measurement. The various modifications of the flotation test, which consist of noting the time required for a liquid to penetrate through the sheet as judged by the depth of color produced by interacting solutions applied to opposite sides of the test samples, are open to serious criticism. There is no end point or phenomenon sufficiently definite to be relied upon as a criterion of the stage of penetration. The personal equation is enormous. The results are meaningless except in the hands of an experienced observer. With, perhaps, one or two exceptions the weight or thickness of the sheet is not taken into account. At best they can give no more than a rough approximation to the linear rate of penetration, and, therefore, would be applicable only to the grading of samples of like "bulk" even if the data they furnish were dependable. More, perhaps, is to be said in favor of the Stöckigt<sup>4</sup> method than of any other of this type. Experience, however, indicates that data from this source are to be interpreted with caution. Ink stroke tests in the hands of an experienced observer will differentiate between hard and slack sized papers but are of little value

<sup>2</sup>Paper Making, Cross & Bevan, Fourth Edition, Page 233.

<sup>3</sup>Penetrability is a property of the liquid and depends upon viscosity surface tension and the angle of contact. Penetrability is a property of the paper and depends upon the nature of the materials and the number and size of the pores.

<sup>4</sup>Fritz Stöckigt, Wochenblatt für Papierfabrikation, 1920, i, p. 39, Translation, Paper, March 10, 1920.



for testing papers of nearly the same sizing quality. The Sammet method<sup>4</sup> affords useful data but leaves much to be desired in that the personal equation is large, no numerical rating is offered and it is of little value except in the hands of an experienced observer. Pen and ink tests give information about the suitability of paper for writing purposes which cannot be obtained in any other manner. The various methods designed to differentiate as to size-fastness do not purport to describe the specific nature of the surface of the sheet, a thing which can be determined only by direct inspection and the use of written characters on the sheet. A high degree of size-fastness, moreover, does not necessarily recommend a paper for writing purposes, for example; the kraft, rope manila, M. F. Printing and S. and S. C. Printing of table IV. obviously are not suitable for writing papers despite the fact that they show a degree of sizing quality which compares favorably with that of writing papers. There remain for our consideration the conductivity or electrolytic method proposed by Okell<sup>5</sup> and a new method in process of development.

#### The Electrolytic Method

Okell applied an electrolyte to both sides of the sheet of paper in an electrolytic cell so constructed that the paper formed a partition between the electrodes. The cell formed one of the resistances in a Wheatstone bridge. An alternating current from an induction coil was applied to the bridge, in which a telephone receiver was used to take the place of the galvanometer employed with direct currents. The rise in conductance was noted as the sheet was permeated and finally saturated by the electrolyte. The data were used presumably to express the degree of penetration in plotting the function against time. Because of the apparent close relation between the increasing conductance and the permeation of the sheet, it was felt that this method would afford data of a more reliable nature than that from other methods in use. But no further effort was made to interpret the data thus obtained. From time to time desultory attempts have been made to follow up this method and, indeed, a few laboratories are using modifica-

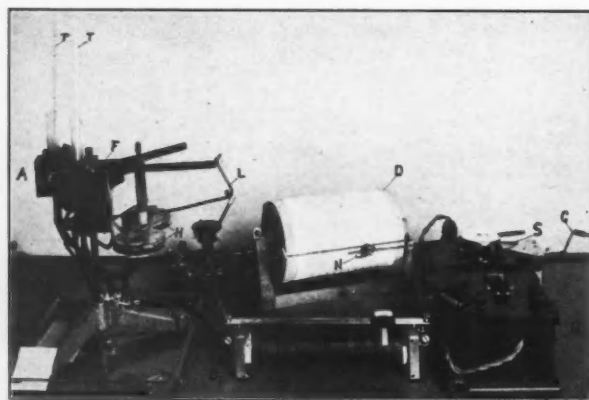


FIG. 1.

Photograph of electrolytic apparatus.

tions of the process at the present time, principally for control purposes. The statement of Sutermeister<sup>7</sup> that "the results obtained are interesting and warrant its use for scientific investigation but the apparatus does not appear well adapted to the rapid work required where a larger number of routine tests must be made in the shortest possible time" is well taken. The method offers by far the best available means of studying the phenomena in connection with the whole problem of the size-fastness of paper.

<sup>4</sup>Bureau of Chemistry, Circular, No. 107.

<sup>5</sup>Stanley A. Okell, A New Test for Size-Fastness, Paper Apr. 11, '17, page 20; Pulp and Paper Magazine, May 10, 1917, p. 465.

<sup>7</sup>Edwin Sutermeister, Chemistry of Pulp and Paper Making, p. 413.

Ultimately the method may be developed to admit of sufficient rapidity for routine testing if, indeed, the data can be interpreted fully in terms of the sizing quality.

The apparatus as developed for the present investigation is shown in the photograph (Fig. 1). A is the specially constructed electrolytic cell. B<sub>1</sub> and B<sub>2</sub> are a forty ohm and a ten ohm rheostat in series, forming the balancing resistance for the cell. Experiment has shown the inductive effect to be negligible under

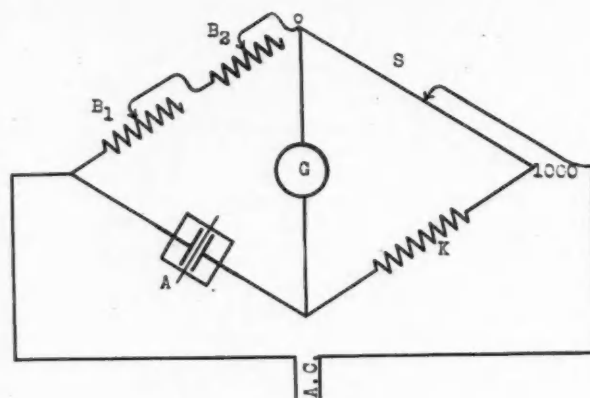


FIG. 2.

Diagram of bridge connections.

the conditions. A second electrolytic cell may be substituted for the rheostats as in Okell's apparatus. Or by using a resistance box, readings can be expressed in a definite unit. This is a very desirable modification for subsequent use. For simplicity in this preliminary work, data have been expressed in terms of the slide-wire readings. S is the slide-wire of circular form, K is a non-inductive of resistance equal to the maximum resistance of the slide-wire and G is an alternating current galvanometer. Reference to Fig. 2, will make clear the relation of the instruments in the Wheatstone bridge. The current in the bridge has an electromotive force of three volts, being stepped down within the galvanometer case from a 110 volt, single phase, 60 cycle commercial circuit. D is a drum which carries co-ordinate paper. The mechanism which rotates it is automatically released at the instant the cell is filled with electrolyte and the operator keeps the galvanometer needle at zero by turning the crank, C, which transmits a relatively slow motion to the slide-wire contact which in turn gives a horizontal motion to a recording pen, N. The curve is, therefore, made autographic as a result of this horizontal motion and the rotation of the drum as a function of time. A sample of paper, P, is shown ready to be clamped between the two halves of the cell.

The electrolytic cell, A, is essentially as designed by Mr. Shaw<sup>6</sup> with the addition of an improved method of filling and evacuating the cell. It is made of ebonite, the lower tubes being integral with the main body of the cell while the upper tubes are of glass, the joints being made watertight by means of sections of rubber tubing. The two halves of the cell are carried on lever arms pivoted at F. When the ends opposite the cell are snapped together the machined faces of the two halves of the cell are held together with sufficient force to produce a water tight joint. The electrodes, E, are platinized silver discs about half a millimeter thick and as large as the cell opening, which is an inch and a half in diameter. A three-inch piece of No. 12 silver wire is soldered to the middle of each disc and passes through a rubber plug in the outer wall of the cell, thus permitting adjustment of the electrodes to any desired position. They are ordinarily operated at a distance of about seven or eight millimeters apart. The silver

<sup>6</sup>The present investigation was begun by M. B. Shaw but the pressure of other duties prevented the giving of his time to it.



electrodes have been perfectly satisfactory and represent but a small fraction of the cost of platinum electrodes which would serve the same purpose. In other respects the cell proper is similar to that used by Okell and later by Clark and Durgin.<sup>9</sup> The containers, H, are of rubber and hold the electrolyte while the cell is open. Each is connected to one side of the cell by rubber tubing at the lowest point of which is a glass stop cock for draining the system. Pressure on the rubber containers produced by rubber bands attached to the lever arm, L, causes the cell to be filled with electrolyte rapidly and uniformly. T, T, are thermometers for recording the temperature of the electrolyte within the cell, which should be kept constant to within half a degree centigrade. The majority of the work is being done in a room which is kept at constant temperature and relative humidity. But some tests have been made outside this room at other temperatures and the temperature was controlled by means of water circulating through glass coils situated just behind the electrodes. The heating effect of the current is not sufficient to affect the desired degree of accuracy. But comparative tests must be made at the same temperature in order that the penetrativity (penetrating power) of the electrolyte may not be changed by reason of the effect of temperature upon viscosity.

The reason for the use of the large electrodes instead of the smaller ones previously used will become apparent when the fact is considered that a measure is desired, not of the changing resistance of the cell as a whole, but of the changing resistance within the sheet itself due to the meeting of the electrolyte in the middle of the sheet as it is permeated. It is desirable, therefore, that this resistance within the sheet be as large as possible in comparison with the resistance of the remainder of the cell. This is accomplished by the use of well platinized electrodes at least as large as the cell opening and as close together as is consistent with practical considerations in the operation of the cell. Large electrodes also reduce the effects of polarization. Furthermore the use of the large electrodes makes possible the derivation of an expression for the resistance within the sheet.

The cell is essentially a low conductivity unit and it is logical that an electrolyte of low conductivity be used. Such an electrolyte produces within the sheet a resistance of such magnitude as to be comparable to the other resistances in the bridge, and a resistance

of the leads external to the cell is negligible. At present —  $\frac{N}{30} \text{ KC1}$

solution and —  $\frac{N}{20} \text{ KC1}$  solution containing about 25 per cent

glycerine are being used. The solutions give to the cell without a paper partition a resistance of about fifteen ohms. Solutions of lower conductivity might give even better results. Any simple neutral salt would, perhaps, do as well as potassium chloride. The glycerine is added to increase the viscosity and hence to decrease the penetrativity of the solution in order that the resistance may not fall too rapidly to permit obtaining a satisfactory graph. Only partial success has been attained in relating the graphs made with different electrolytes. Its importance is apparent when one considers that it would be impossible to make a continuous rating of paper as to size-fastness without this relation, since the use of any given electrolyte is limited to a comparatively small range of papers.

Certain writers object to neutral solutions and solutions other than ink for use in tests of sizing quality on the ground that the hydrochloric acid in the ink gives to it a greater penetrating power than the other solutions possess. Unless the phenomenon of selective absorption is found to preclude comparison of results with ink and other solutions, no ground for such objection is apparent and

the problem becomes one of determining coefficients of penetrance. In any event the relative values of results obtained in the two cases might be expected to agree. It is hoped that the problem of the relation of graphs made with different solutions can be satisfactorily solved, in which case it can be shown whether or not the penetrativity of ink can be determined in the same manner as that of true molecular solutions.

While experiments with this method and the one described later indicate that the initial moisture content probably does not affect the rate of absorption to as great a degree as it affects other physical qualities of paper, comparative tests should be made at constant temperature and relative humidity.

The reliability of the data obtained by the electrolytic method is indicated by the fact that in many cases curves made under identical conditions from different samples cut from the same sheet are completely superimposed. While duplication is not attained to quite the same degree in all cases it is reasonable to suppose that the difference is due to influences within the sheet rather than to the method of testing, in view of the many factors inherent in the paper which may affect the curves.

The curve of slide-wire reading versus time obtained with this apparatus cannot be regarded as an absorption curve. For its ordinate is produced by the change in the resistance of the cell as a whole rather than by that of the paper partition alone. Moreover, the volume of liquid which determines the ordinate at any given time is not the same as the total volume absorbed in that time. The significance of this fact will be considered later (See Fig. 4.). The original graph is, therefore, used as a data curve from which other graphs are derived.

Before beginning a test the slide wire, which has a scale divided into one thousand units, is set on the 1000-mark and the cell without a paper partition is filled and the bridge is balanced. The resistance of the cell without a partition is then equal to the resistance in the arm containing the rheostats (since the resistance of K is equal to the resistance of S). If R represents the resistance of the electrolytic cell at any time as the paper diaphragm is permeated, R<sub>0</sub>, its resistance without the paper partition and r, the resistance of the arm containing the rheostats, then R<sub>0</sub>=r at all times.

It cannot be supposed that for all cases whatsoever the resistance within the paper can be expressed by the difference between the total resistance of the cell and the sum of the resistances of the electrolyte on each side of the paper partition, i. e. by R—R<sub>0</sub>. But with electrodes as large as the paper exposed it might well be supposed that after a certain degree of permeation R—R<sub>0</sub> would express the resistance within the paper, since the lines of force approximate straight line paths. Experiment has confirmed the correctness of this assumption. If a porous partition with a definite cross sectional pore area be placed in the cell and readings be taken with the electrodes in various positions, both the total resistance of the cell and the resistance external to the porous partition will vary, but their difference, which is the resistance within the porous dividing wall, must remain constant. That is, if R—R<sub>0</sub> is a measure of the resistance within the partition it must remain constant for all positions of the electrodes. Experiments were made with four saturated samples of different grades of paper and with a celluloid partition containing two hundred small holes distributed all over the part exposed in the cell, the cross-sectional area representing about 0.13 of the cross-sectional area of the cell opening. Results for two positions of the electrodes in each case are shown in table 3.

TABLE 3.  
Four Saturated Samples Paper — Celluloid

Value of R—R <sub>0</sub>	Four Saturated Samples Paper				Celluloid
	1st position	2nd position	1st position	2nd position	
	0.138r	0.234r	0.586r	0.093r	0.554r
	0.131r	0.230r	0.586r	0.090r	0.570r

Evidently it is permissible to use R—R<sub>0</sub> as an expression of the resistance within the paper for all values except those obtained

<sup>9</sup>Clark & Durgin, Research Work on the Sizing of Paper, Paper, Feb. 13, 1918, and May 15, 1918.

from the initial portion of the curve, the extent of which is not yet accurately known.  $\frac{R-R_0}{R_0}$  would express the ratio of the

resistance within the sheet at any time to the constant resistance of the cell without the paper partition for the same solution. Curves plotted with  $\frac{R-R_0}{R_0}$  as ordinate and time as abscissa for differ-

ent grades of paper would give expressions for the relative resistance in each, after any given interval of time, the resistance being a function of the amount of electrolyte having met within the sheet. It is also to be noted that the numerator and denominator of this ratio are expressions for the resistance of different volumes of the same electrolyte. The conductivity is, therefore, a factor of each, a fact which makes the graphs independent of the conductivity of the electrolyte. By reference to Fig. 2, it will be seen that the resistance in A is to the resistance in B, B<sub>2</sub> as the resistance in K plus the resistance in that portion of the slide wire between the sliding contact and the end corresponding to the 1000-mark on the scale is to the resistance in the remainder of the slide wire when the galvanometer reads zero. Since the resistance of K is equal to the total resistance of the slide wire the latter ratio can

be expressed in slide wire units,  $\frac{2,000-W}{W}$  where W is the slide

wire reading at any time. For the proportion may be written,  $R:r = 1,000 + (1,000-W) : W$  or,

$$\frac{R}{r} = \frac{2,000-W}{W}$$

$$\text{Then, } R = r \frac{(2,000-W)}{(W)} = R_0 \frac{(2,000-W)}{(W)} \quad (\text{Since } R_0 = r)$$

$$\text{and, } R - R_0 = R_0 \frac{(2,000-W)}{(W)} - R_0 = 2R_0 \frac{(1,000-W)}{(W)}$$

$$\text{Therefore, } \frac{R-R_0}{R_0} = \frac{2R_0 \frac{(1,000-W)}{(W)}}{R_0} = 2 \frac{(1,000-W)}{(W)}$$

Since relative values only are to be obtained the constant multiplier, 2, can be neglected and  $\frac{R-R_0}{R_0}$  be plotted as an expression

$$\text{of } \frac{R-R_0}{R_0}$$

The transition from the electrical resistance, which is the measurable quantity, to the corresponding volume of liquid absorbed, the quantity of which a measure is desired, is a crucial step in the development of the electrolytic method. Since the volume rate of absorption in the formulated definition of size-fastness is not uniform but negatively accelerated, relative sizing quality may be compared by comparison of the reciprocals of the relative volumes absorbed

in a given time interval. If it were possible to plot  $\frac{R-R_0}{R_0}$  or

$\frac{1,000-W}{W}$  corrected to unit thickness as ordinate and the correspond-

ing time as abscissa and it could be assumed that the resistance is inversely proportional to the volume absorbed by a given sample of unit thickness, the resistances for any given time on the various graphs made from different grades of paper would classify according to size-fastness. Since the resistance would be proportional to the thickness of the sheet for a corresponding degree of permeation the ordinate of the graph corrected to unit thickness

would be  $\frac{1,000-W}{l \frac{W}{l}}$  where  $l$  is actual thickness of the sheet.

But the time would also have to be corrected, since the time required for a given degree of permeation of the sheet of unit thickness would be greater or less, according as the unit thickness chosen is greater or less than the actual thickness.

Some equations derived by Washburn<sup>10</sup> for capillary flow in porous bodies will aid in this matter. In order to apply these equations in their simplest form it is necessary to show that the small hydrostatic pressure on the paper in the cell is negligible in comparison with the capillary pressure. This would be expected from a consideration of the size of the capillaries in paper. It was shown experimentally by selecting a paper, the graphs of which could readily be duplicated at a given hydrostatic pressure, and making graphs at varying pressures. Three superimposed graphs were obtained by operation at mean heads of 4.5, 6.5 and 8.5 cm. While it is not to be expected that these equations apply rigidly to a substance like paper which expands while the liquid is being absorbed, the equation for instantaneous rate would seem to indicate that for absorption in the direction normal to the surface of paper they do represent the facts with sufficient accuracy for present purposes. In this equation the expression for in-

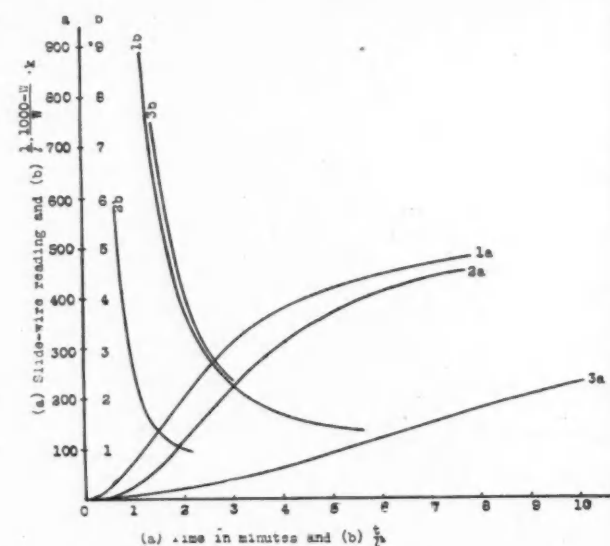


FIG. 3.  
Resistance curves (b) for a common thickness derived from original slide-wire graphs (a)

stantaneous linear rate is directly proportional to the radius of the capillary being penetrated and inversely proportional to the distance already penetrated. When paper absorbs a liquid the expansion takes place almost altogether in the direction of the thickness, so that if the effective radii of the capillaries and the thickness of the paper increase in the same ratio the linear rate would be the same at any given time whether the paper expand or not. Any expression for the volume of the liquid absorbed would involve the thickness of the wet sheet so that the thickness is measured after the test rather than before. The thickness which is ordinarily measured on the dry sheet is not used in this calculation. The equation expressing the relation of the distance penetrated to time elapsed states that the time is proportional to the square of the distance. Bell and Cameron<sup>11</sup> arrived at a similar relation. The

<sup>10</sup>Edward W. Washburn, The Dynamics of Capillary Flow, Physical Review, March, 1921.

<sup>11</sup>Journal Phys. Chem. 10-659 (1906).

correction factor for time,  $t$ , for the converted graph would, therefore, be  $\frac{l}{F}$ . Graphs of three bonds thus corrected to a common thickness are shown in Fig. 3. It will be seen that a common time value cannot be chosen well within the region where  $R - R_0$  is known to express the resistance within the sheet. It cannot in general be assumed, moreover, that the resistance is inversely proportional to the corresponding volume absorbed. For the volume which is continuous through the sheet, prior to saturation, is less than the total volume absorbed. Furthermore the equations apply to continuous capillary flow, while the liquid in a given capillary ceases to move according to these laws as soon as it meets the column advancing from the opposite side.

Washburn has shown that the volume of a liquid absorbed by a porous body varies as the square root of the time. If a graph is plotted the ordinate of which is the reciprocal of the ordinate values of Fig. 3 (b), and the abscissa the square root of the abscissa

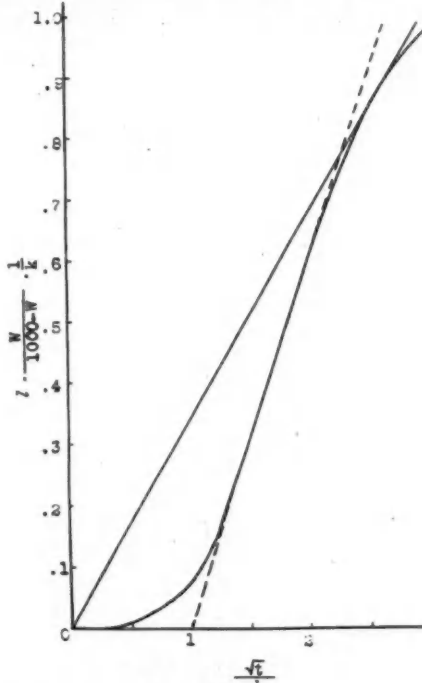


FIG. 4.

Curve of conductance within the sheet plotted against the square root of the corresponding time.

values of the same figure a straight line might be expected. Such a graph is shown in Fig. 4. There is a considerable straight line portion but its extension does not pass through the origin. For every such graph, however, there is a tangent through the origin. It would seem, therefore, that, if the curve has any meaning in terms of absorption or sizing quality, there is but one point on the curve, the corresponding resistance of which, is inversely proportional (the conductance corresponding to this point being directly proportional) to the volume of liquid which would have been absorbed in the same time if the sheet were sufficiently thick that no liquid had penetrated entirely through in that time. If the

ordinate,  $l \left( \frac{W_1}{1,000 - W_1} \right)$ , of this point is proportional to the volume

which would have been absorbed in time  $\frac{t_1}{F}$ , the relative volume

which would have been absorbed in unit time would be,

$$l \left( \frac{W_1}{1,000 - W_1} \right) \left( \frac{1}{t_1} \right)^{1/2} = \frac{F}{\sqrt{t_1}} \left( \frac{W_1}{1,000 - W_1} \right)$$

Hence the reciprocal,  $\frac{\sqrt{t_1} (1,000 - W_1)}{F W_1}$  would be an expression of

relative sizing quality according to definition where  $l$  is the thickness of the wet sheet,  $W_1$  is the slide wire reading on original autographic curve corresponding to point of tangency on the graph of type shown in Fig. 4, and  $t_1$  is the time corresponding to  $W_1$ . In practice no curves are plotted but the approximate value of  $W_1$  is found by trial from the original graph where  $\sqrt{t} \left( \frac{1,000 - W}{W} \right)$

is a minimum, tables of values of  $\frac{1,000 - W}{W}$  being used.

It has been found that equal resistances in different grades of paper of same thickness apparently do not represent equal volumes of electrolyte. In fact it has been found that the resistance per unit thickness of one kind of paper of a given surface area when saturated may be several times as great as the corresponding resistance in the case of a different kind of paper. The explanation is probably to be found in the structure of the sheet which may offer varying degrees of hindrance to the free passage of the ions and hence may vary the apparent resistance of the electrolyte. Attempts have been made to introduce a correction factor into the relation derived above for this source of error by taking the slidewire reading for a saturated sample and calculating the excess of resistance over that corresponding to a like volume of liquid of same thickness which is not broken up by the fiber structure. A simple factor involving the thickness of the sheet, the distance between the electrodes and the fluid volume of the saturated sample is possible. The latter quantity can be obtained by the usual method of air space determination if the thickness of the saturated sample is used instead of the thickness as ordinarily determined on the dry sample. Thus far, however, the results obtained do not appear to be satisfactory.

Certain current modifications of the electrolytic method which are based on the assumption that the saturated sample offers no electrical resistance or that equivalent resistance values represent equivalent degrees of permeation are obviously fundamentally at fault.

It is doubtful if more than a good approximation can be hoped for until considerable work is done in other fields. The possibility of the solution of soluble size and of unreliable results in the case of surface sized papers are objections which are equally applicable to nearly all other methods in common use and would limit the application of the electrolytic method to a corresponding extent. Other methods of attack are being investigated with some promise of success. Because of the positive nature of the data obtained by this apparatus it is hoped the difficulties may be overcome sufficiently to admit of its use as a test method for size-fastness determination. But at present it must be regarded as of value chiefly as an aid in studying the phenomena in connection with the absorption of liquids by paper in order that more intelligent interpretation may be placed upon data from other sources and test methods.

#### Proposed New Method

A new method for the determination of sizing quality based upon a principle not heretofore made use of for this purpose is being developed. As is well known a small piece of paper when floated on the surface of water will curl up into a cylindrical form with the machine direction as an axis. When the maximum



degree of curling has taken place the sample immediately begins to unfold. A few observations will reveal the fact that the time required to attain this maximum degree of bending is remarkably uniform for the same paper under like conditions. The attempt to account for this uniformity resulted in the following explanation which, while logical, is perhaps impossible to prove. The test of the assumption must lie in the results to which it leads. Let Fig. 5, represent a cross section of a piece of paper floated on water or ink. Since the interstices within the sheet are of varying sizes the flow of the liquid into them will proceed at different rates. Hence in a short time the liquid will have advanced to some position, *a*, having an irregular front. As liquid enters the pores surface tension tends to spread the fibers apart. The expansion thus produced on the under side of the sample causes the paper to curl upward. This curling will continue until the rate of expansion is equal on the two sides of the center line. Since the liquid front is irregular it does not all reach the center line at once. As the more advanced portions pass the center line of the cross section the rate of expansion at the under side decreases rapidly while the upper side begins to expand. The rate of curling, therefore, rapidly decreases to a value of zero when as great a volume of liquid has crossed the center line as yet remains to cross in order that the under side be completely saturated, *i. e.*, when the sample is half saturated (*b*, Fig. 5). As the liquid advances farther the rate of expansion of the upper side exceeds that of the lower and the sample begins to unfold. The explanation, therefore, of the uniformity of the time required for the sample to curl up is found in the fact that the time is a function of the constant fluid volume of the saturated sample per unit of surface area. If it is possible to measure the volume occupied by the liquid in such a sample sufficient data are made available for the determination of size-fastness as defined in the preceding discussion. If it can be assumed that all the air is displaced by the liquid an expression can be found for this quantity by the method of "air space" determination described by Sindall<sup>12</sup> and other authors, by using as thickness that of the saturated sample. While this assumption is perhaps not strictly correct it is probably a fair approximation to the truth. The method, moreover, is at present the only one available for the purpose. As has already been stated, relative size-fastness may be expressed by the reciprocal of the volume of liquid absorbed in a

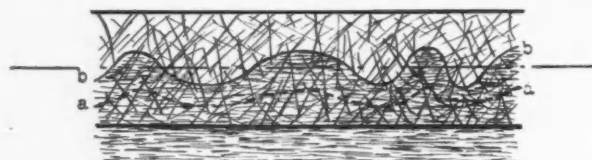


FIG. 5.  
Representation of cross section of paper floated on liquid.

unit time. If the fluid volume of a saturated sample be designated  $V$  then  $\frac{V}{2}$  is absorbed in the time of curl,  $t$ . Since the volume absorbed varies as the square root of the time the volume absorbed in a unit time is  $\frac{V}{2\sqrt{t}}$ . Since only relative values are desired

at present any constant multiplier may be neglected.  $\frac{\sqrt{t}}{V}$  is, therefore,

by definition, an expression of relative size-fastness. Obviously the same or similar data can be used for determining the waterproofing quality, absorptive quality, etc., of paper when properly interpreted. As an example of the distinction, sizing quality is

<sup>12</sup>R. W. Sindall, *Elementary Manual of Paper Technology*, pp. 113 & 220ff.

independent of the thickness while waterproofing quality is a function of the thickness of the sheet.

Tests are carried out in the following manner. Fig. 6, represents a crystallizing dish, *D*, filled with water or ink, both of which have been used in experiments thus far with good agreement of results, although, of course, the time of curl differs somewhat. Distilled water appeals to one as being more satisfactory as a standard for general use in testing if it will serve the purpose as

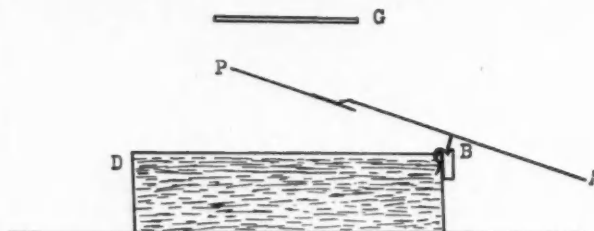


FIG. 6.  
Testing apparatus.

well as ink. It is essential that the liquid and paper sample be at the same temperature. Otherwise, the expansion will be due in part to change of temperature. A small wire, *A*, is bent into such shape as to rest in slots at *B* and have a lever arm extending in either direction. On one end is wound a small strip of adhesive tape with the adhesive side out. This is attached to the sample, *P*, in the middle along the machine direction where it will not affect the curling in any way. The purpose of this is to hold the sample in position for ease of observation. Otherwise it will be continually shifting its position, rendering observation difficult. *G*

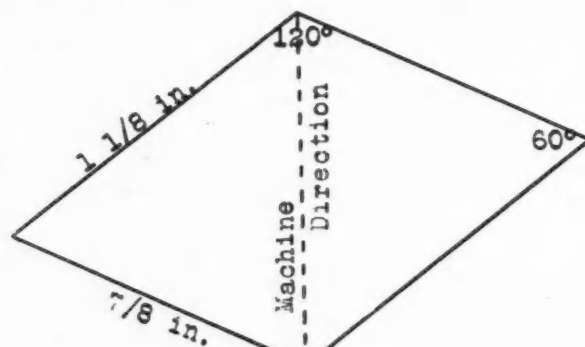


FIG. 7.  
Test sample.

is a microscope slide ruled with lines about a millimeter apart, supported above the sample. The purpose of this is to facilitate the determination of the curl inversion point, since the observer can watch the edge of the sample moving beneath the lines. Samples of paper cut in the shape of a rhomboid as illustrated in Fig. 7, have been found convenient for the test. In case a paper has an excessive degree of curl the test samples are cut with the long diagonal in the machine direction. By means of a stop watch the time is taken from the placing of the sample on the liquid to the instant the points of the rhomboid reverse their direction of movement. The sample is then immersed in some of the liquid in another vessel until saturated and the thickness measured. The average of five such readings is used in the computation. Check readings will vary by but a few seconds which may be expected on account of variations in thickness. Slight variations are of little consequence since the square root of the time is used in the relation derived. A sample of definite area (100 sq. cm. is con-



venient) is cut from the same sheet the test samples were cut from and heated in an oven 105°C. until all moisture is expelled, after which it is weighed in a weighing bottle on a chemical balance. The fluid volume of the saturated sample is then calculated by the method already mentioned. The use of metric units greatly facilitates the calculation. When the ash content does not exceed some three or four per cent the fluid volume of the sample may be determined with sufficient accuracy for present purposes by subtracting two-thirds its bone dry weight in grams from its total volume (saturated) in cubic centimeters. The lateral expansion of the sample is neglected. The per cent fluid volume multiplied by the mean value of the thickness of the saturated test samples is the

quantity  $V$  of the relation  $\frac{Vt}{V}$  which is a measure of the relative size-fastness of the paper tested. Table IV shows the results from a number of different kinds of paper, using distilled water at 21°C. (70°F.). Table V gives the results by this method on the papers of Tables I and II.

TABLE 4.

No.	Description	Wt. 25x40	Thickness in cm		Percent ash	Percent rosin	Percent fluid vol.	Time	R. S. Q.*			
			Dry	Wet					(a)	(b)		
1	Special No. 1 bond..	34	0.0075	0.0090	0.5	1.6	58	13	3.6	69	40	
2	Fine bond .....	64	.0100	.0140	0.2	1.0	61	33	5.7	67	41	
3	Kraft .....	60	.0125	.0150	0.3	1.3	67	40	6.3	63	42	
4	Commercial ledger ..	96	.0165	.0230	0.9	1.1	61	69	8.3	59	36	
5	White bond .....	54	.0105	.0130	1.3	1.8	60	20	4.5	58	35	
6	Rope manila .....	94	.0150	.0230	1.6	1.5	64	73	8.5	58	37	
7	Fine writing .....	78	.0130	.0175	0.8	1.2	61	36	6.0	57	34	
8	S. & S. C. Printing..	52	.0075	.0105	9.6	1.4	62	14	3.7	57	35	
9	White writing .....	54	.0090	.0115	1.1	0.9	61	15	3.9	56	34	
10	M. F. Printing .....	71	.0115	.0145	24.4	1.0	63	22	4.7	51	32	
11	Mimeograph .....	55	.0100	.0130	9.4	1.2	64	11	3.3	40	25	
12	Newsprint .....	37	.0090	.0125	0.5	1.4	74	2	1.4	15	11	

\*Relative sizing quality.

TABLE 5.

B.S. No.	I	Per cent fluid Vol.	Time in Seconds							t	Vt	R. S. Q.	
			15	16	16	15	15	15	15			(a)	(b)
6967.....	0.0115	61	15	16	16	15	15	15	15	3.9	56	34	
4969.....	.0140	61	31	34	32	31	36	33	33	5.7	67	41	
4971.....	.0125	61	19	19	20	18	19	19	19	4.4	58	35	
4972.....	.0130	60	20	20	19	20	19	20	4.5	58	35		
4974.....	.0075	64	5	6	6	6	7	6	2.5	52	33		
4975.....	.0215	60	38	40	37	37	40	38	6.2	48	29		
4981.....	.0230	61	69	75	65	67	71	69	8.3	59	36		

It is obvious that for testing papers having approximately the same per cent fluid volume the more simple relation  $\frac{Vt}{V}$  can be used.

Caution must be exercised, however, as is evidenced by the conspicuously high relative value of No. 3 under (b) of Table IV, which results from the greater porosity of this paper. For the greater part of routine testing this expression is perhaps preferable in order to save time, doubtful cases being confirmed by the more involved relation. Data determinations must be made in the light of the probable degree of accuracy attainable in the final result. While it is difficult to estimate the magnitude of probable errors in this work the accuracy of the method is perhaps within  $\pm 5$  per cent if the assumption which makes possible the determination of  $V$  is within this limit of error.

The grades of paper to which this method is applicable range from a good news print to the finest bonds. It is not, however, well adapted to the testing of paper which is of such thickness as to render the degree of curl comparatively small. The obvious advantages of this method are definite and dependable data, a numerical value for relative sizing quality, a simple apparatus and the short time required for a test. Subsequent investigation will no doubt alter certain details of the method, but it is considered sufficiently stable to be of considerable value in the laboratory.

Summary

A brief resumé is made of test methods in common use with data showing the lack of agreement among these methods.

Okell's electrolytic method is discussed at some length, a relation for the resistance within the sheet being derived and a method indicated for the conversion of data to a sheet of common thickness. The adaptability of the apparatus to research work on the whole problem of sizing is regarded as the chief value of the method in its present state of development. A new test method, involving a principle not before used for the purpose, is proposed by which relative sizing quality is given a numerical value.

Final Survey for Alaska Paper Project

[FROM OUR REGULAR CORRESPONDENT.]

JUNEAU, Alaska, March 14, 1922.—Continuation of investigations of the pulp and paper manufacturing possibilities in the Bradfield Canal section is now in progress by W. E. Dunkle, engineer representing the Guggenheim interests. Mr. Dunkle and a crew left Ketchikan last week for the canal district to take up the preliminary work where it was left off last November.

The Federal Power Commission has issued the Guggenheims a temporary permit giving them prior rights to the power sites pending the issuance of a permanent development license. The latter will be issued when the company has made the necessary showing. It is to complete this that Mr. Dunkle and his crew went to the canal.

In an article in the Ketchikan *Chronicle*, Mr. Dunkle is quoted as follows: "The outlook is bright. Our preliminary investigations have been encouraging, but there is no probability that the plant will be constructed this year. The investment for such a plant would be great and of course the details must be thoroughly worked out before any great sum is spent."

In considering the building of a pulp and paper plant there are four big considerations, Mr. Dunkle pointed out. There are the power, the timber, transportation and the market questions to be considered. In Bradfield Canal it is hoped that suitable power can be developed. Preliminary investigations indicate that it can be and there is sufficient timber.

Market conditions are not so favorable now as they were a few months ago. Great quantities of foreign news print paper is being flooded over the country, cutting the prices down, and there is no likelihood that there will be any material increases for some time. The transportation question also is a serious one, as the paper manufactured in Alaska would have to be taken east or to the gulf states, and under present conditions it is a difficult matter to handle.

In the manufacture of paper, the use of coal will be a big item in Alaska for any plant that starts operating. Unless the water-power developed is tremendous and extremely cheap, coal must be used in great quantities, virtually three-quarters of a ton of coal being needed for every ton of paper.

These are the big items which must be figured carefully by all the capitalists who are considering putting in paper plants in Alaska, and items which they will go over at length before making definite decisions to proceed.

In cases where the manufacturer would consume a large part of his own product, conditions are more favorable for the start now than for those who consider entering the field for commercial purposes only, and for that reason persons best informed in such matters believe that there is a great possibility that the Shrimp Bay outfit will go ahead in the near future.

Simplex Paper Corp. to Increase Capital

[FROM OUR REGULAR CORRESPONDENT.]

PALMYRA, Mich., April 3, 1922.—The Simplex Paper Corporation will increase its capital from \$30,000 to \$50,000. This concern operates a one-machine mill, producing wrapping papers.

## 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

**Manufacture of Paper Containers.**—*Paper Container*, v, No. 3, 94-96.—The twenty-first article of the series on the manufacture of paper containers.—A. C.

**Paper Barrels.**—*Paper Container*, v, No. 5, 197.—An article on the use, advantages, and manufacture of paper barrels.—A. C.

**Interchangeable Factors in Esparto Boiling.**—Alfred W. Smith.—*Paper Making*, xl, No. 11 (Nov., 1921).—Paper read at the Edinburgh meeting of the Technical Section of the Paper Makers' Association of Great Britain and Ireland.—A. C.

**Use of Mixing Tanks in Place of Beaters.**—*Paper Making*, xl, 336 (Nov., 1921).—A discussion of the tendency in modern mills to use a mixing tank instead of beaters and a description of the form of mixing tank used at the Camas mill and also of the one at the West Linn mill, in Oregon.—A. C.

**Preservation of Fruit by Means of Gummed Paper.**—*Paper Making*, xl, 336 (Nov., 1921).—At a meeting of the Gummed Paper Manufacturers at Atlantic City it was stated that gummed paper can be used to preserve perishable fruits and thereby greatly add to the palatability as well as to the keeping qualities of the fruit.—A. C.

**Experimental Paper Mill for Siam.**—*China Clay Trade Rev.* iii, No. 29 (Oct., 1921).—The Siamese government has planned to purchase a small experimental paper mill for use in Bangkok, Siam, for the purpose of developing the use of raw materials such asalang grass, rice straw, and banana stems for paper making. It is possible for some of this paper to be used by government departments in Siam. The mill will be shipped complete in all details, and it is stated that the Siamese government has decided to obtain the services of an American to install the mill, start operations and teach the natives to handle it.—A. C.

**Testing Dyes for Colored Papers.**—B. K. Steadman. *China Clay Trade Rev.*, iii, No. 29 (Oct., 1921).—See this journal, lxxii, No. 25, 50, June 16, 1921.—A. P.-C.

**Cleansing Paper Machine Felts.**—Fr. patents No. 167,929, 167,930. J. T. Ayers, Lachute, Que., Canada.—*Paper Making*, xl, 313 (Oct., 1921).—No. 167,929. The felt is passed in contact with a napping device which tears off particles of the foreign matter adhering to the surface. The back of the felt is then sprayed at high pressure, while the face is passed before a suction box which collects the cleaning liquid and any remaining foreign matter which may have been left after the napping process. No. 167,930 covers the machine for carrying out the process.—A. C.

**Pinabietic Acid, a Resin Acid from Sulphate Black Liquor.**—Ossian Aschan and K. E. Ekholm.—*Finska Kem. Medd.*, 1918, p. 8; *Chem. Soc. Abs.*, cxvi, Pt. 1, 326 (1919).—Pinabietic acid,  $C_{10}H_{16}O_2$ , shining needles, melting point 176-178° C., has been isolated from the resin acids of the black liquor of sulphate mills. When dissolved in a mixture of chloroform and acetic anhydride, the acid yields, on addition of a little concentrated sulphuric acid, a purplish red coloration which passes through violet and blue into black. With hydrochloric acid and ferric chloride the coloration is violet blue. The residue obtained after evaporation with nitric acid becomes orange-yellow on addition of ammonia, instead of violet as with abietic acid. The specific rotation depends greatly on the solvent, the acid being dextro-rotatory when dissolved in aromatic hydrocarbons and levo-rotatory in solution in aliphatic hydrocarbons.—A. P.-C.

**Simple Method of Analyzing Bearing Metals and Similar Alloys.**—G. Oesterheld and P. Honegger. *Helv. Chim. Acta*, ii, 938-416 (1919); *Chem. Soc. Abs.*, cxvi, Pt. 2, 478-479 (1919).—The principles on which the method described is based are as follows: The alloy is dissolved in boiling concentrated sulphuric acid,

dissolution being complete in a few minutes even with an alloy rich in lead. The antimony passes quantitatively into solution in the trivalent form and the tin as stannic sulphate. The copper and lead are converted entirely into copper and lead sulphates, subsequent dilution with water resulting in the separation of a crystalline lead sulphate, which is readily removed by filtration through a Gooch crucible. In the filtrate the antimony is titrated directly with potassium bromate, the titrate solution being then reduced and the tin, and afterwards the copper, being determined volumetrically. In the presence of tin, antimony, and lead, copper may be estimated in a few minutes by a simplified form of electrometric titration with sodium thiosulphate.—A. P.-C.

**Transformation of Wood into Pure 100 Per Cent Ethyl Alcohol.**—Fr. patent No. 503,990, R. Fabre and L. Solari, Italy, March 31, 1921.—*Chimie et Industrie*, v, 458 (April, 1921).—A. P.-C.

**Process for the Manufacture of Alcohol from Wood or Other Cellulosic Materials.**—Fr. patent No. 503,073, E. Dubourg, France, March 8, 1920.—*Chimie et Industrie*, v, 323 (March, 1921).—The sawdust is sterilized by heating in an autoclave under a pressure of 2 atmospheres with 5 times its weight of water and 10 per cent of material in nitrogenous compounds. It is then saccharified by means of molds (*Heliumyces fuliginosus* or *Botrytis cinerea*), aerating the material strongly. It is finally subjected to alcoholic fermentation.—A. P.-C.

**Process and Apparatus for Watermarking or Embossing Paper.**—Fr. patent No. 514,084, Chas. H. F. Smith, Canada.—*Monit. Papeterie Française*, lii, 257-258 (May 1, 1921).—A. P.-C.

**Improvement to Paper Creeping Machines.**—Fr. patent No. 515,168, W. Wm. Colley, England.—*Monit. Papeterie Française*, lii, 288-289 (May 15, 1921).—A. P.-C.

**The Preparation of Aluminum Compounds for Sizing Paper.**—Fr. patent No. 515,314, George Muth, Germany, and Louis Duvinage, Belgium, Nov. 24, 1920.—*Papier*, xxiv, 212-213 (May 1921); *Monit. Papeterie Française*, lii, 325-6 (June 1, 1921).—The bauxite, or other aluminiferous material, is boiled with sulphuric acid or sodium bisulphate in open vessels, without preliminary calcination, in the presence of a small amount of a fluorine compound (sodium or calcium fluoride, cryolite, etc.), which gives off hydrofluoric acid when treated with sulphuric acid.—A. P.-C.

**Process for the Treatment of Esparto.**—Fr. patent No. 515,501, Dimitry Chouchak, Algeria, Nov. 25, 1920.—*Papier*, xxiv, 213-214 (May, 1921); *Papeterie*, xliii, 405-407 (May 10, 1921).—The grass is cleaned in the usual manner and crushed to facilitate penetration by the liquor. It is treated cold with very dilute acid and then with very dilute alkali, both the acid and the alkaline solutions containing a suitable amount (0.01-2 per cent) of a catalyst (sodium thiosulphate, stannous chloride, sodium sulphite, sulphonic acids and their salts, aniline, etc.), thus eliminating the greater part of the incrustants. The material is drained and then steeped for a few minutes in a liquor containing 2.5 to 3 per cent of caustic soda, and a suitable amount of the catalyst previously used. The fibers absorb about 5 to 7 per cent of their weight of caustic soda; but do not absorb the catalyst, and on draining away the liquor the latter need only be fortified with caustic soda before reusing. The fibrous material is heated by steam (directly or indirectly) for 20 to 30 minutes at 140° C., defibered, and washed. The caustic soda and fuel consumption are very greatly reduced, and also the first cost of the plant. The catalysts may also be used in the so-called English process, thereby effecting appreciable reduction in the time required for the treatment and in the fuel consumption, but the economies are not as great as in the process out-

lined above. The function of the catalyst is twofold: (1) it increases the rate of reaction; (2) it prevents the partial destruction of the cellulose.—A. P.-C.

**Method of Producing Cellulose Fiber.**—Can. patent No. 212,034, Judson A. Decew, Montreal, Que., Canada, May 31, 1921.—An alkaline solution containing about 15 per cent caustic soda is heated to a pulp cooking temperature, discharged into a digester containing the chips to be acted on, and the excess liquor withdrawn, so that the lignin will be attacked only by the alkali absorbed.—A. P.-C.

**Manufacture of Wood Alcohol from Sawdust.**—Can. patent No. 212,058, Lee F. Hawley, Madison, Wis., U. S. A., May 31, 1921.

**Cathode for Chlorine and Alkali Cell.**—Can. patent No. 212,060, Karl Heinemann, Pirna, Saxony, Germany, May 31, 1921.—In cells having a flowing mercury cathode, there is placed a stationary bottom plate provided on its surface with impedimenta arranged in rows forming a right angle with the direction of the mercury current, arranged so as to hold the surface of the mercury in continuous agitation.—A. P.-C.

**Decomposition of Alkali Chloride Solutions.**—Can. patent No. 212,061, Karl Heinemann, Pirna, Saxony, Germany, May 31, 1921.—On withdrawing the electrolyte from the anode compartment, the chlorine which it contains is removed, and the electrolyte is saturated with salt and used over again.—A. P.-C.

**Expandable Safety Envelope.**—Can. patent No. 212,092. K. Mikolajewski, Chicago Heights, Ill., U. S. A., May 31, 1921.—A. P.-C.

**Vibrator for Screening Machines.**—Can. patent No. 212,095, B. A. Mitchell, Utah, U. S. A.—A. P.-C.

**Sulphite Waste Liquor as a Precipitant for Artificial Threads, Ribbons, Films, or Plates made from Viscose.**—Can. patent No. 212,099, Max Muller, Finkenwalde, Germany, May 31, 1921.—Same as Br. patent No. 145,627. See *Pulp and Paper*, xix, 42, E-2, L-7 (Jan. 13, 1921).—A. P.-C.

**Pulp Screening Device.**—Can. patent No. 212,110, A. R. Paul, Utica, N. Y., U. S. A., May 31, 1921.—A. P.-C.

**Fiber Board from Bagasse.**—Can. patent No. 212,129, J. K. Shaw, Minneapolis, Minn., U. S. A., May 31, 1921.—The patent covers a fiber board composed of different layers of bagasse fibers, interlaced with each other, and carrying their natural pith in the form of protruberances attached to the different fibers which offer resistance when one fiber tends to slip over another fiber. The layers, which are composed of different qualities of fibers, are highly compressed to form a board of great tensile and breaking strength for use as a substitute for lumber or leather in the manufacture of furniture, baggage, and other articles.—A. P.-C.

**Wallboard Made from Bagasse Fibers.**—Can. patent No. 212,130, J. K. Shaw, Minneapolis, Minn., U. S. A., May 31, 1921.—The invention covers a fiber board composed of pith-carrying bagasse fibers interlaced with each other, said fibers carrying their pith in the form of protruberances attached to the individual fibers which offer resistance when one fiber tends to slip over another.—A. P.-C.

**Paper Drying Machine.**—Can. patent No. 212,153, Otto E. Tomlinson, Minneapolis, Minn., U. S. A., May 31, 1921.—A. P.-C.

**Paper Making Machine.**—Can. patent No. 212,156, H. G. Van Oinum, Piercefield, N. Y., U. S. A., May 31, 1921.—A slice is provided which is adjustable both vertically and horizontally with respect to the deckle frame.—A. P.-C.

**Paper Drying Apparatus.**—Can. patent No. 212,170, American Coated Paper Co., Inc., assignee of F. P. Reed, East Orange, N. J., U. S. A., May 31, 1921.—The paper is carried through the driers on a wire which is not in direct contact with the heating surface but is separated from it by a layer of heated air.—A. P.-C.

**Method of Water Control in Wire Sections of Fourdrinier Machines.**—Can. patent No. 212,173, Bagley & Sewall Co., New York City, N. Y., assignee of F. W. Monaghan, Mosinee, Wis., both in the U. S. A.—The table rolls are so mounted that some of

them can be removed out of contact with the wire.—A. P.-C.

**Electrolytic Cell for the Decomposition of Alkali Chlorides.**—Can. patent No. 212,191, Fredriksstad Elektrokemiske Fabriker A/S, assignee of J. K. Langhard, both of Fredriksstad, Norway, May 31, 1921.—A. P.-C.

**Rotary Screen.**—Can. patent No. 212,204, Moore and White Co., assignee of J. A. White, both of Philadelphia, Pa., U. S. A., May 31, 1921.—A. P.-C.

**Tanning Material from Spruce Bark.**—Can. patent No. 188,352, S. Saxe, New York City, N. Y., U. S. A., Jan. 21, 1919.—The soluble material is extracted from the spruce bark, dried, and heated to a temperature of 215-220° F. It is thus relatively free from the soluble colloid non-tans normal to spruce bark.—A. P.-C.

**Tanning by Means of Woodpulp Extract (Waste Liquor?).**—Can. patent No. 188,358, J. K. Tullis, Paris, France, Jan. 21, 1919.—The hide is treated with a solution of an alkali bichromate and after complete penetration by the salt it is immersed in a solution of woodpulp extract.—A. P.-C.

**Paper Container.**—Can. patent No. 188,444 and 188,445, Sealright Co., Inc., assignee of Wilbur L. Wright, both of Fulton, N. Y., U. S. A., Jan. 28, 1919.—A. P.-C.

**Corrugated Paper Board Tester.**—Can. patents No. 188,598 and 188,699, John M. Webb, Chicago, Ill., U. S. A., Feb. 4 and Feb. 11, 1919.—(For comparison of Webb and Mullen testers see *P. Ind. Eng. Chem.*, xi, 133-138, 1919; *Pulp and Paper*, xviii, A-14, 900, Aug. 26, 1920.)—A. P.-C.

**Paper Testing Machine.**—Can. patent No. 188,612, International Business Machine Co. of Canada, Ltd., Toronto, Ont., Canada, assignee of O. E. Braitmayer, Washington, D. C., U. S. A., Feb. 11, 1919.—When there is an imperfection in the paper being tested, an electric circuit is automatically closed, thereby bringing into operation a mechanism for mutilating the paper strip.—A. P.-C.

**Production of Alcohol from Sulphite Waste Liquors.**—Can. patents Nos. 188,636, 188,637, 188,638, Ralph H. McKee, Ridgefield Park, N. J., U. S. A., Feb. 11, 1919.—No. 188,636. In a process of making ethyl alcohol by fermenting sulphite waste liquors, the steps which consist in adding yeast to sulphite liquor containing an appreciable amount of sulphurous acid, aerating the solution substantially throughout the fermentation, thereby maintaining the fermentive action, and recovering alcohol vapors from the exit gases by scrubbing the same with unfermented liquor. (Cf. *Pulp and Paper*, xviii, 81, E-2, Jan. 2, 1920). 188,637. The process of producing ethyl alcohol from sulphite waste liquors, consisting in purifying the liquor by the action of barium carbonate under oxidizing conditions, thereby producing a sludge containing barium sulphate, separating the sludge, fermenting and distilling the purified liquor to obtain alcohol, furnacing the barium sulphate sludge under reducing conditions to form barium sulphide, and reconverting the sulphide into carbonate by treating under superatmospheric pressure with the carbon dioxide evolved from the fermentation vats. No. 188,638. In a process for producing alcohol from sulphite waste liquors, the steps which consist in subjecting the liquor which contains sulphites to the action of barium sulphide under oxidizing conditions, thereby producing barium sulphate and eliminating injurious sulphur compounds, and furnacing the barium sulphate under reducing conditions to regenerate barium sulphide.—A. P.-C.

**Dextrin for Coating Paper.**—Can. patents No. 188,639, 188,671, Wm. W. McLaurin, Brookfield, Mass., U. S. A., Feb. 11, 1919.—As an article of manufacture, a ready dissolved concentrated dextrin solution, or liquid, suitable, without further treatment, as a coating, adhesive, or impregnation for paper, textiles, wood and the like, having a concentration of about 50 per cent, said solution being made from commercially pure starch and of uniform quality throughout and having less than 10 per cent of sugar on the weight of the starch at 280° F. for a period sufficient to convert the mass are made into a comparatively smooth cream and heated in an autoclave with hydrochloric acid equal to 0.1 per cent of the weight of the dry product. No. 188,671. Equal parts of starch and water



into a fully converted dextrin in the form of a colorless solution, liquid at 60-70° F.—A. P.-C.

**Roofing Paper.**—Can. patent No. 188,744, Flintkote Co., Boston, Mass., assignee of F. C. Overbury, Hillsdale, N. J., both in the U. S. A., Feb. 18, 1919.—A. P.-C.

**Boom.**—Can. patent No. 189,518, A. E. Loosen, Bathurst, N. B., Canada, April 8, 1919.—A. P.-C.

**Rinman Pulping Process.**—Can. patent No. 189,655, E. L. Rinman, Bjursholm, Sweden, April 15, 1919.—The process of producing pulp consisting in relieving the raw material of air enclosed in it, boiling it in a caustic soda liquor, effecting the principal extraction at a temperature of 140-170° C., and treating the liquor during boiling with a catalyzer furthering reduction. (See this Journal, lxxii, No. 16, 259, 261, April 14, 1921.)—A. P.-C.

**Distillation of Black Liquor.**—Can. patent No. 189,656, E. L. Rinman, Djursholm, Sweden, April 15, 1919.—The concentrated black liquor (35° Bé at 60° C.) is mixed with caustic soda (to make up for losses), and also with lime and dry distilled at not over 500° C. The temperature during different periods is maintained within certain ranges corresponding to the decomposition temperatures of the different substances in the black liquor until the substance or substances corresponding to the temperature range have been formed and substantially distilled over. Each distillate is collected separately, so that the various substances are obtained separated from one another at the dry distillation.—A. P.-C.

**Sulphite Digester Mechanism: Vapor-Accumulator.**—Can. patent No. 189,679, Aktiebolaget Vapor-Akkumulator, Stockholm, assignee of J. K. Ruths, Djursholm, both in Sweden, April 15, 1919.—A sulphite digester plant comprising a steam boiler, a sulphite digester, a steam accumulator partially filled with water being interposed between the boiler and digester, the water space of the accumulator being connected to the steam space of the boiler, and the steam space of the accumulator to the digester. The accumulator is equipped with a superheater connected to the steam boiler. Also, Br. patent No. 144,084, May 29, 1919; Fr. patent No. 518,153, Dec. 27, 1920.—A. P.-C.

**Pulp Washing Machine.**—Can. patent No. 189,982, Samuel Milne, Edinburgh, Scotland, April 29, 1919.—A. P.-C.

**Felt for Buildings.**—Can. patent No. 190,030, Barrett Co., New York City, N. Y., assignee of R. P. Perry, Upper Montclair, N. J., both in the U. S. A., April 29, 1919.—A. P.-C.

**Feed Mechanism for Knife Barkers.**—Can. patent No. 190,176, Wm. Waern, Stockholm, Sweden, May 6, 1919.—A. P.-C.

**Process for Molding Hollow Articles of Paper Pulp.**—Fr. patent No. 515,589, P. E. Winnertz, Germany.—*Monit. Papeterie Française*, lii, 361-362 (June 15, 1921).—A. P.-C.

**Pulper for Sheet Pulp.**—Fr. patent No. 519,934, L. G. A. Potie, Isère, France, Feb. 4, 1921.—*Papier*, xxiv, 357-359 (Aug., 1921); *Papeterie*, xliii, 688 (Aug. 10, 1921).—The pulp (in sheets) is fed into a hopper from which it passes into a chamber where it is thoroughly wetted by spraying and triturated by means of a powerful agitation. Means are provided for admitting steam to the chamber if desired. The pulp then passes into a truncated-cone shaped compartment in which are helical grooves as well as agitators. The function of the grooves is to make the pulp travel from the small end to the large end of the chamber, from which it is discharged.—A. P.-C.

**Process for the Preparation of Halogen Quinone Derivatives from Pulp Waste Liquors, and Application of said Derivatives.**—Fr. patent No. 508,894, Papeterie Berges, France, Aug. 5, 1920.—*Chimie et Industrie*, vi, 210 (Aug., 1921).—(A) *Alkaline Liquors.* The liquor is acidified with hydrochloric acid and treated with a halogen at 25-30°, after separating the precipitate formed on acidifying. It may be necessary, after acidifying, to treat with steam, which favors the action of the halogen. After drying the quinone derivatives are obtained as pastes, extracts, or powders. (B) *Sul-*

*phite Liquors.* The liquor is heated under pressure with an alkaline earth, and then treated with halogen, after acidification if need be. (C) *Liquors from Water or Steam Treatment.* The treatment is the same as above. The quinone derivatives thus obtained possess tanning properties and may be used for this purpose either alone or in admixture with other substances.—A. P.-C.

**Width Indicator for Paper and Cardboard Machines.**—Patent applied for by Charles Becker, July 12, 1921.—*Papeterie*, xliii, 746-748 (Aug. 25, 1921).—Wires are connected to the deckle strap carriages while the other ends are connected to some suitable indicating device, so that the distance between the deckle straps is read off directly. If desired, the graduations may be such as to give directly the width of the trimmed sheet.—A. P.-C.

#### List of Abbreviated and Full Titles and of Addresses of the Journals from Which Abstracts Have Been Prepared for this Issue

Chem. Soc. Abs.	Journal of the Chemical Society—Abstracts, Gurney & Jackson, 33 Paternoster Row, London, E. C. 4, England.
Chimie et Industrie	Chimie et Industrie, 49 Rue des Mathurins, Paris, France.
China Clay Trade Rev.	China Clay Trade Review, 9-10 Southampton Bldgs., High Holborn, W. C. 2, London, England.
Helv. Chim. Acta	Helvetica Chimica Acta, Georg & Co., 10 Friestr., Basel, Corratierie 10, Genève, Switzerland.
Monit. Papeterie Française	Le Moniteur de la Papeterie, Française, 154 Boulevard Haussmann, Paris (8*), France.
Paper Container	Paper Container, 29 Ludgate Hill, London E. C. 4, England.
Paper Making	Paper Making, 1 Mitre Court, Fleet street, London, E. C. 4, England.
Papeterie	La Papeterie, 9 Rue Lagrange, Paris (5*), France.
Papier	Le Papier, 16 Rue du Rocher, Paris (8*), Francee.

#### Woodlands Section Convention Program

Problems of reforestation by paper companies, the damage being done in the spruce forests by the bud worm, the waste in converting pulpwood into pulp are only a few of the subjects which are scheduled for discussion at the convention of the Woodlands Section of the American Paper and Pulp Association on Tuesday, April 11, during the annual convention of the paper industry in New York City.

P. T. Coolidge of Bangor, Me., and Ellwood Wilson of the Laurentide Company of Quebec, under the head of "Successful Reforestation for Pulp and Paper Companies" will discuss such problems as conditions favoring reforestation, natural vs. artificial reforestation and methods used, planting as a safe investment, fire prevention, desirable species, methods and costs of planting, and the great problem of whether the present timber supply warrants extensive reforestation.

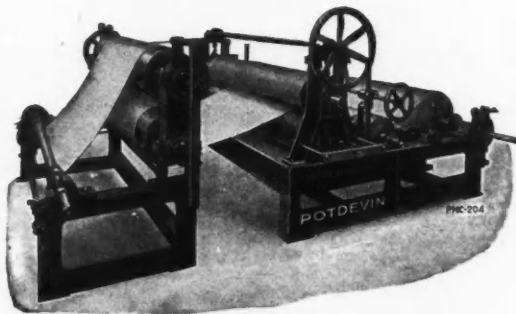
E. W. Kiefer of the Port Huron Sulphite and Paper Company will discuss under the subject of "Pulps and Pulpwood," the number of pounds of pulp paid for in a cord of wood, how many pounds per cord go into the grinders or digesters, and the percentages of bark water and waste in the wood.

Insect damage will be discussed by Dr. Hopkins of the Federal Bureau of Entomology, and W. R. Hastings, State Forester of Vermont. Other subjects are "Labor Saving Machinery for Woods Operations," George H. Anson, Abitibi Power and Paper Company; "Company Woods Operations vs. Contracted Woods Operations," D. A. Crocker, Eastern Manufacturing Company, Bangor, Me.; "Pulpwood Contracts; Percentages to Contractors when Wood is Peeled, Sawed and Yarded to Haul," J. O. Lynch, Lincoln Pulpwood Company; "What Can a Forester Do for a Paper Company?" Julian Rothery, New York City; "Rossing at the Mills vs. Rossing in the Woods," H. B. Morse, Orono Pulp and Paper Company; "Advisability of Cutting Pulp Wood to a 3 inch Diameter Limit," G. B. Wells, John Schroeder Lumber Company; "Intensive Local Fire Protection," E. S. Holloway and C. W. Hurlubis, Hammermill Paper Company, and "A Cost System for Logging Operations," G. A. Ware, News Print Service Bureau.



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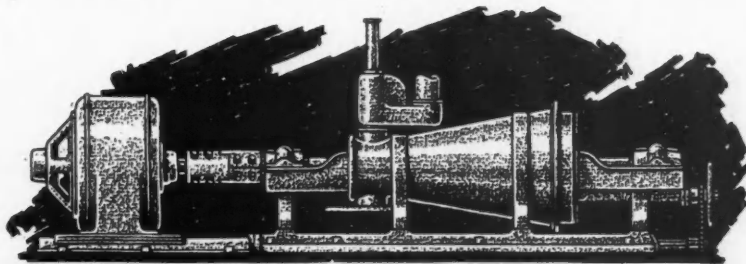
**S**eamless felts for fast running.  
atin Style felts for finish.  
pecial felts to meet every condition.  
end us your felt problems.

KNOX WOOLEN COMPANY  
CAMDEN, MAINE

SOLD BY

**BULKLEY, DUNTON & COMPANY**

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



JORDAN ENGINES

## JORDAN ENGINES

Sturdily Constructed Equipment

Appleton Machine Company products have been standard equipment in paper mills of the country for half a century.

**THE APPLETON MACHINE COMPANY**

APPLETON WISCONSIN



## LAWRENCE GROCCERS' BAGS

stand the test for quality and  
uniformity

The line is so complete and so generally satisfactory that jobbers everywhere are becoming "Lawrence specialists." Why not YOU?



James Lawrence, President

THE LAWRENCE BAG COMPANY  
MIAMISBURG, OHIO

### Some Advantages of Hercules Wood Rosin

For the manufacture of paper, Hercules Wood Rosin is particularly good, because no dirt can reach the sheet through pitchy material, impurities or foreign matter in the rosin.

Hercules Wood Rosin is clean, is uniform and is manufactured in large enough quantities, to assure you a dependable supply. It is entirely suitable for most paper manufacturing and, in most classes of paper, it has been found to give results equal to or better than gum rosin.

We are always glad to answer inquiries from users of rosin.

Naval Stores Division  
**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

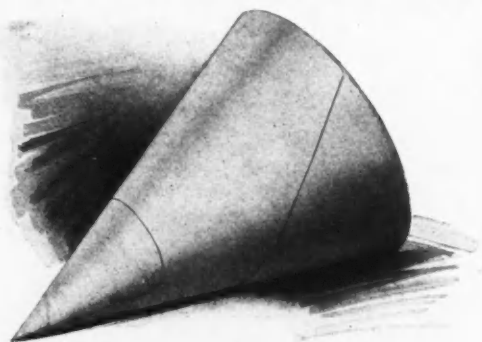


Illustration two-thirds actual size

### THE Sanitary Drinking Cup

is used by the hundred million each day in the year to prevent epidemics due to the use of common drinking cups and fountains with uncertain water pressure. Cities with half a million population are already ordering

### Burt's Drinking Cups By the Hundred Million

although these cups have only recently been placed on the market.

#### Easy to Sell—Long Profits

Burt's Drinking Cups have attractive long profit margins and twelve exclusive features which make them sell easily:

No wax to taste.  
Not easily set aside.  
Untouched by hands.  
Fit the hand.  
Dispensed without waste  
Priced very low.

Dispenser  
sells for  
**\$5.00**

No bottom to fall out. Trebly reinforced.  
Made of fine white paper. Hold hot drinks.  
No opening up—they're open. Holder furnished if desired.

#### Choice Territory Still Open

which will yield attractive profits at the retail selling price of \$2.50 per thousand, with discounts for quantity consumption.

Packed in  
Containers  
of 5,000

**F. N. BURT COMPANY, LTD.**

Paper Cup Division

**BUFFALO, N. Y.**



Howard Bond



Howard Ledger

**"The Paper of Many Uses"**

*Manufactured by*

**THE HOWARD PAPER COMPANY,**

**Urbana, Ohio**

**FORGE LAP-WELDED**

**SOFT STEEL**

**DIGESTERS**

**ALL SEAMS LAP-WELDED**

**AMERICAN WELDING COMPANY**

**CARBONDALE, PA.**

**VERTICAL  
SEAMS  
HEATED WITH  
FURNACES  
AND WELDED  
WITH  
HYDRAULIC  
POWER**

**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.**



# Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

## NEW YORK IMPORTS

WEEK ENDING APRIL 1, 1922

### SUMMARY

News Print	2,413 rolls, 592 bls.
Wrapping Paper	10,132 rolls, 639 bls., 7 cs.
Packing Paper	171 bls., 298 rolls, 24 cs.
Cigarette Papers	2,038 cs.
Wall Paper	298 rolls, 50 bls.
Hangings	50 bls., 8 cs.
Drawing	12 cs.
Creased Paper	6 cs.
Surface Coated Papers	71 cs.
Tissue Paper	5 cs.
Filter Paper	10 cs.
Emery Paper	19 cs.
Printing Paper	33 cs.
Miscellaneous Paper	255 cs., 209 bls.

### CIGARETTE PAPER

American Tobacco Co., Zarembo, Havre,	130 cs.
Rose & Frank, by same,	140 cs.
British Amer. Tobacco Co., Celtic, Liverpool,	18 cs.
R. J. Reynolds Tobacco Co., E. Crag, Bordeaux,	870 cs.
American Tobacco Co., by same,	700 cs.
American Tobacco Co., La Lorraine, Havre,	158 cs.
The Surbrug Co., by same,	22 cs.

### WALL PAPER

The Prager Co., Kroonland, Antwerp,	298 rolls.
A. C. Dodman Jr., Inc., by same,	8 bls.
A. Murphy & Co., Wurttemberg, Hamburg,	39 bls.
A. Murphy & Co., Menominee, London,	3 bls.

### PAPER HANGINGS

A. Murphy & Co., Menominee, London,	1 bl.
W. H. S. Lloyd & Co., by same,	12 bls.
W. H. S. Lloyd & Co., Montana, London,	37 bls.
W. H. S. Lloyd & Co., by same,	8 cs.

### DRAWING PAPER

Fanos Ruhl & Co., Menominee, London,	5 cs.
H. Reeve Angel & Co., Rotterdam, Rotterdam,	7 cs.

### COLORED PAPER

Borden Riley Paper Co., Kroonland, Antwerp,	6 cs.
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### SURFACE COATED PAPER

Defender Photo-Supply Co., Kroonland, Antwerp,	71 cs.
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### TISSUE PAPER

C. H. Wyman, Celtic, Liverpool,	5 cs.
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### FILTER PAPER

E. H. Dauriger, Wurttemberg, Hamburg,	4 cs.
H. Reeve Angel & Co., Rotterdam, Rotterdam,	6 cs.

### EMERY PAPER

E. Dietzgen & Co., Chicago, Havre,	19 cs.
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### PRINTING PAPER

B. F. Drakenfeld & Co., Celtic, Liverpool,	9 cs.
C. Steiner, Wurttemberg, Hamburg,	5 cs.
H. Lindenmeyr & Sons, Menominee, London,	19 cs.

### PACKING PAPER

Birn & Wachenheim, Noordam, Rotterdam,	24 cs.
Int'l Acceptance Bank, Stavangerfjord, Kristiania,	162 bls.
Int'l Acceptance Bank, by same,	75 rolls.
Irving Nat'l Bank, by same,	223 rolls.
Nat'l Bank of Commerce, by same,	9 bls.

### WRAPPING PAPER

M. O'Meara Co., Stureholm, Gothenburg,	157 rolls.
M. O'Meara Co., by same,	730 rolls.
Diem & Wing Paper Co., by same,	8 rolls.
C. K. MacAlpine, by same,	216 rolls.
C. K. MacAlpine, by same,	105 bls.
Arkell Safety Bag Co., by same,	2 rolls.
Arkell Safety Bag Co., by same,	460 rolls.
Coy Hunt Co., by same,	39 rolls.
M. M. Cohen, by same,	389 rolls.
M. M. Cohen, by same,	134 bls.
F. C. Strype, by same,	20 bls.
Peoples Trust Co., by same,	12 bls.
Peoples Trust Co., by same,	2,199 rolls.

H. Lindenmeyr & Sons, by same,	766 rolls.
H. Lindenmeyr & Sons, by same,	97 bls.
P. Garvan, by same,	27 bls.
Brown Bros., by same,	49 bls.
Atlantic Nat'l Bank, by same,	379 rolls.
D. S. Walton & Co., by same,	4,034 rolls.
D. S. Walton & Co., by same,	753 rolls.
D. S. Walton & Co.,	151 bls.
Ladenburg Thalman & Co., Bradford City, Ham-	burg, 7 cs.
Irving Nat'l Bank, Londonier, Antwerp,	44 bls.

### NEWS PRINT

Nat'l Bank of Commerce, Stavangerfjord, Kris-	tiania, 369 rolls.
F. A. Munsey & Co., Sorland, Hango,	961 rolls.
Parsons & Whittemore, by same,	381 bls.
Irving Nat'l Bank, by same,	30 rolls.
Agar Bernsson Corp., Bradford City, Hamburg,	375 rolls.
Chemical Nat'l Bank, by same,	540 rolls.
Hudson Trading Co., Mt. Clinton, Hamburg,	100 bls.
Hudson Trading Co., Georgian, Hamburg,	111 bls.
Hudson Trading Co., by same,	148 rolls.

### PAPER

P. C. Zuhlke, Lapland, Antwerp,	30 cs.
Kern Com'l Co., Rotterdam, Rotterdam,	61 cs.
Irving Nat'l Bank, Wurttemberg, Hamburg,	7 cs.
Hensel, Bruckman & Lorbacher, by same,	5 cs.
Berger & Wirth, by same,	7 cs.
American Express Co., Phoebeus, Marseilles,	23 cs.
A. Bleyer & Co., Sorland, Hango,	209 bls.
Japan Paper Co., Vesuvio, Genoa,	31 cs.
P. C. Zuhlke, Kroonland, Antwerp,	72 cs.
Pitt & Scott, La Lorraine, Havre,	4 cs.
Judson Freight Forward'g Co., by same,	9 cs.
Stern Bros., by same,	6 cs.

### RAGS, BAGGINGS, ETC.

W. Hughes & Co., Noordam, Rotterdam,	241 bls. paperstock.
Castle, Gottheil & Overton, Inkum, London,	59 bls. rags.
Castle, Gottheil & Overton, by same,	2 bls. new-cuttings.
Guaranty Trust Co., Kroonland, Antwerp,	162 bls. flaxwaste.
Guaranty Trust Co., Celtic, Liverpool,	77 bls. rags.
Brown Bros. & Co., by same,	8 bls. cottonwaste.
E. J. Keller Co., Inc., by same,	1 bl. flaxwaste.
B. D. Kaplan & Co., by same,	301 bls. rags.
Mutnick Bros., by same,	163 bls. rags.
Albion Trading Co., by same,	23 bls. rags.
J. B. Morris & Co., by same,	180 bls. hidecuttings.
Amer. Exchange Nat'l Bank, Londonier, Ant-	werp, 36 bls. flaxwaste.
Guaranty Trust Co., by same,	4 bls. rags.
F. W. Frost & Co., Eg. Castle, Shanghai,	126 bls. cottonwaste.
R. F. Downing & Co., Montana, London,	21 bls. rags.
Salomon Bros. & Co., Phoebeus, Genoa,	84 bls. cottonwaste.
Ladenburg Thalman & Co., by same,	149 bls. cottonwaste.
E. J. Keller Co., Bradford City, Hamburg,	7 bls. rags.
Castle, Gottheil & Overton, by same,	40 bls. rags.
P. Berlowitz, by same,	222 bls. rags.
L. H. Abenheimer, by same,	850 bls. rags.
Parsons & Whittemore, by same,	1,250 bls. rags.
E. Butterworth & Co., Balsam, Belfast,	25 bls. paperstock.
J. Spunt & Co., Moorish Prince, Shanghai,	260 bls. cottonwaste.
Albion Trading Co., Virgilia, London,	41 bls. rags.
E. J. Keller Co., Inc., Potomac, Bremen,	34 bls. rags.
E. J. Keller Co., Inc., Pen. State, Bremen,	88 bls. rags.
E. J. Keller Co., Inc., Dallas, Hamburg,	200 bls. rags.
E. J. Keller Co., Inc., Dallas, Hamburg,	162 bls. bagging.
E. J. Keller Co., Inc., Rochambeau, Havre,	36 bls. rags.
E. J. Keller Co., Inc., Chickasaw, Hamburg,	55 bls. flaxwaste.
Mutnick Bros., Galileo, Hull, 28 bls. rags.	
Castle, Gottheil & Overton, Galileo, Hull,	73 bls. rags.

Stone Bros. & Sherwin, Chicago, Havre,	120 bls. rags.
Allison Trading Co., Chicago, Havre,	18 bls. rags.

### OLD ROPE

E. J. Keller Co., Inc., Rotterdam, Rotterdam,	79 coils.
International Purchasing Co., Boston City, Bris-	tol, 88 coils.
International Purchasing Co., Galileo, Hull,	271 coils.
American Express Co., Chicago, Havre,	352 coils.
Phelps Bros., Emilia, Trieste,	69 coils.
E. J. Keller Co., Inc., Noordam, Rotterdam,	324 coils.
E. J. Keller Co., Inc., Kroonland, Antwerp,	127 coils.
Atlantic National Bank, Londonier, Antwerp,	142 coils.
Atlantic National Bank, Londonier, Antwerp,	15 bls.

### WOOD PULP

Tidewater Paper Mills Co., Evelyn Wilkie, Liver-	pool N. S., 5,540 bales, 554 tons.
E. M. Sergeant Co., Stavangerfjord, Kristiania,	1,530 bales.
A. J. Pagel & Co., Inc., by same,	300 bales.
First Nat'l Bank of Boston, by same,	200 bales.
J. Anderson & Co., by same,	1,110 bales.
American Wood Pulp Corp., Wurttemberg,	Hamburg, 3,150 bales, 637 tons.
Hudson Trading Co., Sudbury, Hamburg,	488 bales.
Lagerloef Trading Co., Sorland, Hango,	55 rolls wood pulp boards, 2,635 bls. wood pulp boards, 25 tons.
Hudson Trading Co., Shierholm, Gothenburg,	467 bls. wood pulp.

### WOOD FLOUR

B. L. Loherski, Stavangerfjord, Kristiania,	726 bags.
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## PHILADELPHIA IMPORTS

WEEK ENDING APRIL 1, 1922

Dill & Collins, Sw. Miller, London,	366 bls. Waste paper.
H. Reeve Angel & Co., Sorland, Hango,	70 bls. writing paper.
Phila. Nat'l Bank, by same,	68 bls. writing paper.
Pulp & Paper Trading Co., by same,	430 reels news print.
Canfield Paper Co., by same,	902 rolls printing paper.
Paper House of Pennsylvania, by same,	392 bls. printing paper.
Paper House of Pennsylvania, by same,	1,574 rolls printing paper.
W. Larzalere, Lapland, Antwerp,	1,198 rolls wall paper.
E. J. Keller Co., Inc., Chappaqua, Hamburg,	986 bls. rags.
Castle, Gottheil & Overton, E. Soldier, Rotter-	dam, 784 bls. rags.
Castle, Gottheil & Overton, Mackinaw, Ham-	burg, 24 rolls news print.

## BOSTON IMPORTS

WEEK ENDING APRIL 1, 1922

J. Anderson & Co., Stureholm, Gothenburg,	500 bls. wood pulp.
Scandinavian Amer. Lead Co., by same,	2,262 bls. wood pulp.
M. Gottesman & Co., Inc., by same,	500 bls. wood pulp.
A. J. Pagel & Co., Inc., by same,	3,500 bls. wood pulp.
H. Borregaard Co., by same,	1,975 bls. wood pulp.
Foreign Paper Mills, Inc., by same,	1,380 reels news print.
Foreign Paper Mills, Inc., by same,	166 bls. news print.
Safepack Mills, by same,	2 rolls wrapping paper.
E. J. Keller Co., Inc., Themisto, Hamburg,	98 bls. rags.

(Continued on page 60)





## Genuine Jenkins

To their correct design and to the supreme care used in making them may be attributed the unvarying dependability of Jenkins Valves.



For more than half a century, Jenkins Valves have set the standard by which other valves are judged.

Valves of brass, iron, and steel in types and sizes for power plants, plumbing, heating, and industrial service.

So you may avoid imitation, genuine Jenkins Valves carry the Jenkins "Diamond" and signature cast on the body.

Jenkins Valves—supply houses everywhere.

Fig. 106. Jenkins Standard Brass Globe Valve.

JENKINS BROS.

New York Chicago Philadelphia Boston  
Montreal London



EVERYTHING IN

## PULP & PAPER

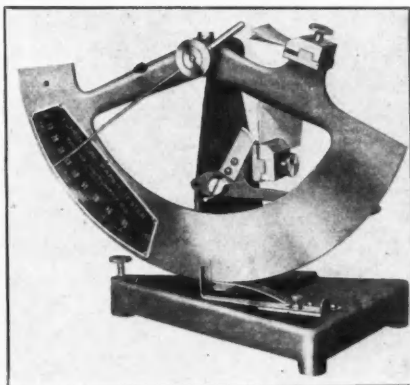
J.F. PATTON CO., INC.

342 Madison Ave.  
New York City

(Cable address - Pulp, N.Y.)



## ELMENDORF PAPER TESTER



**DETERMINES  
PAPER  
QUALITY**

THWING INSTRUMENT CO.

3341 Lancaster Ave. PHILADELPHIA  
New York Office, 47 W. 18th St.

## 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.

## New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL.  
WEDNESDAY, April 5, 1922.

It will be remembered that a tortoise won a historical race with a hare once upon a time. The moral of that momentous race should give considerable encouragement to the paper industry in general and to the New York market in particular, where progress is surely quite slow enough to be victorious and enduring. Although there was little change in the general financial condition during the last month, an advance of some four points was scored by the Federal Reserve Board against the index number of wholesale prices, indicating basic improvement. Credit has relaxed slightly and along with other factors higher prices for agricultural products have operated to bring about a slight betterment in domestic circles. Steadily a firm foundation is being relaid for business. No pre-war normalcy will be visible until international trade is again moving freely on a large scale, nor until worldwide industry is once more on a competitive basis. When the awaited day arrives the wholly healed economic sores will again permit the body of manufacture and trade to so function that the debtor nations will regain their feet and by meeting their obligations greatly strengthen the entire fabric of business. The coal situation draws little attention from paper interests. The large companies are well supplied for several months, and a long strike period is not anticipated. The administration shares the disinterest and intends to interfere only in the eventuality of violence. The more pessimistically inclined paper men are now inclined to see the turning point ahead and better feeling is more common in all quarters.

The condition of news print continues to encourage the trade. Consumption is greater than last year by far and production is less, so that the usual surplus should be lacking in volume and importance. The market is gaining steadily in strength, and if the present movement is maintained stocks at mills will soon be as low as in 1920, when a very active demand was precipitated. The consumption for the current year bids fair to exceed that of any year, so before long mill production should be at capacity and should permit of some profit-taking once more. It is well that the march of consumption is forward, for news print selling at \$70 a ton manufactured under present conditions actually represents a loss when checked up against all costs, including overhead. 82,482 tons of news print were imported in January this year against 69,448 tons in January, 1921. Exports in January of this year were 2,537 tons as against 2,247 tons in January, 1921.

Movement of book paper is rather sluggish still, but at the bottom of things are much firmer and feeling is more confident and optimistic. Salesmen find that orders are to be had upon the expenditure of an extra effort, but not in any great volume in any case. The schedule of prices is steady. Book paper mills are becoming more active, yet there is still opportunity for improvement which will permit of selling prices fair to manufacturer and consumer alike.

The general trend of the fine paper market is forward, but a more or less spotty condition prevails, first allowing a rather encouraging week and then showing a falling off in sales. The hand-to-mouth demand is in great disfavor with the mills, and ideal conditions will not be attained until more confidence is established and contracts are renewed. The cheaper grades of sulphite bonds are most popular and apparently are satisfying the demand for a less costly product.

Tissue is very quiet, apparently resting after the comparatively energetic production of January and February. For a part of those two months it was difficult to obtain a car of tissue, but the artificially created demand could not hold, and listlessness has come for another stay which it is hoped will be temporary.

Kraft shows little change. The demand continues steady and is in sufficient volume to account for the production of some of the

large mills for several weeks in advance. The kraft market was one of the first to recover from the worst of the depression and has been able to allow manufacturers a fair return for some time. Capacity production is essential for the economic operation of paper mills where the overhead is an all-important factor, and the kraft department has been more fortunate than other branches in being able to keep busy most of the time.

Board is dull. The demand is best for folding boxboard and a revival of interest on the part of merchandisers gives legitimate rise to the belief that fundamental conditions are getting better. Mills are not operating at capacity and some are still shut down. Prices are fairly steady and any revision is expected to be downward.

### Mechanical Pulp

No change has been registered during the week in the mechanical pulp line. The demand is light and handled easily by the increasing stocks of pulp at the grinder plants. Prices show no change, but lack firmness, and a tendency to shade them is present when sufficient pressure is brought to bear by the consumers.

### Chemical Pulp

Chemical pulp is just barely able to hold what advance it has made without revealing any very startling activity. The demand is light and apparently hampered by high freight schedules. Lower rates are promised the trade and should assist greatly in breaking the comparative isolation in which the distant points find themselves as regards large shipments. Improvement is looked for and price changes are not liable to be of much consequence until fall.

### Old Rope and Bagging

The interest in old rope and bagging is fair, but orders of sufficient volume to permit of much profit are almost wholly lacking. Inquiries from the mills are encouraging and indicate that a goodly amount of business is standing in the offing, ready to become a factor when a little more confidence is generated.

### Waste Paper

Waste paper is only moderately active with a temporary lull resting on the market. Small margins of profit allowed are not conducive to the expenditure of much energy in collecting and barely compensate for the cost involved. No great quantity of over issue news is on the market and so the commodity is fairly strong. A tendency to hold out for the selling price offered is becoming more apparent among dealers and indicates more confidence and returning strength.

### Rags

The rag market is ragged and spotty. Prices quoted mean very little and dealers are at a loss to understand the almost total lack of interest on the part of those who are usually in the market. Inquiries continue in fair number and some betterment is anticipated as the mills are running better.

### Twine

Twine is firmer and markedly better than at the same time last year. Dealers are encouraged by the showing and expect the slow expansion of better feeling to continue.

## High Water in Connecticut Closes Mills

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., April 3, 1922.—High water in the Connecticut River necessitated the closing down of some of the paper mills on the third level canal during the past week. The water reached its highest mark on Thursday night, when 8.7 feet of water were flowing over the Holyoke dam.

The Windsor paper mill at Windsor Locks, Conn., was obliged to shut down during the past week because of high water. The water backed up on mill wheels, curtailing the power. The Connecticut River rose to a height of 14 feet during the week.

# Market Quotations

## Paper Company Securities

New York Stock Exchange closing quotations April 4, 1922:

STOCKS.	BID.	ASKED.
American Writing Paper Company, pref.	27 1/2	29
International Paper Company, com.	46	46 1/2
International Paper Company, pref., stamped.	66	66 1/2
Union Bag & Paper Corporation.	61	61 1/2

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
Tube Sized	10	@ 16
Engine Sized	9.00	@ 15.00
New—f. o. b. Mill—		
Rolls, contract	3.50	@ —
Rolls, transit	3.50	@ 3.75
Sheets	4.00	@ —
Side Runs	3.25	@ 3.50
Book, Cased—f. o. b. Mill		
S. & S. C.	6.70	@ 7.50
M. F.	6.00	@ 7.25
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	@ 7.25
No. 2 Domestic	5.75	@ 6.50
Imported	5.75	@ 6.00
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	5.25	@ 5.50
Common Bogus	1.75	@ 2.25
Card Middies	4.00	@ 5.00
Boards—per ton—		
News	37.50	@ 45.00
Straw	40.00	@ 45.00
Chip	36.50	@ 40.00
Binders Board	60.00	@ 70.00
Sgl. Mla. Ll. Chip	57.50	@ 65.00
Wood Pulp	75.00	@ 90.00
Container	65.00	@ 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	34.00	@ 36.00
(F. o. b. Pulp Mills.)		
No. 1 Domestic	29.00	@ 31.00
Chemical Pulp		
(Ex-Dock, Atlantic Ports.)		
Sulphite (Imported)—		
Bleached	4.25	@ 5.00
Easy Bleaching	3.00	@ 3.25
No. 1 Strong unbleached	2.75	@ 3.00
No. 2 Strong unbleached	2.50	@ 2.75
No. 1 Kraft	2.75	@ 3.00
Sulphate—		
Bleached	4.00	@ 4.25
(F. o. b. Pulp Mill.)		
Sulphite (Domestic)—		
Bleached	4.15	@ 5.00
Strong unbleached	2.50	@ 3.00
Easy Bleaching		
Sulphite	2.50	@ 3.25
News Sulphite	2.25	@ 2.75
Mitscherlich	3.25	@ 3.50
Kraft (Domestic)	2.50	@ 3.00
Soda Bleached	3.75	@ 4.00

Domestic Rags	New	Prices to Mill, f. o. b. N. Y.
Shirt Cuttings—		
New White, No. 1	9.75	@ 10.00
New White, No. 2	6.00	@ 6.50
Silesias, No. 1	6.00	@ 6.50
New Unbleached	8.50	@ 9.00
Washables	3.25	@ 3.50
Fancy	4.50	@ 5.00
Cottons—according to Grades—		
Blue Overall	5.75	@ 6.00
New Blue	4.00	@ 4.50
New Black Soft	3.25	@ 3.50
New Light Seconds	2.75	@ 3.00
O. D. Khaki Cuttings	3.25	@ 3.50
Men's Corduroy	2.50	@ 2.75
New Canvas	6.50	@ 7.00
New Black Mixed Old	2.75	@ 3.25
White, No. 1—		
Repacked	5.75	nominal
Miscellaneous	4.50	nominal
White No. 2—		
Repacked	3.00	nominal
Miscellaneous	2.25	nominal
St. Soiled White	1.50	nominal
Thirds and Blues—		
Repacked	1.50	nominal
Miscellaneous	1.10	nominal
Black stockings	2.15	nominal
Cloth Strippings	1.05	nominal
No. 1	1.10	nominal
No. 2	.90	nominal
No. 3	.70	nominal
No. 4	.70	nominal
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		
New Dark Cuttings	1.90	@ 2.10
No. 1 White Linens	9.50	@ 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	2.25	nominal
Ord. Light Prints	1.75	nominal
Med. Light Prints	1.50	nominal
Dutch Blue Cottons	2.10	nominal
German Blue Cottons	1.65	nominal
Ger. Blue Linens	3.50	nominal
Checks and Blues	1.50	nominal
Dark Cottons	1.10	nominal
Shoppety	.95	@ 1.00
French Blues	2.00	nominal
Bagging		
Prices to Mill f. o. b. N. Y.		
Gunny No. 1—		
Foreign	.75	@ .80
Domestic	.75	@ .80
Wool Tares, light	1.20	@ 1.30
Wool Tares, heavy	1.25	@ 1.40
Bright Bagging	1.00	@ 1.10
No. 1 Scrap	.90	@ 1.00
Sound Bagging	.75	@ .85
Manila Rope—		
Foreign	4.50	@ 4.75
Domestic	4.75	@ 5.00
New Bu Cut.	2.00	@ 2.15
Hessian Jute Threads—		
Foreign	4.25	@ 4.50
Domestic	4.60	@ 4.25
Mixed Strings	.90	@ 1.00
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		
Fly—		
No. 1	22	@ 23
No. 2	30	@ 31
Tube Rope—		
4-ply and larger	14	@ 1c
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	3.00	@ 3.25
Soft, White No. 1	3.00	@ 3.10
Flat Stock—		
Stitchless	1.50	@ 1.60
Over Issue Mag.	1.50	@ 1.60
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.10	@ 1.15
Solid Book Ledger	2.00	@ 2.25
Ledger Stock	1.60	@ 1.65
No. 1 White News	1.50	@ 1.60
New B. B. Chips	.47 1/2	@ .52 1/2
Manilas—		
New Env. Cut	2.75	@ 2.90
New Cut No. 1	1.40	@ 2.00
Extra No. 1, Old	1.60	@ 1.70
Print	.90	@ 1.00
Container Board	.70	@ .80
Bogus Wrapper	.55	@ .60
Old Krafts, machine compressed		
Bales	1.85	@ 2.00
News—		
Strictly Overissue	.75	@ .85
Strictly Folded	.60	@ .65
No. 1 Mixed Paper	.50	@ .52 1/2
Common Paper	.35	@ .40

## CHICAGO

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 Bond	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
Book	6 1/4	@ 7 1/4
Coated Book	8 1/4	@ 10 1/4
Coated Label	8 1/4	@ 10 1/4
News—Rolls, mill.	3 1/2	@ 4 1/2
News—Sheets, mill	3 1/4	@ 4 1/4
No. 1 Manila	5 1/2	@ 6
No. 1 Fiber	5	@ —
No. 2 Manila	4 1/2	@ —
Butchers' Manila	4	@ —
No. 1 Kraft	7	@ —
No. 2 Kraft	6	@ —
Wood Tag Boards	4	@ —
Screenings	2 1/2	@ —
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

Old Papers		
Shavings—		
No. 1 Hard White	3.00	@ 3.25
No. 1 Soft Shav.	2.50	@ 2.75
No. 1 Mixed	1.00	@ 1.10
No. 2 Mixed	1.00	@ 1.10
White Envel. Cuttings	3.25	@ 3.50
Ledgers and Writings	1.50	@ 1.75
Solid Books	1.25	@ 1.50
No. 1 Books, light	.90	@ 1.00
Blanks	1.65	@ 1.75
Ex. No. 1 Manila	1.90	@ 2.00
Manila Envelope	2.00	@ 2.25
Cuttings	1.20	@ 1.30
No. 1 Manilas	1.20	@ 1.30
Folders News (over issue)	.85	@ .90
Old Newspaper	.80	@ .85
Mixed Papers	.70	@ .75
Straw Clippings	.70	@ .75
Binders Clippings	.70	@ .75
Kraft	1.75	@ 2.00
New Kraft Cuts	2.00	@ 2.25
Roofing Stock, f. o. b. Chicago, Net Cash—		
No. 1	27.00	@ —
No. 2	25.00	@ —
No. 3	23.00	@ —
No. 4	23.00	@ —

## PHILADELPHIA

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 1/2	@ .08
No. 1 Kraft	—	@ .08 1/2
No. 1 Kraft	—	@ .09 1/2
Common Bogus	.02 1/2	@ .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)		
Best Tarred, 1-ply	1.35	@ 1.50
Best Tarred, 2-ply (per roll)	1.00	@ 1.15
Best Tarred, 3-ply	1.50	@ 1.65
Bagging		
F. o. b. Phila.		
Gunny No. 1—		
Foreign	.75	@ —
Domestic	.70	@ —
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 Lt.		
Burlap	.75	@ .84
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 62)



## Imports and Exports of Paper and Paper Stock

(Continued from page 56)

### BALTIMORE IMPORTS

WEEK ENDING APRIL 1, 1922

E. J. Keller Co., Inc., Vaudin, Bordeaux, 880 bls. rags.  
E. J. Keller Co., Inc., Gorredyk, Rotterdam, 1,143 bls. rags.  
E. J. Keller Co., Inc., Eastern Sea, Antwerp, 1,000 bls. wood pulp.  
C. L. Robinson, Stureholm, Gothenburg, 1,000 bls. wood pulp.  
Scandinavian Amer. Trading Co., by same, 3,786 bls. wood pulp.  
E. M. Sergeant Co., by same, 1,750 bls. wood pulp.  
M. Gottesman Co., Inc., by same, 1,000 bls. wood pulp.  
A. J. Fagel & Co., Inc., by same, 3,500 bls. wood pulp.

The Borregaard Co., by same, 1,500 bls. wood pulp.  
Irving Nat'l Bank, by same, 326 reels paper.  
Irving Nat'l Bank, by same, 90 bls. paper.

### NEW ORLEANS IMPORTS

WEEK ENDING APRIL 1, 1922

Hudson Trading Co., E. Hugo Stinnes, Hamburg, 441 rolls news print.  
New Orleans Item Co., Stureholm, Gothenburg, 88 rolls news print.  
C. L. Robinson, by same, 240 rolls news print.  
Canal Com'l Trust & Savings Bank, by same, 82 cs. paper.  
Canal Com'l Trust & Savings Bank, by same, 1,441 reels wrapping paper.  
E. Naumburg & Co., by same, 815 reels wrapping paper.

Atlanta Paper Co., by same, 922 reels wrapping paper.  
Atlanta Paper Co., by same, 655 rolls wrapping paper.  
Atlanta Paper Co., by same, 22 bls. wrapping paper.  
Southern Paper Co., Ltd., by same, 35 bls. wrapping paper.  
Southern Paper Co., Ltd., by same, 1,885 reels wrapping paper.  
R. G. de la Fuente, by same, 700 bls. wood pulp.  
E. J. Keller Co., Inc., Einfeld, Hamburg, 506 bls. bagging.  
E. J. Keller Co., Inc., Emergency Aid, Bremen, 440 bls. rags.

### GALVESTON IMPORTS

WEEK ENDING APRIL 1, 1922

Hudson Trading Co., Afel, Hamburg, 326 reels news print.

## SLOW BUT STEADY EXPANSION IN TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ont., April 3, 1922.—Business in the paper line continues to pick up slowly but steadily and each week sees greater confidence manifested and more orders placed, although the latter are for the most part small in volume and wanted at once. There is a disposition on the part of numerous purchasers to ask for delivery as soon as possible and they can not as yet be induced to give bookings calling for shipments at some future rate. Stocks for the most part are low. Generally speaking, conditions in the industry are on a much better footing than they were a year ago, but recovery is a rather slow process and the return to normal conditions is not accomplished in a few weeks. However, things are now headed in the right direction. There have been no price changes and it is reported no further alteration in quotations are likely to occur for many weeks. Manufacturing stationers and envelope makers report that trade is improving and the outlook is getting brighter.

### Barber-Ellis Erecting New Warehouse

Barber-Ellis, Limited, are erecting a new warehouse on Adelaide street west, near Spadina avenue. The building will be four stories high, with basement, and contains several thousand square feet. The company expects to remove from its present premises, 71 Wellington west, to its new home in July next. John F. Ellis, the veteran head of the company, who is a former president of the Canadian Paper Trade Association, says that the envelope and stationery factories of the firm in Brantford and Winnipeg are fairly busy at the present time and business is improving right along.

### Much Pulpwood Being Shipped

The Thompson & Heyland Lumber Company, extensive dealer in pulpwood which is shipped to the Niagara district, New York, Pennsylvania and other states; has purchased about forty thousand cords this season and over twenty-five thousand cords have already been shipped. The firm is sending out about fifteen carloads each day from Northern Ontario and has bought wood as far north as seven hundred miles from Toronto. The price paid for spruce and balsam peeled is from nine to eleven dollars, while rossed wood is commanding from one to two dollars more per cord. There is very little demand for poplar. All the wood along the tracks on the Temiskaming and Northern Ontario railway and the National Transcontinental line in Ontario is being shipped out rapidly, although large quantities are reported to be alongside the rails in eastern Quebec. It is thought the demand for pulpwood will pick

up considerably during the coming season owing to the mills which had large surplus stocks on hand, getting busier and using up their available supplies.

### Big Decrease in Lumber Cut

The lumber and pulpwood cut in Ontario fell off perceptibly during the past season. In 1921 the cut in the Georgian Bay and Northern Ontario district was 485,253,651 feet, a decrease of 104,403,865 from the corresponding period of 1920. In the Ottawa Valley the total lumber cut in 1921 was 236,660,764 feet as compared with 273,825,631 in 1920 and 297,950,350 in 1919. Lumber prices during the past year decreased on the average from 30 to 60 per cent and many operators have considerable of last year's stock in their yards. The general opinion of the larger manufacturers is that there will be a steady and gradual improvement during the coming season, with prices ruling about the same figure as at present. The mills are reducing the wages of both their skilled and unskilled help.

### Kraft Paper in Active Call

The Hodge-Sherriff Paper Company of Toronto, extensive distributor of kraft paper, reports that March was the best month it has had in the past year and a half. The plant of the Wayagamack Pulp and Paper Company at Three Rivers, Que., is running five machines to capacity. Mr. Sheriff says that all business allotted is desired in a hurry and it is difficult to get consumers to place orders ahead for their deliveries. Prices on kraft papers are holding firm and the Canadian market is very satisfactory.

### Veteran Paper Salesman Retires

Joseph Taylor, for many years a salesman with the Canada Paper Company, Toronto, who retired from the road a few months ago, has returned to Toronto after spending some time amid the scenes of his boyhood in Yorkshire, Eng. He is being welcomed back by many friends and will make his home in Toronto.

### Closing Meeting of Forestry Club

The students of the fourth year attending the Faculty of Forestry, University of Toronto, have a club which meets regularly and is addressed by leading authorities. The closing meeting, held recently, was addressed by C. Nelson Gain, sales manager of the Don Valley Paper Mills, Toronto, who gave an instructive and illustrated address on the manufacture of pulp and paper in which he showed the close relationship between the forests and the pulp and paper industry of the province.



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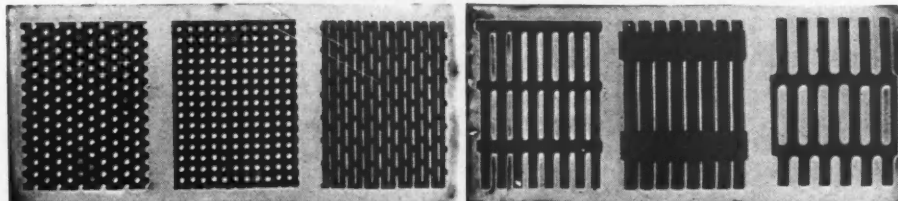
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# Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,  
WEDNESDAY, April 5, 1922.

**BLEACHING POWDER.**—While the quantity of bleach consumed by the paper mills is larger than at this time last year, there is still a slack demand more or less accentuated by the textile strikes. The price is lower at 1.65 to 1.75 cents a pound for the domestic.

**BLANC FIXE.**—Movement of blanc fixe is steady but light, with a restricted demand from the paper mills. While activity is growing continually, pre-war normalcy is not anticipated by the conservative faction of the trade for a few years yet. Blanc fixe pulp is quoted at \$40 to \$50 a ton, and powdered blanc fixe is quoted at 3.50 to 3.75 cents a pound.

**CASEIN.**—The market in casein is strong on account of the moderate supply just about balancing the light demand. Arrivals have been so light for some time that the price has been kept at a higher level than would have been occasioned otherwise. Casein is now quoted at 9.50 to 10.00 cents a pound.

**CAUSTIC SODA.**—The caustic soda spot market is much firmer due to the increased export demand. It is expected that domestic mills will require a large tonnage this year. Caustic is now quoted at 3.25 cents a pound contract.

**CHINA CLAY.**—Dealers in china clay are very optimistic for the future, since a slightly stronger demand from the mills already indicates that operations have improved. Domestic unwashed sells at \$6 to \$8 a net ton, washed at \$8 to \$10, and imported at \$13 to \$18.

**LIQUID CHLORINE.**—The demand for liquid chlorine is steady and increasing slightly. It is quoted at 5.50 to 7.00 cents a pound, in 100-pound cylinders, depending upon quality. Consumers using large quantities can obtain reduced prices.

**ROSIN.**—The rosin market shows some improvement, with a better showing from the foreign demand. Grades E, F, and G are still quoted at \$5.35 a pound at New York. Price is fairly steady and indications are that revision will be very slight for some time.

**SALTCAKE.**—The movement of saltcake is more active and in goodly volume under the influence of better demand from the glass trade and some improvement in the inquiries from the paper mills. Chromecake is now quoted at \$18 a ton and acidcake at \$20 to \$21.

**SATIN WHITE.**—Small lots of satin white to fill depleted stocks are most in demand. Stocks are kept low in expectation of firmer prices that it is hoped will be forthcoming soon. The price is 2.10 cents a pound slightly shaded in second hands.

**SULPHUR.**—The sulphur trade is livening up with the general betterment in underlying economic conditions and is soon expected to approach a normal demand from the paper industry, where more mills are in operation and where a better feeling exists than formerly. Sulphur is quoted at about \$15 to \$16 a net ton at the mines and \$18 to \$19 f. o. b. New York. The supply of sulphur is perhaps larger than at any time since production continued steadily throughout the depression in most quarters, for to shut down even temporarily necessitates a great loss with the present hot water system of mining.

**STARCH.**—The starch market is fairly active, with tendency toward improvement, if any change at all may be noted. Prices are firm, with bags quoted at 2.22 cents a pound and barrels at 2.50 cents a pound carload quantities.

**SULPHATE OF ALUMINA.**—The mills are consuming about the same volume of this commodity as for some time with a slightly firmer feeling apparent in general. The commercial grade sells at 1.40 cents a pound and the iron free at 2.00 to 2.25 cents a pound, depending upon packing and quantity.

**SODA ASH.**—Soda ash is quiet, with the consuming demand still steady and light. It is quoted at 1.50 cents a pound, in bags, at the works.

# Market Quotations

(Continued from page 59)

Solid Ledger Stock	2.00	@	2.25
Writing Paper	1.80	@	2.00
No. 1 Books, heavy	1.50	@	1.75
No. 2 Books, light	1.25	@	1.50
No. 1 New Manila	2.75	@	3.00
No. 1 Old Manila	1.50	@	1.75
Container Manila	1.00	@	1.10
Old Kraft	1.90	@	2.00
Overissue News	.75	@	.80
Old Newspaper	.50	@	.60
No. 1 Mixed Paper	.45	@	.50
Common Paper	.40	@	.50
Straw Board, Chip	.40	@	.45
Binders' Bd. Chip	.40	@	.45
Domestic Rags—New			
Price to Mill, f. o. b. Phila.			
Shirt Cuttings—			
New White, No. 1	.09 1/4	@	.09 3/4
New White, No. 2	.05	@	.06
Silesias, No. 1	.04 1/2	@	.05
New Unbleached	.08 1/2	@	.08 3/4
Washables	.03	@	.03 1/2
Fancy	.04 1/2	@	.05
Cottons—			
Blue Overall	.04	@	.04 1/2
New Blue	.02	@	.02 1/2
New Black Soft	.03	@	.03 1/4
New Light Sec-			
onds	.02	@	.02 1/4
Khaki Cuttings	.02 3/4	@	.03 1/4
Corduroy	.02	@	.02 1/2
New Canvas	.07	@	.07 1/2
New Black Mixed	2.75	@	3.00
White, No. 1—			
Repacked	.06	@	.06 1/4
Miscellaneous	.04 1/2	@	.04 3/4
White, No. 2—			
Repacked	.03	@	.03 1/2
Miscellaneous	.02 3/4	@	.02 1/2
Repacked	1.65	@	1.80
Miscellaneous	1.40	@	1.55
Black stockings	1.75	@	1.55
Roofing Stock—			
No. 1	.90	@	1.00
No. 2	.80	@	.90
No. 3	.70	@	.80
No. 4	.70	@	.80
No. 5A	nominal		nominal
B	nominal		nominal
C	nominal		nominal

## BOSTON

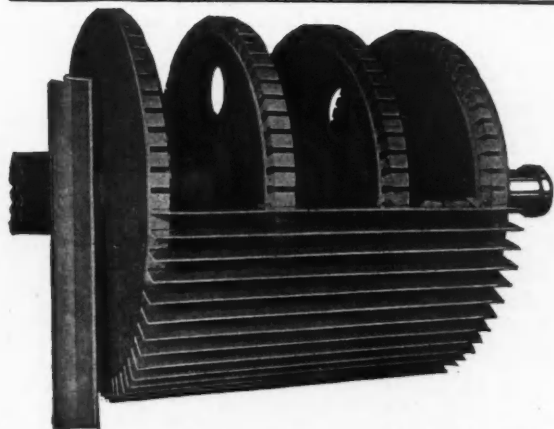
[FROM OUR REGULAR CORRESPONDENT.]

<b>Paper</b>			
Bonds	.07	@	—
Ledgers	.09	@	.09 1/2
Writings	.04 1/2	@	.05
Superfine	.12	@	.13
Fine	.10	@	.10 1/2
Books, S. & S. C.	.07	@	.07 1/2
Books, M. F.	—	@	.06 1/2
Books, coated	.07	@	.07 1/2
Label	—	@	.10
News sheets	3.75	@	—
News, rolls	.05	@	—
<b>Manilas—</b>			
No. 1 Manila	\$6.75	@	—
No. 1 Fibre	8.00	@	—
No. 1 Jute	8.50	@	9.00
Kraft Wrapping	7.00	@	—
Common Bogus	3.00	@	—
<b>Boards</b>			
(Per Ton Destination)			
Chip	\$35.00	@	—
News, Vat Lined	37.50	@	39.00
<b>Old Papers</b>			
Shavings—			
No. 1 Hard White	.04 1/2	@	.05
No. 1 Soft White	.03	@	—
No. 1 Mixed	—	@	.08
Ledgers & Writings	.03	@	—
Solid Books	—	@	\$1.35
Blanks	\$1.30	@	\$1.45
No. 2 Books Light	.60	@	.70
Folded News, over	—	@	\$11.50
issues	—	@	\$12.50
Mixed paper	.50	@	—
Gunny Bagging	.04	@	—
Manila Rope	.04	@	.04 1/2
Common Paper	8.00	@	—
Old News	.80	@	—
Old Kraft	1.75	@	—
Wood, Vat Lined	47.50	@	—
Filled News Board	37.50	@	—
Solid News Board	42.50	@	45.00
S. Manila Chip	52.50	@	—
Pat. Coated	70.00	@	75.00

## TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

<b>Paper</b>			
(Mill Prices to Jobbers f. o. b. Mill)			
<b>Bond—</b>			
Sulphite	11	@	12 1/2
Light tinted	12	@	13 1/2
Dark tinted	13 1/2	@	15
Ledgers (sulphite)	—	@	13
Writing	10 1/2	@	13 1/2
<b>News, f. o. b. Mills—</b>			
Rolls (carloads)	3.50	@	—
Sheets (carloads)	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
<b>Book—</b>			
No. 1 M. F. (carloads)	9.50	@	—
No. 2 M. F. (carloads)	8.50	@	—
No. 3 M. F. (carloads)	8.00	@	—
No. 1 S. C. (carloads)	10.00	@	—
No. 2 S. C. (carloads)	9.00	@	—
No. 1 Coated and litho	15.00	@	—
No. 2 Coated and litho	14.00	@	—
No. 3 Coated and litho	13.25	@	—
Coated and litho, colored	15.25	@	—
<b>Wrapping—</b>			
Green	4.75	@	—
White Wrap	5.25	@	—
"B" Manila	5.75	@	—
No. 1 Manila	7.50	@	—
Fibre	7.25	@	—
Kraft, M. F. or	—	@	—
M. G.	8.75	@	—
<b>Pulp</b>			
(F. o. b. Mill)			
Ground Wood	\$25.00	@	\$32.50
Sulphite easy bleaching	60.00	@	65.00
Sulphite, news grade	50.00	@	60.00
Sulphite bleached	90.00	@	95.00
Sulphate	70.00	@	—
<b>Old Waste Papers</b>			
(In carload lots, f. o. b. Toronto)			
<b>Shavings—</b>			
White Env. Cut.	4.00	@	—
Soft White Book	—	@	—
Shavings	3.15	@	—
White Bl'k News	1.70	@	—
<b>Book and Ledger—</b>			
Fiat Magazine and Book Stock	—	@	—
(old)	1.45	@	—
Light and Crumpled Book Stock	1.30	@	—
Ledgers and Writings	1.80	@	—
Solid Ledgers	1.80	@	—
<b>Manilas—</b>			
New Manila Cut	2.00	@	—
Printed Manilas	.90	@	—
Kraft	2.25	@	—
<b>News and Scrap—</b>			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	.60	@	—
<b>Domestic Rags—</b>			
Price to mills, f.o.b. Toronto			
Per lb.			
No. 1 White shirt cuttings	.09 1/4	@	.10
No. 2 White shirt cuttings	.05 1/4	@	.05 3/4
Fancy shirt cuttings	.05 1/4	@	.05 3/4
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02
Black stockings	1.75	@	1.85
Roofing stock	—	@	—
No. 1	1.25	@	—
No. 2	1.15	@	—
Roofing stock	—	@	—
Manila rope	.04 1/4	@	.04 1/2
No. 2	.01 1/4	@	—
Gunny bagging	1.00	@	1.25



## 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?

## The Lockport Felt

Use a Lockport *Cylinder Bottom* and *Top* combination for *Board* and watch your *Felt Cost*

ASK THE MEN WHO RUN THEM  
YOURS FOR SERVICE

**LOCKPORT FELT COMPANY**  
NEWFANE, N. Y.

## The John W. Higman Co.

29 Broadway New York City

**QUALITY  
CLAYS**

FOR ALL PURPOSES

ENGLISH AND AMERICAN

## Perforated Metal Screens

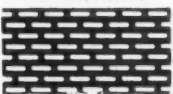
For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE  
and other Alloys

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



.065 Inch Round



1/2 x 1/2 Inch Slots

**CHARLES MUNDT & SONS**  
53-55 FAIRMONT AVE. JERSEY CITY, N. J.

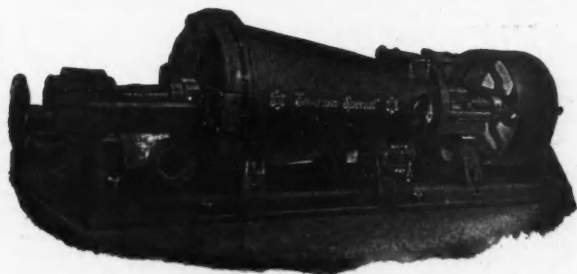
## PAPER MAKERS CHEMICAL CO. WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO  
JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE  
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

## 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



# 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**—A High Grade Master Mechanic for a Southern Pulp and Paper Mill. Address, Box 4921, care Paper Trade Journal. A-6

**EXPERIENCED MEN** in Paper Industry. Our confidential and personal service limited to the Pulp, Paper and Allied Trades. Can be of valuable assistance to you in locating desirable connections. Address, The Industrial Service Bureau, 1502 Monadnock Block, Chicago, Illinois. tf

**MACHINE TENDERS**, Rodgers Wet Machine. Married man preferred, also Digester Cooks. Address, Box 4938, care Paper Trade Journal. A-13

**WANTED**—Sales Agency for Pacific Coast Territory representing manufacturer of fine or Coarse Paper, Tissue, Waxed, or Paper Specialties, Distributing to Dealers or Consumers. Personal interview can be arranged immediately. Address, Box 4942, care Paper Trade Journal. A-13

**SALESMAN WANTED**—Familiar with Toilet Paper Market. Good salary to one who can produce results. State experience and salary expected by letter. Address, Sauquoit Toilet Paper Co., New Hartford, N. Y. A-20

**SALESMAN WANTED** by large mill for their Eastern Office. Must be experienced in selling high grade Cardboard, Coated and Plain; also Blanks, Tag and Postcard. Must have personality and thorough acquaintance among the Eastern Paper Jobbers and Converters. Correspondence strictly confidential; state full experience and compensation expected. Address, Box 4973, care Paper Trade Journal. A-13

**WANTED**—Beater Engineer, 90" Fourdrinier making Book. State experience, age, etc. Mill located near New York City. Address, Box 4974, care Paper Trade Journal. A-13

**PAPER SALESMAN**—Experienced, for New York and vicinity for a well known house. Handling Printing Papers. Salary and commission. Good proposition for the right man. Correspondence strictly confidential. Address, Box 4975, care Paper Trade Journal. A-13

**SPECIALTY MILL** wants superintendent with good conception of business, ability to develop ideas, and who is tactful and competent in handling help. A man familiar with cylinder and fourdrinier machines preferred. Applicant must state length of time in present position, experience fully, salary now receiving, and any other information that would be of interest to prospective employer. Address, Box 4976, care Paper Trade Journal. tf

**MACHINE TENDERS WANTED**—Two reliable machine tenders wanted. 90" Machine making Book and Writing Paper. 62 Cents per hour. Apply Howard Smith Paper Mills, Cornwall, Ontario, Canada. A-6

## SITUATIONS WANTED

**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

**SULPHATE PULP SUPERINTENDENT**—With proven ability for big production at lowest costs, desires position. Would consider offer from concern where production is below the average. Address, Box 4851, care Paper Trade Journal. A-6

**THE INDUSTRIAL SERVICE BUREAU** is prepared to assist you with your employment problems. Confidential intermediary service for the employer and employee of the pulp, paper and allied trades. Write or wire your requirements. 1502 Monadnock Block, Chicago, Ill. tf

**WANTED**—Position as Day or Night Ground Wood Superintendent. United States or Canada, by young man. Married man, twelve years' experience on all grades. Now employed. References. Address, Box 4943, care Paper Trade Journal. A-13

**EXPORT EXECUTIVE** with 17 years' activity in Paper Business here and abroad, thoroughly trained and experienced in Foreign Trade essentials, seeks managerial position with mill or exporter. Highest references. Permanent position wanted. Address, Box 4944, care Paper Trade Journal. A-6

**WANTED**—Position as Superintendent. Experienced on Rag and Wood Book and Bonds, Kraft and Sulphite light weight papers for twisting. Can give references. Address, Box 4945, care Paper Trade Journal. A-6

**SUPERINTENDENT** — Wants position, Ledger, Bonds, Writing, colored specialties, hanging. Practical. Can make your mill pay. Go anywhere. Best references. Address, Box 4888, care Paper Trade Journal. A-13

**SUPERINTENDENT**, now employed, desires to make change. Varied experience on all grades of box boards, container, etc. Best of references from past and present employers. Address, Box 4949, care Paper Trade Journal. A-13

**PRESS PAPER**, Counter and Insulating Board Maker desires position as foreman or beaterman. Capable of producing results. Address, Box 4952, care Paper Trade Journal. A-6

## WANTED: WOOD PULP

To the wood pulp dealer or importer. If you are looking for efficient sales representation, this advertisement should not fail to interest you. A man, thirty-eight years of age, of recognized ability in sales circles and a splendid acquaintance with paper mill trade, is open for sales connection handling broad line all grades wood pulp. Will consider salary or commission offer that guarantees steady traveling east and west. If you have responsible pulp connections, let me hear from you. All communications strictly confidential. Address, Box 4930, care Paper Trade Journal. A-30.

## SITUATIONS WANTED

**WANTED POSITION** — Superintendent; twenty-four years' experience making Book, Writing, Bond, Waxing and News. Knows how to handle help and build that old machine like new. Address, Box 4960, care Paper Trade Journal. A-6

**SALESMAN** in Chicago and Central States Territory desires good mill connection. Twelve years' successful experience selling jobbers, wholesale grocers, large printing, publishing and consuming trade. Have thorough knowledge of kraft, book papers, bag, coarse papers and boards. Can furnish best of references. Address, Box 4961, care Paper Trade Journal. A-6

**PAPER AND RAG STOCK MAN** wants position in Paper Mill or Conversion Plant or Grading House, as manager or superintendent. Now employed, but would like to make a change. Address, Box 4963, care Paper Trade Journal. A-6

**FIFTEEN YEARS'** diversified experience in the paper industry and naturally equipped with knowledge of paper such as would be an asset to your organization. Young man, 32 years of age, married, desires connection with mill or reputable jobber. Address, Box 4971, care Paper Trade Journal. A-13

**EXECUTIVE** with managerial ability, trained office manager, accountant and cost expert. Student of Waiton School of Accountancy, Alexander Hamilton Institute and Industrial Extension Institute; specially experienced in paper mill administrative problems, financial, cost and efficiency installations, seeks position of trust and responsibility. Highest references given. Address, E. J. B. P. O. Box 760, Cincinnati, Ohio.

**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

**MAN WITH EXECUTIVE ABILITY** desires position as Mill Manager. Years of experience in Paper Manufacturing. Expert in Sales, Purchasing, Cost, Accounting and Office supervision. Address, Box 4975, care Paper Trade Journal. A-20

**SUPERINTENDENT** open for position. Life experience, practical on cylinder, Fourdrinier, Yankee Bonds, Book, Waxing, Coating and Specialties. All grades of Boards, Straw, Fibres, Kraft. 7 years foreign experience, India and Japan. Middle aged. Will go anywhere. Address, Box 4979, care Paper Trade Journal. A-13

**TOILET AND TOWEL MFGRS. ATTENTION**—Philadelphia distributors with established trade desire connection with manufacturer of inter-leaved, oval or other special toilet paper and towel devices. Can carry stock and get results with suitable product. Address, Box 4980, care Paper Trade Journal. A-6

**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. A-13

**IMPORTANT OFFER**—Gentleman who has valuable personal connections with a number of European Paper and Specialty Mills (including control of several new machines making high grade light weight papers) and who already has an established trade in some of the lines made by these mills, seeks an opportunity to join young and progressive organization of high standing with a view of more efficient exploitation of these very profitable connections. Remuneration wanted commensurate only with results obtainable. Address, Box 4982, care Paper Trade Journal. A-6



**SITUATIONS WANTED**

**YOUNG LADY, ORDER CLERK**—Experienced on stock records and inventory. Good knowledge of purchasing; acquainted with mills, desires connection with mill agency or Wholesale House. Best references. Address, Box 4986, care Paper Trade Journal. A-6

**POSITION WANTED** by practical paper maker as superintendent, or will accept position as night boss in box board mill where production, quality and economy is required. Address, Box 4984, care Paper Trade Journal. A-20

**WANTED POSITION**—Was Plant Manager in News mill. Experienced in both manufacturing and accounting departments. Experience includes operation of Pulp and Paper Mill and general maintenance of plant. Address, Box 4985, care Paper Trade Journal. A-13

**WOOD PULP SALESMAN** seeks connection with wood pulp importer or domestic mill. Eight years' experience, large acquaintance with paper mills, familiar with imported and domestic brands. Salary secondary to opportunity to prove ability. Address, Box 4983, care Paper Trade Journal. A-6

**SALESMAN** with following among wholesale stationers and paper jobbers in New York City and Jersey City, desires permanent connection with reliable concern. Address, Box, 4987, care Paper Trade Journal. A-6

**SUPERINTENDENT - MANAGER** Wants position. Twenty years' experience on all grades paper. Expert on colors. Fourdrinier and cylinder machines. Best references. Address, Box 4988, care Paper Trade Journal. MA-18

**COST ACCOUNTANT** desires change. Fifteen years' practical experience steel and paper industries. Efficient office manager. Age 33. Married. Best reference. For further details Address Box 4991, care Paper Trade Journal. A-6

**SUPERINTENDENT, General Foreman,** or responsible office position, Envelope and Specialty Manufacturing, 18 years' practical experience, all branches. Familiar with costs and up-keep. Married, 38 years of age. Would like position. A-1 reference. Address, Box 4990, care Paper Trade Journal. A-6

**FOR SALE**

**FOR SALE: DRYERS**—5-60"x120" Dryers with bearings. A bargain. W. V. Sullivan, Call Bldg., San Francisco. tf

**STANDING PULPWOOD FOR SALE**—I have a fine lot of standing spruce, Balsam and Hemlock Pulp amounting from 40,000 to 50,000 cords well located in New York State. Will sell the whole or half interest and join in the operation. All communications will be treated as confidential. Address, Box 4967, care Paper Trade Journal. A-6

**ENVELOPE MACHINE**—Excellent operating condition. Sacrifice. Mr. Dudley, McCall Co., 236 West 37th St., New York City. A-6

**PRESSES (printing)**. Cottrell Rotary. Two No. 7 double colors. Six No. 7 single colors. Excellent operating condition. Sacrifice. Mr. Dudley, McCall Co., 236 West 37th St., New York City. A-6

**FOR SALE**—Paper machine reel 110" Face. Heavy pattern revolving reel for 4 drums. Marinette & Menominee Paper Co., Marinette, Wisconsin. tf

**FOR SALE**—Roofing and Saturating Machines, 72"x36" wide. Chilled steel rolls. Also Painter Mixing Machine, Grinders, etc. Address Box 4910, care Paper Trade Journal. tf

**FOR SALE**

**FOR SALE**—14 Calendar Rolls, 58" face, 3' 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

**COAL**—Moshannon and "E Seam" bituminous coals, low sulphur, low ash. Lowest freight rate east and north. Prices and freight rates will be furnished on request. Halden-Kelley Coal Company, 309 Market St., Clearfield, Pa. tf

**FOR SALE**—Calendar roll grinder, second hand Farrel Machine. Grinds roll 24" diameter by 136" face. Fairly good condition. Address, Box 4932, care Paper Trade Journal. A-6

**FOR SALE**—One New York Safety 5" x 8" vertical steam engine, 32" x 1 1/2" fly wheel. Pickering Governor. One Bank of 28" diameter, 80" face, set in two tiers, complete with top and bottom felt stretcher guides and carrying rolls in first class condition, with steam headers. Now in use. One two drum reel for 34" machine complete, now in use. One 10 plate, Harmon screen, complete with plates, driving pulley and three extra sets of plates. One Pope mullen screen, 10 plates, 12" x 42". One 36" Holyoke Machine plater. One 6" x 16" Holyoke Machine, horizontal, single plunger, belt driven, water pump. Address, Box 4989, care Paper Trade Journal. A-20

**FOR SALE**—One Stack Calendar, 62" face, 7 rolls, one 18", one 14 1/2" and five 12". Steel, bored, Pusey & Jones steam joints. Warren doctor, strictly modern. Made by Farrel Foundry and Machine Co. Used very little. Address, Strathmore Paper Co., Mittenague, Mass. A-6

**FOR SALE**

Box Board Mill, nearly new. Central New York State. Plenty land for expansion. Siding, water rights, small water power possibilities. All equipment first class. Well situated for raw materials and near a box making center.

Will consider sale outright or capital from responsible and experienced man. Address, Box 4955, care Paper Trade Journal. tf

**MISCELLANEOUS**

**WANTED**—8 plate open Packer Screen with or without plates. State lowest cash price. Mill Department, Rose Lithographic Corporation, 55-33rd Street, Brooklyn, New York. A-27

**WANTED**—A single Drum Winder suitable for Winding Tissue, about 72 inch face. Address, Box 4948, care Paper Trade Journal. A-13

**Classified Advertising BRINGS RESULTS**

**MISCELLANEOUS**

**PULP WANTED**—Will pay cash for any quantity Foreign Pulp on spot and to arrive. Send particulars with price. Address, Box 4832, care Paper Trade Journal. tf

**SWIFT, GEORGE W., JR.**, Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods. Bordentown, N. J. 1-1-24

Treasury Department, Office of the Secretary, Washington, D. C., March 30, 1922.

Sealed proposals will be received at this office until 11 o'clock A. M. Thursday, May 4, 1922, from manufacturers of bond, bank-note and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and other securities, national and Federal reserve bank notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1922. Blank forms for submitting proposals, with specifications and further information, will be furnished manufacturers who intend to bid upon application to this office where samples of the paper required may be examined.

A. W. MELLON, Secretary of the Treasury.

Treasury Department,

Bureau of Engraving and Printing, Washington, D. C., April 3, 1922.

Sealed proposals are invited to furnish this Bureau with Postage Stamp Paper and Internal Revenue Paper, Brass and Iron Castings, Cleaning of Windows, Purchase of Pulp, Ink Scrapings, Distinctive Paper Shredded Trimmings and Postage Stamp and Internal Revenue Paper Trimmings, during the fiscal year beginning July 1, 1922. Proposals to be received not later than 2 P. M., Monday, May 15, 1922. Blank forms with specifications for proposals for the several schedules and further information will be furnished on application to LOUIS A. HILL, Director.

**Rebuilt Paper Mill Machinery in Stock and Guaranteed**

**NOT WHERE IS AND AS IS**

**FOURDRINIER TISSUE MACHINE**—One 95", one 68".

**FOURDRINIER PARTS**—Pusey & Jones 118", 100". Kutter Trowbridge 95".

**PRESS PARTS FOR PAPER MACHINES**—Pusey & Jones bell crank housing two sets 18"x36", Black & Clawson swing arm housings with rolls.

**DRYERS**—Four 48"x111", thirteen 36"x95", four 48"x68", one 84"x67", eleven 42"x66".

**MARSHALL DRIVES**—Two Black & Clawson self-contained stand with friction clutch cone pulley and 6" mortise gears. Mortise gears and pinions for Pusey & Jones Marshall drives 5" to 8" face.

**CHILLED CALENDERS**—One 66" face, five roll; one 54" face, five 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 46" to 114".

**BEATERS**—Five 72"x42" Noble & Wood, one 66"x42" Noble & Wood, equipped with three cylinder washers; one Ditta 62"x50" iron tub, one Jones 62"x52", seven Horne 36"x36". Two No. 2 Claflins, two No. 1 Claflins.

**JORDANS**—One Wagg Majestic, three No. 2 Dillon Improved, one Large Horne, four Monarch, one Jones Standard, two Pope Brushing engines.

**SCREENS**—Six 10 plate open side Packer, two 6 plate, one Moore & White auxiliary.

**STUFF PUMPS**—Deane triplex, 9"x2", Gould triplex 8"x10", Sandusky triplex 4"x6".

**REVOLVING SHEET CUTTERS**—One 104" Horne, five 61" Hamblet, four 61" Finlay, one 30" Hamblet diagonal, one 42" Finlay.

**WET MACHINES**—Four 72" Bagley & Sewall Hydraulic.

**SUPER CALENDERS**—One 45", one 42", one 36" Holyoke.

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.

# PULP STONES

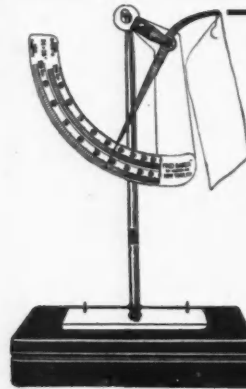
of absolutely the finest quality

**Lombard & Co., Incorporated**

*Importers and Dealers*

236-238 A Street : BOSTON, MASS.

*Branch at Montreal, Canada*



**MADE IN U. S. A.**

## The Baker Universal Paper Scale

Collapsible, for Desk or Pocket. 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

**SERVICE  
WOOD  
ROLLS**

A Construction  
for  
Every Service

Free Roll Blue Prints

**RODNEY HUNT MACHINE CO.**  
No. 63 Maple Street Orange, Mass.

## Hungerford & Terry, Inc.

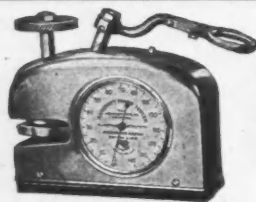
Engineers and Manufacturers of  
Water Filters

Announce the removal of their offices to their recently completed factory at

**CLAYTON, N. J.**

New England Representative: Hurricane Engineering Company, 53 State St., Boston, Mass.

Southern Agent: H. G. Mayer, Charlotte, N. C.



**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.**

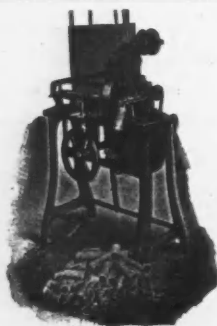
119 West 40th Street New York  
23 North Jefferson Street Chicago, Ill.  
16 High Street Boston, Mass.

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

## 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.



## GRISSINGER Patented AUTOMATIC TUBE MACHINE

Wire Stitched Tube  
TOILET PAPER  
MACHINERY

GRISSINGER MACHINE WORKS  
PHILADELPHIA, PA.

Patented { June 24, 1913.  
August 10, 1915

## 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

**GIBBS-BROWER BULLETIN**

We offer for sale the mill of The Merwin Paper Company, Windsor, Connecticut

Fully Equipped Specialty Plant in excellent condition. Four-Cylinder 65" trim Paper Machine. Five beaters. Two Jordans. Winestock De-Inking Machine. Up-to-date electrical equipments operate entire mill. Abundance soft, clear spring water for manufacturing. Product Glazed Press Boards, Jacquard Card, etc. Production 10,000 lbs. 24 hours.

"You can buy this excellent little mill for one half of its Actual Value."

**GIBBS-BROWER COMPANY**  
Paper and Pulp Mill Brokers

261 Broadway New York City

Telephone—Barclay 8929

OUR MOTTO: "Service First."

Chicago Office: 181 Quincy St., Chicago, Ill.

**NORWOOD  
PAPER FINISHING  
MACHINERY**

Write for Information

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

**Papier-Zeitung**

Berlin SW 11 (Germany)

Founded by Carl Hofman, 1876

appears twice a week

Covers the whole paper trade (paper making, transforming, stationery). More than 12,000 bonafide subscribers all over the world.

Subscription: 4 Dollars

(SONNEBORN PRODUCTS)

Concrete dust ruins machinery and merchandise. It shows that the concrete floor is disintegrating.

**LAPIDOLITH**  
TRADE MARK

Makes Concrete Floors  
Dustproof and Wearproof

Over 200,000,000 square feet of concrete floors lapidolized thus far.

Write for samples and testimonials to Dept. 30

L. SONNEBORN SONS, Inc.  
284 Pearl St., New York

(SONNEBORN)

**"DRAPER"  
FELTS**

For Any Grade of Paper or Pulp

**ARE GUARANTEED**

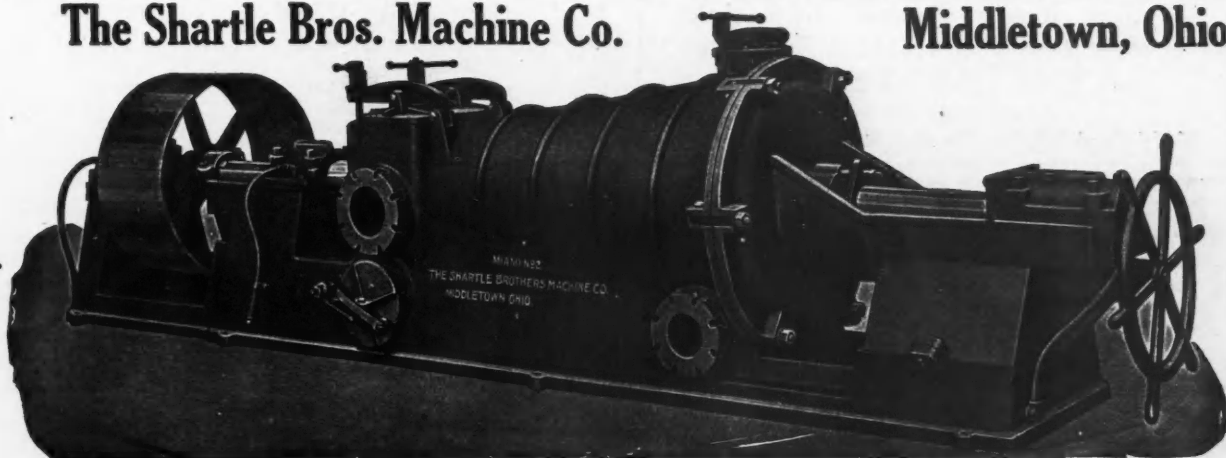
To Give Entire Satisfaction

MANUFACTURED BY

**DRAPER BROS. CO., CANTON, MASS.**

**The Shartle Bros. Machine Co.**

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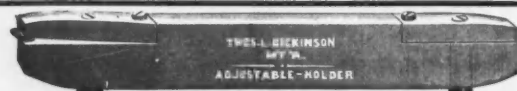
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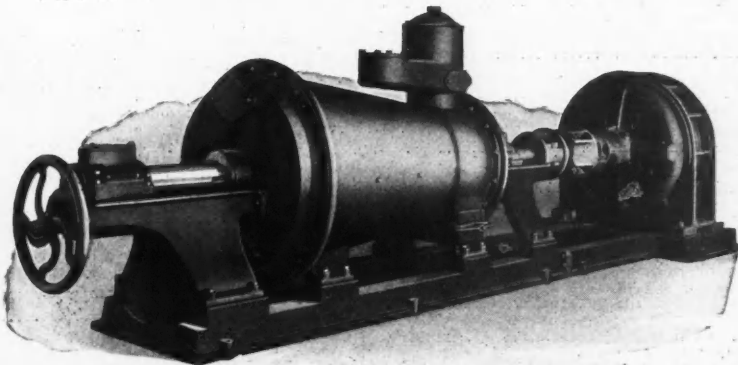
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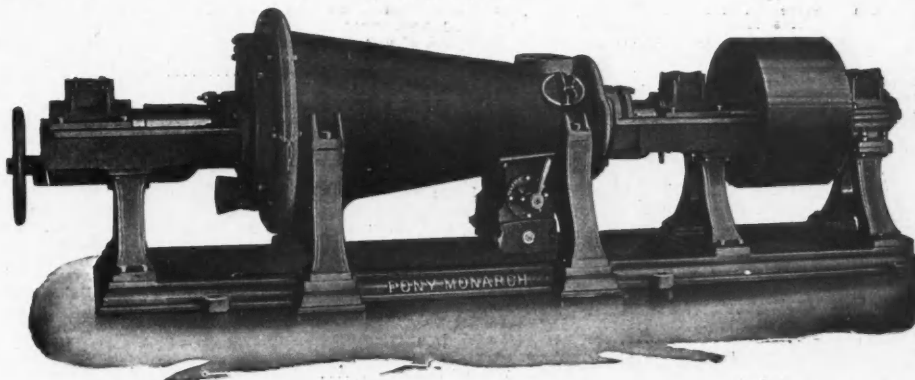
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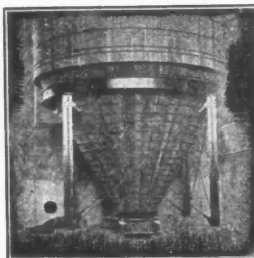
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