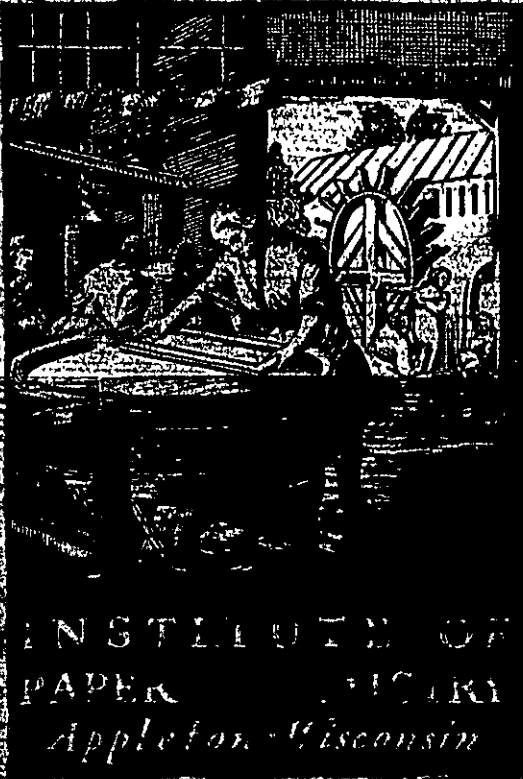


FILED JUN 23 1950



Institute of Paper Science and Technology
Central Files

CONTINUOUS BASELINE STUDY
Project 11083
Progress Report 94
to
FOURDRINIER-KRAFT BOARD INSTITUTE
MAY 1, 1950

(S)

THE INSTITUTE OF PAPER CHEMISTRY

APPLETON, WISCONSIN

CONTINUOUS BASELINE STUDY

Project 1108-B

Progress Report 34

to

FOURDRINIER KRAFT BOARD INSTITUTE

May 1, 1950

THE INSTITUTE OF PAPER CHEMISTRY

APPLETON, WISCONSIN

In conjunction with the F.K.I. Continuous Baseline Study, fifty-five different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by nine different F.K.I. mills to The Institute of Paper Chemistry for testing during the period April 1 through April 30. In addition to the 42-lb. kraft linerboard, seven samples of special drum stock were also submitted for evaluation by one of the participating mills. The results on the special stock are tabulated separately in this report. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I
DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	4
B	6
C	8
D	10
E	0
F	6
G	6
H	5
I	2
J	8
	<hr/>
	55

These sample lots were tested for basis weight, caliper, bursting strength, G. E. puncture, and Elmendorf tear. A comparison of the average strength results for each mill may be seen in Table II and is graphically presented in Figures 1 to 6 inclusive. In addition to a comparison of the mill averages, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. averages include all the results up to but not including the current period; the current period in the case of this report is April 1 through April 30; the F.K.I. index is obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.5., whereas the cumulative F.K.I. average basis weight is 43.2. Hence, the index for basis weight determined in per cent as indicated above is 100.7%. This signifies that the current average basis weight is higher than the cumulative average, which in this case covered the period from July 25, 1947, through March 31, 1950.

A comparison of the results in Table II and Figure 1 shows that the average basis weight for all mills is above the 42-lb. specification set forth in Rule 41. Mill B has the highest average basis weight, it being 45.0 lb. or approximately 7.1% higher than the 42-lb. specification. On the other hand, Mill I has the lowest average basis weight, it being 42.6 lb. or approximately 1.4% higher than the 42-lb. specification.

The amount by which the mills exceed the 42-lb. specification is as follows:

Mill Code	Per Cent
A	3.1
B	7.1
C	2.6
D	3.3
E	—
F	6.0
G	2.1
H	4.0
I	1.4
J	2.1

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicates that the basis weight is slightly lower.

A comparison of the average calipers for the various mills (see Figure 2) shows that the mill averages vary from a low of 11.6 for Mill I to a high of 14.7 for Mill F, the average being 13.5 which is somewhat lower than the cumulative average of 14.5.

The average bursting strength values obtained for each mill are graphically shown in Figure 3. It may be observed that the average bursting strength for the various mills ranges from a low of 106 for Mill J to a high of 116 for Mill D. The current F.K.I. average bursting strength is 110, somewhat higher than the cumulative average of 106.

The data of Table II and Figure 4 show that the average G. E. puncture result for all mills is 36 units. It may be seen that Mill F has the highest G. E. puncture value and Mill I the lowest value. The current F.K.I. average for G. E. puncture of 36 units is slightly lower than the cumulative F.K.I. average of 37 units.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 5 and 6. The data of Table II show that Mill F has the highest average machine direction tear value (Mill F also has the highest average caliper and G. E. puncture values), while Mill I has the lowest. Mill F also has the highest average across-machine direction tear value while Mill I has the lowest. (Mill I also has the lowest average values for basis weight, caliper and G. E. puncture.) It may be noted that the current F.K.I. average machine direction and across-machine direction tear results are slightly lower than the cumulative averages.

A comparison of the F.K.I. indexes indicates that, for the current period, the test averages for caliper, G. E. puncture, machine direction and across-machine direction Elmendorf tear are lower than the respective cumulative averages whereas the test averages for basis weight and bursting strength are higher than the cumulative averages.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XIII for Mills A to J, respectively. In addition to the current averages, cumulative averages for each mill, together with the mill

factor and mill index, are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill up to, but not including, the current average. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor } (\%)$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index } (\%)$$

The mill factor and the mill index serve as a ready means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. As more samples are included and as the test data accumulate, the factors and indexes will have added significance. Since December, 1947, the reports have contained a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry.

The results obtained on the special drum stock may be seen in Table XIII.

It may be noted in Tables III through XI that the data have been separated on the basis of the sheet finish. The summarized results are as follows:

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
A	4*		
B	6*		
C	7	1	
D		10	

(continued on next page)

Mill Code	No. of Sample Lots		
	W. F.	D. F.	Misc.
E	--	--	--
F			6 S.F.
G	6		
H	5*		
I	2		
J		2	6 B.F.

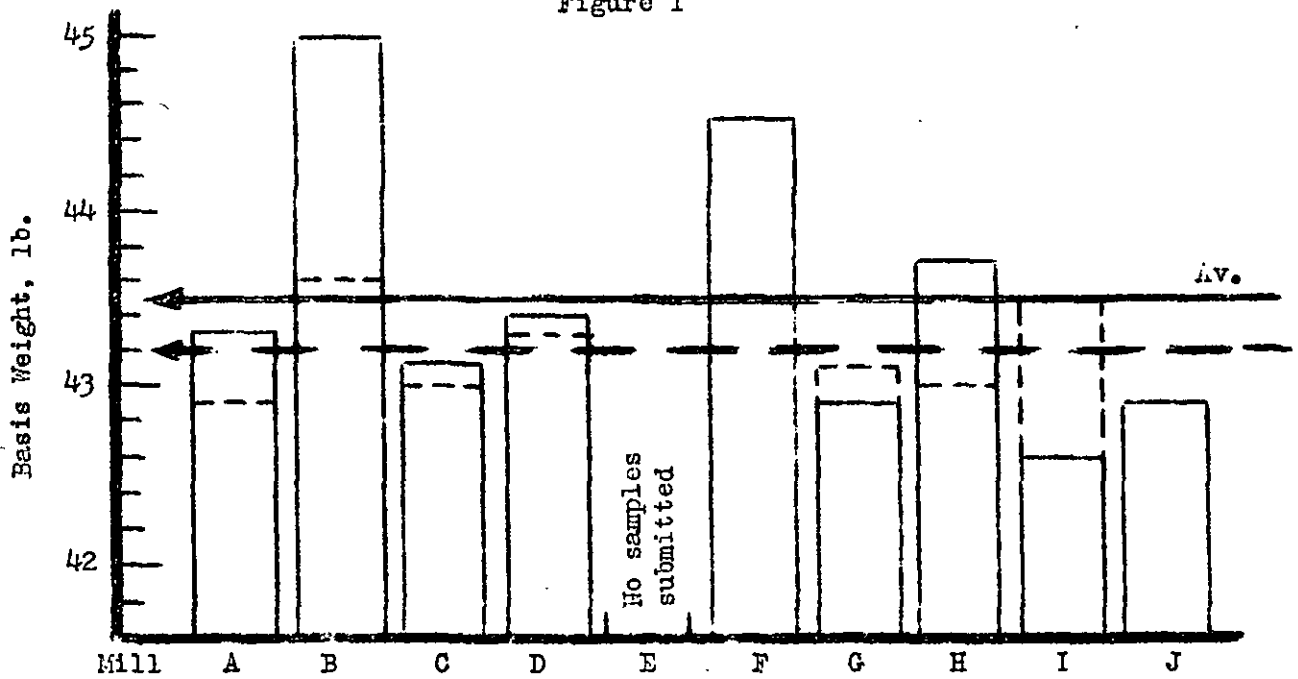
* One side only.

The results indicate that a majority of the mills are using
a wet finish.

TABLE II
 SUMMARY OF COMPOSITE MILL AVERAGES--APRIL 1 THROUGH APRIL 30, 1950

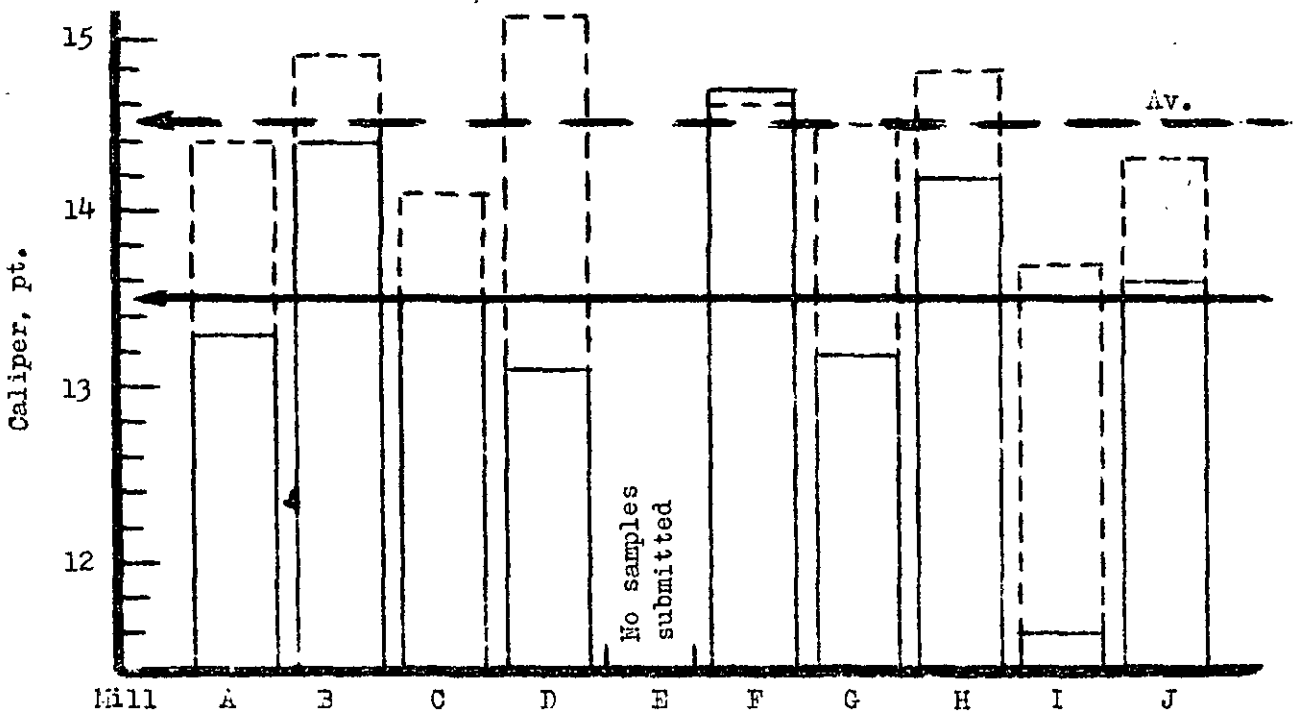
Code No.	Basis Weight, lb.	Caliper, points	Bursting Strength, points	G. E. Puncture, units	Elmendorf Tear, g./sheet	In Direction	Across Direction
A	43.3	13.3	107	36	363	409	
B	45.0	14.4	109	38	380	423	
C	43.1	13.5	107	38	380	427	
D	43.4	13.1	116	41	414	438	
E	No samples submitted.						
F	44.5	14.7	113	42	428	460	
G	42.9	13.2	111	35	356	388	
H	43.7	14.2	109	36	408	413	
I	42.6	11.6	109	28	307	358	
J	42.9	13.6	106	33	372	375	
Current FKI Average:	43.5	13.5	110	36	379	410	
Cumulative FKI Average:	43.2	14.5	106	37	381	414	
FKI Index, %:	100.7	93.1	103.8	97.3	99.5	99.0	

Figure 1



COMPARISON OF BASIS WEIGHT RESULTS
 (Period April 1 - April 30)

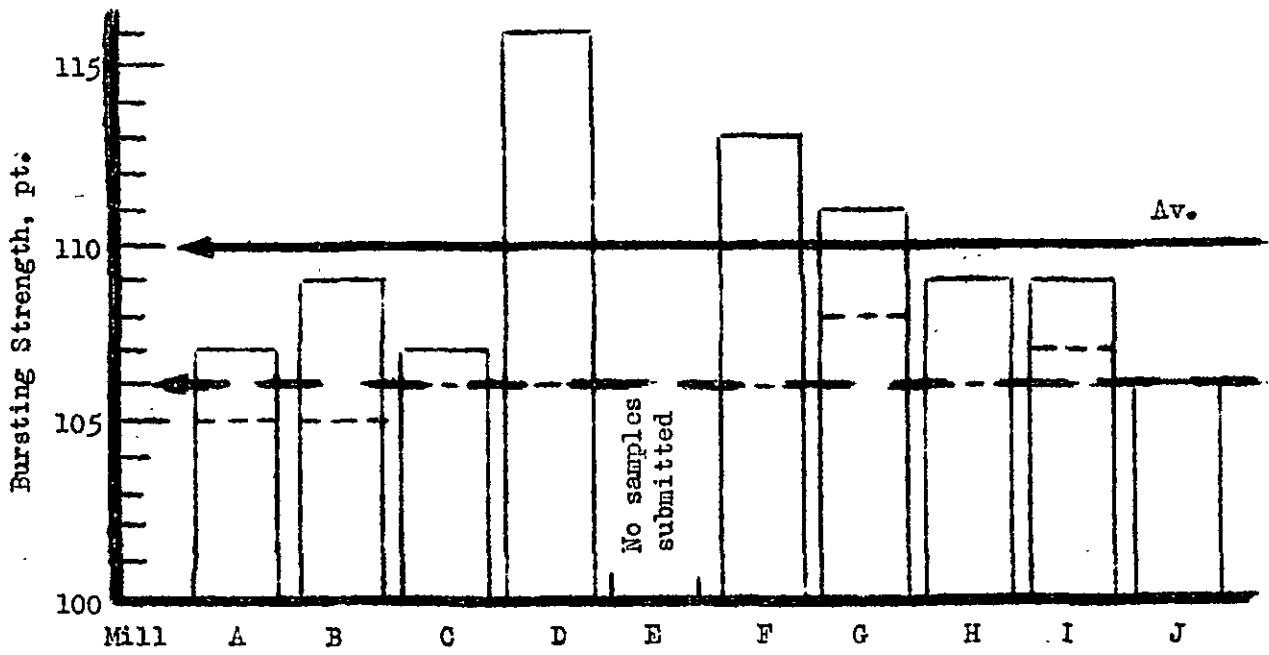
Figure 2



COMPARISON OF CALIPER RESULTS
 (Period April 1 - April 30)

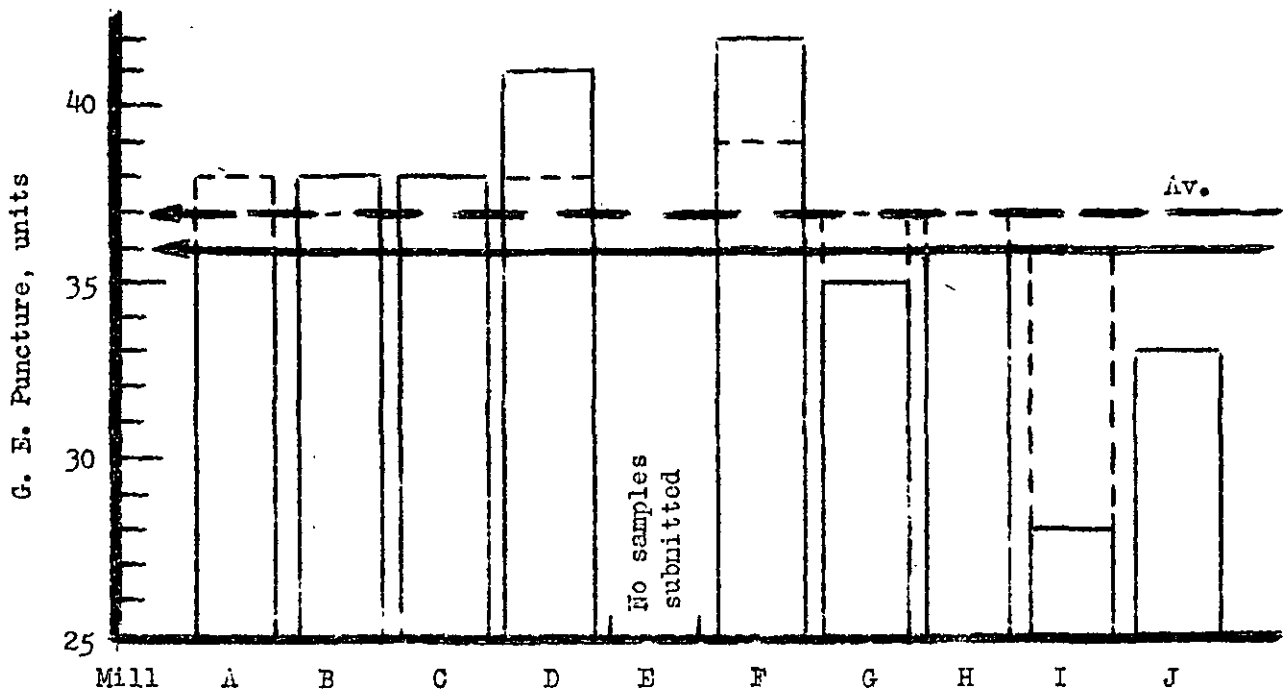
— Current Mill Average
 - - - Cumulative Mill Average

Figure 3



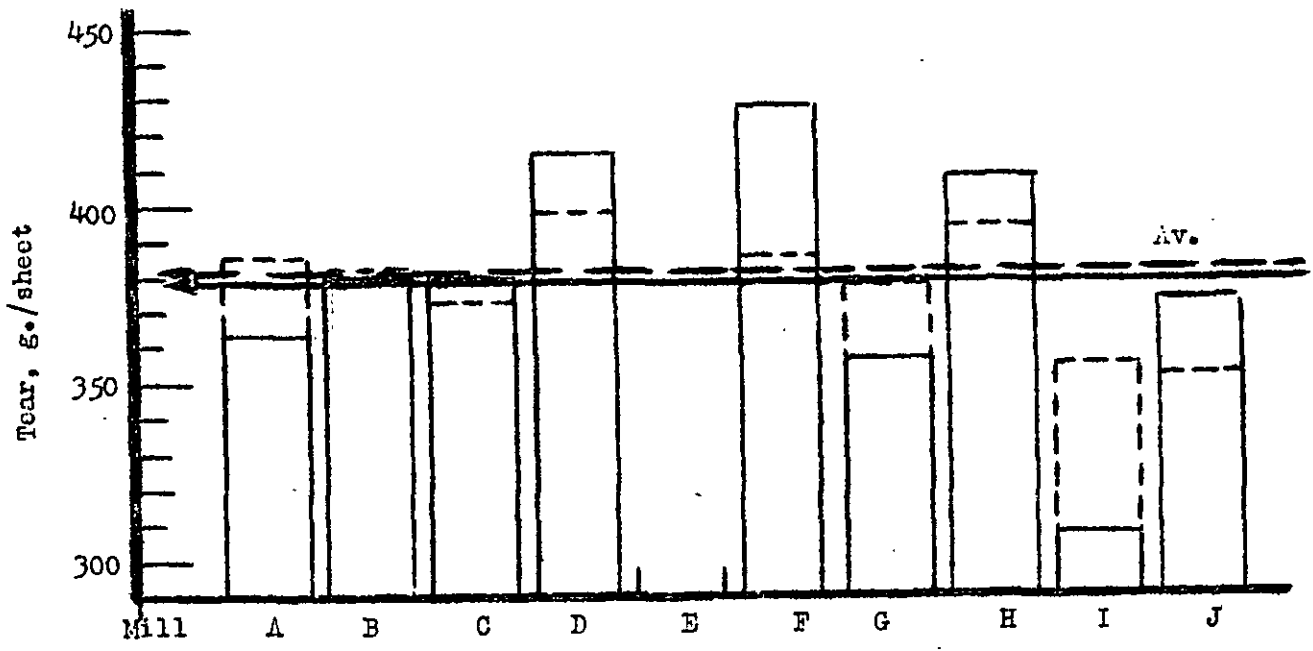
COMPARISON OF BURSTING STRENGTH RESULTS
(Period April 1 - April 30)

Figure 4



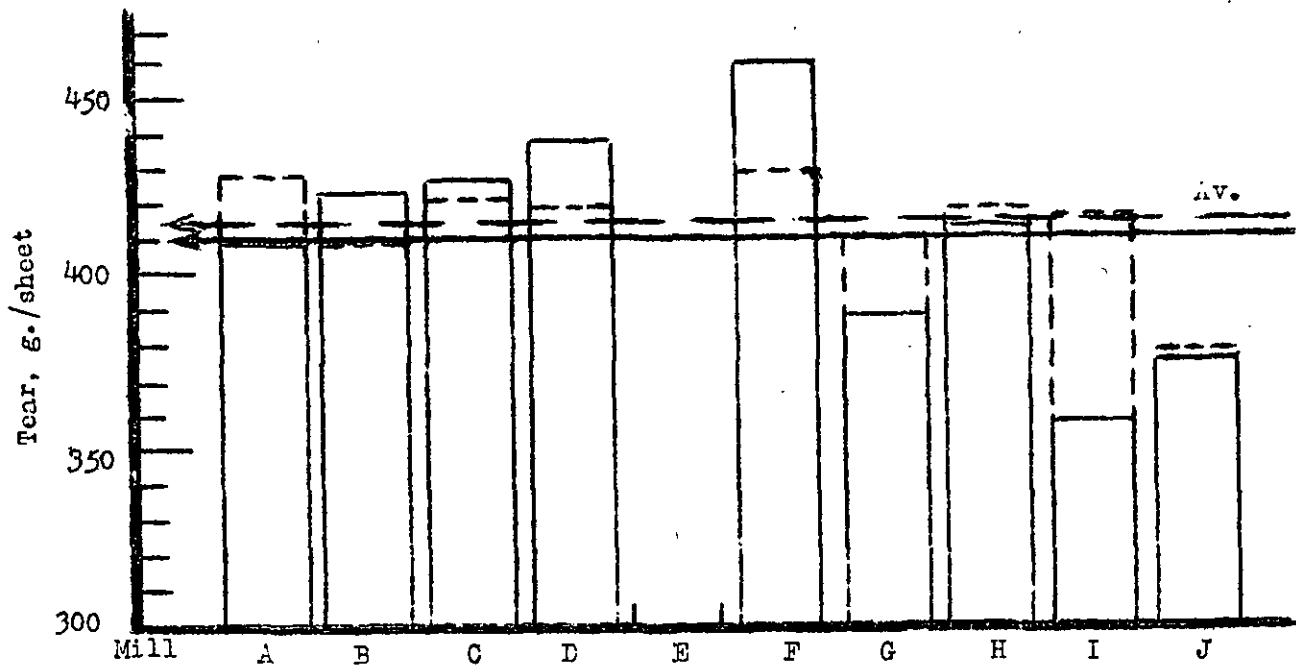
COMPARISON OF G. E. PUNCTURE RESULTS
(Period April 1 - April 30)

Figure 5



COMPARISON OF TEAR RESULTS, Machine Direction
(Period April 1 - April 30)

Figure 6



COMPARISON OF TEAR RESULTS, Across-machine Direction
(Period April 1 - April 30)

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950

Lot No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		In		Across		Elmendorf Tear, g./sheet					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Max.		
1/50	44.4	42.6	43.5	14.0	12.4	13.1	126	80	107	39	33	37	408	328	356a	416	376	397a
3/50	44.4	42.4	43.8	13.8	12.7	13.1	135	102	115	39	32	36	448	320	380a	536	360	427a
7/50	43.8	42.4	43.3	14.5	13.0	13.9	127	73	100	40	32	36	416	272	354	488	352	413a
3/50	43.8	41.8	42.4	13.9	12.7	13.1	129	85	107	40	31	36	416	304	361	456	352	397a
			43.3			13.3		107			36				363			409
			42.9			14.4		105			38				386			428
			100.9			92.4		101.9			94.7				94.0			95.6
			100.2			91.7		100.9			97.3				95.3			98.8

TABLE IV

Mill B--42-lb. Linerboard

1/50	46.2	44.0	45.0	15.3	13.0	14.7	137	81	107	42	33	39	424	352	382a	496	392	428a
1/50	46.0	44.0	45.2	15.2	13.3	14.5	135	93	109	42	36	38	456	352	387a	576	392	459a
3/50	46.0	43.8	44.7	14.6	13.1	13.8	139	98	116	38	35	37	416	360	379a	456	384	419a
1/50	46.6	44.2	45.4	14.9	13.7	14.4	126	83	108	43	36	40	424	288	366	488	352	421a
3/50	44.4	42.4	43.7	14.9	13.9	14.3	117	90	104	40	29	34	448	304	363a	496	352	407a
4/50	47.4	44.6	46.1	15.3	14.0	14.8	125	82	109	43	37	40	432	328	405a	456	360	404a
			45.0			14.4		109			38				380			423
			43.6			14.9		105			37				382			409
			103.2			96.6		103.8			102.7				99.5			103.4
			104.2			99.3		102.8			102.7				99.7			102.2

Specimens for one or more specimens which tore beyond the 3/8-inch limit. The lot contained a "C" series instead of a "D" series.

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1959

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Max. E.						
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.							
142022	A-130	WF1S	4/ 1/50	3/29/50	2	44.4	42.6	43.5	14.0	12.4	13.1	126	80	107	39	33	37	408	3	
142206	A-131	WF1S	4/14/50	4/ 3/50	1	44.4	42.4	43.8	13.8	12.7	13.1	135	102	115	39	32	36	448	3	
142329	A-132	WF1S	4/21/50	4/17/50	2	43.8	42.4	43.3	14.5	13.0	13.9	127	73	100	40	32	36	416	2	
142330	A-133	WF1S	4/21/50	4/18/50	2	43.8	41.8	42.4	13.9	12.7	13.1	129	85	107	40	31	36	416	3	
Current Mill Average:							43.3				13.3		107		36					
Cumulative Mill Average:							42.9				14.4		105		38					
Mill Factor, %:							100.9				92.4		101.9		94.7					
Mill Index, %:							100.2				91.7		100.9		97.3					

TABLE IV

Mill B--42-lb. Linerboard

142023	B-209	WF1S	4/ 3/50	3/12/50	1	46.2	44.0	45.0	15.3	13.0	14.7	137	81	107	42	33	39	424	3	
142024	B-210	WF1S	4/ 3/50	3/21/50	1	46.0	44.0	45.2	15.2	13.3	14.5	135	93	109	42	36	38	456	3	
142193	B-211 ^b	WF1S	4/10/50	3/27/50	3	46.0	43.8	44.7	14.6	13.1	13.8	139	98	116	38	35	37	416	3	
142198	B-212	WF1S	4/11/50	4/ 1/50	1	46.6	44.2	45.4	14.9	13.7	14.4	126	83	108	43	36	40	424	2	
142199	B-213	WF1S	4/11/50	4/ 3/50	1	44.4	42.4	43.7	14.9	13.9	14.3	117	90	104	40	29	34	448	3	
142204	B-214	WF1S	4/13/50	4/ 4/50	3	47.4	44.6	46.1	15.3	14.0	14.8	125	82	109	43	37	40	432	3	
Current Mill Average:							45.0				14.4		109		38					
Cumulative Mill Average:							43.6				14.9		105		37					
Mill Factor, %:							103.2				96.6		103.8		102.7					
Mill Index, %:							104.2				99.3		102.8		102.7					

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^b The sample received by the Institute contained a "C" series instead of a "D" series.

TABLE V
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

Date	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Elmendorf Tear, g./sheet								
		Max.	Av.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.							
27/50	1	43.8	42.8	14.2	13.0	13.7	128	88	109	40	33	38	480	352	412 ^a	496	384	422 ^a
28/50	1	44.0	42.8	14.1	13.0	13.7	131	78	109	41	33	38	440	328	388 ^a	536	368	435 ^a
31/50	1	44.0	43.4	14.7	13.1	14.1	132	80	106	41	34	38	400	312	353 ^a	472	376	425 ^a
10/50	1	44.0	43.0	14.0	12.7	13.2	132	83	104	40	34	38	408	320	361 ^a	512	360	423 ^a
13/50	1	44.0	42.8	13.2	12.0	13.0	135	86	109	42	35	38	448	336	387 ^a	448	376	430 ^a
17/50	1	43.8	42.6	14.2	12.8	13.7	130	85	104	41	34	38	448	312	375 ^a	448	384	415 ^a
21/50	1	45.8	44.5	14.2	13.0	13.7	132	81	108	43	35	39	448	336	392	472	416	445 ^a
24/50	1	43.6	42.6	14.0	11.8	13.0	135	81	110	42	36	39	416	288	370 ^a	568	368	439 ^a
						13.5		107				38			380			427
						14.1		106				38			372			421
						95.7		100.9				100.0			102.2			101.4
						93.1		100.9				102.7			99.7			103.1

Mill C--42-lb. Linerboard

is for one or more specimens which tore beyond the 3/8-inch limit.

TABLE V

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Max. Av.				
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
142072	C-198	W.F.	4/4/50	3/27/50	1	43.8	42.0	42.8	14.2	13.0	13.7	128	88	109	40	33	38	480
142073	C-199	W.F.	4/4/50	3/28/50	1	44.0	42.0	42.8	14.1	13.0	13.7	131	78	109	41	33	38	440
142196	C-200	W.F.	4/10/50	3/31/50	1	44.0	42.0	43.4	14.7	13.1	14.1	132	80	106	41	34	38	400
142277	C-201	W.F.	4/15/50	4/10/50	1	44.0	41.8	43.0	14.0	12.7	13.2	132	83	104	40	34	38	408
142280	C-202	W.F.	4/18/50	4/13/50	1	44.0	42.0	42.8	13.2	12.0	13.0	135	86	109	42	35	38	448
142344	C-203	W.F.	4/25/50	4/17/50	1	43.8	42.0	42.6	14.2	12.8	13.7	130	85	104	41	34	38	448
142407	C-204	D.F.	4/29/50	4/21/50	1	45.8	43.6	44.5	14.2	13.0	13.7	132	81	108	43	35	39	448
142408	C-205	W.F.	4/29/50	4/24/50	1	43.6	42.0	42.6	14.0	11.8	13.0	135	81	110	42	36	39	416
Current Mill Average:								43.1			13.5			107			38	
Cumulative Mill Average:								43.0			14.1			106			38	
Mill Factor, %:								100.2			95.7			100.9			100.0	
Mill Index, %:								99.8			93.1			100.9			102.7	

Mill C-42-lb. Liner board

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE VI
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. I. Puncture, units		Elmendorf Tear, g./sheet										
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	In	Across									
1/50	44.6	42.2	43.3	13.6	12.2	13.0	149	95	119	43	37	40	488	352	411a	512	408	448a	
1/50	43.8	42.2	43.2	13.7	12.6	13.2	138	86	113	46	40	43	464	368	406a	488	368	425a	
1/50	44.0	40.4	42.5	14.0	11.8	12.4	139	91	120	43	30	38	408	352	374a	464	320	421a	
1/50	45.0	42.0	43.5	14.8	12.0	13.5	135	88	109	46	38	42	480	336	401a	504	392	437a	
1/50	43.4	41.6	42.3	12.9	11.4	12.3	137	85	114	43	35	39	448	376	409a	504	400	437a	
1/50	44.0	43.0	43.7	14.1	12.3	13.1	145	91	113	47	40	43	480	368	425a	496	336	426a	
1/50	44.8	42.6	43.6	13.8	12.8	13.4	129	91	111	45	40	42	456	376	421a	512	424	455a	
1/50	44.0	42.2	43.4	14.1	12.0	12.9	155	114	129	42	39	41	480	392	437a	504	400	449a	
1/50	44.4	43.4	43.9	14.3	13.1	13.8	135	84	114	47	38	41	464	360	415a	512	392	437a	
1/50	45.6	42.6	44.2	14.2	12.9	13.5	140	98	116	46	38	43	520	368	439a	472	400	443a	
			43.4			13.1			116			41			414				438
			43.3			15.2			106			38			398				419
			100.2			86.2			109.4			107.9			104.0				104.5
			100.5			90.3			109.4			110.8			108.7				105.8

for one or more specimens which tore beyond the 3/8-inch limit.
had two sheets marked 3-2 in the B series but none marked B-1. One sheet

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Sheet Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		In Max. Mir.			
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
142025	D-208	D.F.	4/ 3/50	3/30/50	4	44.6	42.2	43.3	12.6	13.0	95	119	43	37	40	488	352
142026	D-209	D.F.	4/ 3/50	3/31/50	4	43.8	42.2	43.2	13.7	13.2	86	113	46	40	43	464	368
142090	D-210	D.F.	4/ 5/50	4/ 1/50	4	44.0	40.4	42.5	14.0	12.4	91	120	43	30	38	408	352
142091	D-211	D.F.	4/ 5/50	4/ 2/50	4	45.0	42.0	43.5	14.8	13.5	88	109	46	38	42	480	336
142207	D-212	D.F.	4/14/50	4/11/50	4	43.4	41.6	42.3	12.9	12.3	85	114	43	35	39	448	376
142275	D-213	D.F.	4/15/50	4/12/50	4	44.0	43.0	43.7	14.1	13.1	91	113	47	40	43	480	360
142276	D-214	D.F.	4/15/50	4/13/50	4	44.8	42.6	43.6	13.8	13.4	91	111	45	40	42	456	376
142341	D-215	D.F.	4/24/50	4/20/50	4	44.0	42.2	43.4	14.1	12.9	114	129	42	39	41	480	392
142360	D-216 ^b	D.F.	4/26/50	4/21/50	4	44.4	43.4	43.9	13.1	13.8	84	114	47	38	41	464	360
142361	D-217	D.F.	4/26/50	4/22/50	4	45.6	42.6	44.2	12.9	13.5	98	116	46	38	43	520	368
Current Mill Average:						43.4		43.4	13.1	13.1	116		41				
Cumulative Mill Average:						43.3		43.3	15.2	15.2	106		38				
Mill Factor, %:						100.2		100.2	86.2	86.2	109.4		107.9				
Mill Index, %:						100.5		100.5	90.3	90.3	109.4		110.8				

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
 b The sample sent to the Institute had two sheets marked B-2 in the B series but none marked B-1. One sheet was arbitrarily changed to B-1.

Fourdrinier Kraft Board Institute
Project 1108-B

TABLE VII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (Continued)

Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Elmendorf Tear, g./sheet	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.

Mill F-42-lb. Linerboard

amples submitted.

TABLE VIII

Mill F-42-lb. Linerboard

/50	44.6	42.8	43.5	14.9	13.1	14.1	139	105	120	46	35	42	488	392	431 ^a	536	416	457 ^a
/50	46.0	44.2	45.4	15.7	14.1	14.7	133	92	118	45	36	40	544	384	436 ^a	512	400	459 ^a
/50	45.0	43.4	44.3	15.3	14.1	14.8	120	87	105	45	40	43	464	392	425 ^a	504	432	467 ^a
/50	46.6	45.4	46.0	16.8	15.3	16.1	126	90	112	51	42	47	472	384	435 ^a	544	384	477 ^a
/50	44.4	42.4	43.4	14.9	13.3	14.2	136	94	113	43	38	40	496	360	432 ^a	504	400	452 ^a
/50	44.6	43.6	44.2	15.0	13.8	14.3	128	78	111	44	36	40	464	352	407 ^a	504	392	450 ^a
			44.5			14.7		113				42			428			460
			43.5			14.6		106				39			386			429
			102.3			100.7		106.6				107.7			110.9			107.2
			103.0			1101.4		106.6				113.5			112.3			111.1

for one or more specimens which tore beyond the 3/8-inch limit. The sample had stained spots on them, apparently from water after drying.

TABLE VII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (Continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units						
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
142202	F-29	4/13/50	4/5/50	--	44.6	42.8	43.9	14.9	13.1	14.1	139	105	120	46	35	42	488
142203	F-30	4/13/50	4/6/50	--	46.0	44.2	45.4	15.7	14.1	14.7	133	92	118	45	36	40	544
142281	F-31 ^b	4/19/50	4/13/50	--	45.0	43.4	44.3	15.3	14.1	14.8	120	87	105	45	40	43	464
142282	F-32	4/19/50	4/14/50	--	46.6	45.4	46.0	16.8	15.3	16.1	126	90	112	51	42	47	472
142362	F-33	4/26/50	4/18/50	--	44.4	42.4	43.4	14.9	13.3	14.2	136	94	113	43	38	40	496
142363	F-34	4/26/50	4/19/50	--	44.6	43.6	44.2	15.0	13.8	14.3	128	78	111	44	36	40	464
Current Mill Average:					44.5		44.5	14.7		14.7	113		113			42	
Cumulative Mill Average:					43.5		43.5	14.6		14.6	106		106			39	
Mill Factor, %:					102.3		102.3	100.7		100.7	106.6		106.6			107.7	
Mill Index, %:					103.0		103.0	1101.4		1101.4	106.6		106.6			113.5	

TABLE VIII

No samples submitted.

TABLE VIII

Mill F-42-lb. Linerboard																		
142202	F-29	S.F.	4/13/50	4/5/50	--	44.6	42.8	43.9	14.9	13.1	14.1	139	105	120	46	35	42	488
142203	F-30	S.F.	4/13/50	4/6/50	--	46.0	44.2	45.4	15.7	14.1	14.7	133	92	118	45	36	40	544
142281	F-31 ^b	S.F.	4/19/50	4/13/50	--	45.0	43.4	44.3	15.3	14.1	14.8	120	87	105	45	40	43	464
142282	F-32	S.F.	4/19/50	4/14/50	--	46.6	45.4	46.0	16.8	15.3	16.1	126	90	112	51	42	47	472
142362	F-33	S.F.	4/26/50	4/18/50	--	44.4	42.4	43.4	14.9	13.3	14.2	136	94	113	43	38	40	496
142363	F-34	S.F.	4/26/50	4/19/50	--	44.6	43.6	44.2	15.0	13.8	14.3	128	78	111	44	36	40	464
Current Mill Average:					44.5		44.5	14.7		14.7	113		113			42		
Cumulative Mill Average:					43.5		43.5	14.6		14.6	106		106			39		
Mill Factor, %:					102.3		102.3	100.7		100.7	106.6		106.6			107.7		
Mill Index, %:					103.0		103.0	1101.4		1101.4	106.6		106.6			113.5		

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

^b Sheets B-7 and D-8 of the Institute sample had stained spots on them, apparently from water after drying.

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Elmendorf Tear, G/sheet									
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
	Mill C-42-lb. Linerboard																	
50	44.4	42.0	43.0	13.8	12.0	13.1	140	74	113	38	33	35	408	328	369a	456	360	403a
50	44.0	42.4	43.4	13.9	12.4	13.2	126	96	112	40	35	38	376	312	359a	440	368	392a
50	43.0	41.6	42.2	13.8	13.0	13.2	136	90	111	37	32	35	400	296	337a	440	344	382a
50	43.8	42.0	42.5	13.3	11.9	12.9	136	92	115	35	30	32	424	296	352a	416	352	379a
50	44.0	42.0	43.0	14.1	12.1	13.3	125	89	110	39	31	36	440	336	373a	424	368	388a
50	44.0	42.0	43.4	14.1	12.9	13.5	121	82	107	38	32	34	400	326	349a	424	352	385a
			42.9			13.2			111			35			356			388
			43.1			14.5			108			37			378			410
			99.5			91.0			102.8			94.6			94.6			94.6
			99.3			91.0			104.7			94.6			93.4			93.7

for one or more specimens which tore beyond the 3/8-inch limit. One of the sheets contained two sheets marked F-1 but none marked F-6. One of the sheets was identified as to series and number; these sheets were labeled as B-2 through B-8, D-2 through D-8, and F-2 through F-8.

as identified as to series and number; these sheets were labeled as B-2 through B-8, D-2 through D-8, and F-2 through F-8.

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS - APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.	Caliper, points		Bursting Strength, points		C. E. Puncture, units		Max. Av.	In Min.			
							Max.	Min.	Max.	Min.	Max.	Min.					
142200	G-246	W.F.	4/12/50	4/8/50	1	44.4	42.0	43.0	13.1	140	74	113	38	33	35	408	328
142201	G-247 ^b	W.F.	4/12/50	4/8/50	1	44.0	42.4	43.4	13.9	126	96	112	40	35	38	376	312
142208	G-248 ^c	W.F.	4/14/50	4/10/50	1	43.0	41.6	42.2	13.8	136	90	111	37	32	35	400	296
142209	G-249	W.F.	4/14/50	4/11/50	1	43.8	42.0	42.5	13.3	136	92	115	35	30	32	424	296
142339	G-250	W.F.	4/24/50	4/20/50	1	44.0	42.0	43.0	14.1	125	89	110	39	31	36	440	336
142340	G-251	W.F.	4/24/50	4/20/50	1	44.0	42.0	43.4	14.1	121	82	107	38	32	34	400	320
Current Mill Average:						42.9			13.2			111			35		
Cumulative Mill Average:						43.1			14.5			108			37		
Mill Factor, %:						99.5			91.0			102.8			94.6		
Mill Index, %:						99.3			91.0			104.7			94.6		

Mill C-42-lb. Linerboard

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

^b The sample received by the Institute contained two sheets marked F-1 but none marked F-6. One of the F-1 sheets was tested as if it were F-6.

^c Only the top sheet in each series was identified as to series and number; these sheets were labeled B-1, D-1, and F-1. It was assumed that the remainder of the sheets were in the usual order and they were therefore arbitrarily identified as B-2 through B-8, D-2 through D-8, and F-2 through F-8.

TABLE X

OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

Basis Weight, lb.	Caliper, points		Bursting Strength, points		G. E. Puncture, units		Elmendorf Tear, g./sheet		Across Min. Av. Max. Min. Av.								
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.									
<u>Mill H--42-lb. Linerboard</u>																	
45.8	44.0	44.5	15.5	14.1	14.7	131	82	107	42	32	38	536	384	436 ^a	496	352	429 ^a
44.2	42.0	42.8	14.2	12.8	13.8	132	85	113	38	31	33	424	312	365	448	320	389 ^a
45.6	43.0	44.0	15.2	13.9	14.5	128	79	105	38	33	36	512	352	431 ^a	496	360	429 ^a
44.0	42.0	43.0	14.2	13.0	13.8	148	80	107	39	32	36	464	304	398	440	352	403 ^a
45.8	43.0	44.2	14.9	14.0	14.4	130	81	110	40	34	38	520	328	412	464	368	417 ^a
		43.7			14.2			109			36			408			413
		43.0			14.8			106			37			393			418
		101.6			95.9			102.8			97.3			103.8			98.8
		101.2			97.9			102.8			97.3			107.1			99.8

TABLE XI

Mill I--42-lb. Linerboard

43.4	42.0	42.3	12.3	11.2	11.6	141	82	111	31	26	28	352	280	312 ^a	448	320	367 ^a
44.0	41.8	42.8	12.1	11.2	11.7	126	87	107	29	25	27	368	192	302 ^a	448	288	349
		42.6			11.6			109			28			307			358
		43.5			13.7			107			36			354			416
		97.9			84.7			101.9			77.8			86.7			86.1
		98.6			80.0			102.8			75.7			80.6			86.5

or more specimens which tore beyond the 3/8-inch limit. Institute sample was identified. The numbers F-2 through F-8 of the sheets in this series. Since the F-8 sheet was identified to the unidentified sample. Since the F-8 sheet was identified to the unidentified sheet.

TABLE X

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units				
						Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.		
142197	H-158	WFIS	4/10/50	3/28/50	2	45.8	44.0	44.5	15.5	14.1	14.7	131	82	107	42	32	38	536	38
142278	H-159	WFIS	4/17/50	4/3/50	2	44.2	42.0	42.8	14.2	12.8	13.8	132	85	113	38	31	33	424	31
142279	H-160	WFIS	4/17/50	4/4/50	2	45.6	43.0	44.0	15.2	13.9	14.5	128	79	105	38	33	36	512	35
142342	H-161 ^b	WFIS	4/24/50	4/11/50	2	44.0	42.0	43.0	14.2	13.0	13.8	148	80	107	39	32	36	464	30
142343	H-162	WFIS	4/24/50	4/12/50	2	45.8	43.0	44.2	14.9	14.0	14.4	130	81	110	40	34	38	520	32
Current Mill Average:								43.7			14.2		109						36
Cumulative Mill Average:								43.0			14.8		106						37
Mill Factor, %:								101.6			95.9		102.8						97.3
Mill Index, %:								101.2			97.9		102.8						97.3

Mill H-42-1b. Linerboard

TABLE XI

Mill I-42-1b. Linerboard

142386	I-96 ^c	W.F.	4/27/50	4/18/50	1	43.4	42.0	42.3	12.3	11.2	11.6	141	82	111	31	26	28	352	28
142387	I-97	W.F.	4/27/50	4/21/50	1	44.0	41.8	42.8	12.1	11.2	11.7	126	87	107	29	25	27	368	19
Current Mill Average:								42.6			11.6		109						28
Cumulative Mill Average:								43.5			13.7		107						36
Mill Factor, %:								97.9			84.7		101.9						77.8
Mill Index, %:								98.6			80.0		102.8						75.7

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^b Only the F-1 sheet in the F series of the Institute sample was identified. The numbers F-2 through F-8 were arbitrarily assigned to the rest of the sheets in this series.
^c There was one unidentified sheet in the F series of the Institute sample. Since the F-8 sheet was missing, this number was arbitrarily assigned to the unidentified sheet.

TABLE XII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. P. Puncture, units		Elmendorf Tear, g./sheet									
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
	Mill J--42-lb. Linerboard																	
1	44.0	42.0	43.2	15.3	13.5	14.4	127	85	107	40	32	35	440	344	379 ^a	432	320	372 ^a
1	44.0	42.0	43.0	14.0	12.8	13.6	123	91	105	36	31	33	384	320	353 ^a	440	320	367 ^a
1	42.4	40.6	41.8	13.8	12.8	13.2	119	84	102	32	27	30	432	344	379 ^a	408	280	367 ^a
1	43.6	41.6	42.6	13.7	12.9	13.2	120	86	105	34	28	31	472	344	378 ^a	384	312	350 ^a
1	44.2	42.2	43.2	14.1	12.7	13.3	118	76	104	36	31	33	528	304	379 ^a	440	344	373 ^a
1	43.6	42.0	43.1	15.1	13.4	14.2	121	84	110	37	31	35	408	336	369 ^a	464	328	394 ^a
1	44.0	42.4	43.5	14.2	13.0	13.6	115	78	102	35	31	33	432	352	380 ^a	536	344	399 ^a
1	44.2	41.6	42.6	13.8	13.0	13.3	138	85	111	33	29	32	400	304	364 ^a	416	336	377 ^a
			42.9			13.6			106			33			372			375
			42.9			14.3			106			33			351			378
			100.0			95.1			100.0			100.0			106.0			99.2
			99.3			93.8			100.0			89.2			97.6			90.6

one or more specimens which tore beyond the 3/8-inch limit.

TABLE XII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Tensile Strength, points		Puncture, units		In Max. Min. AV.					
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
142092	J-195	D.F.	4/ 5/50	3/24/50	1	44.0	42.0	15.3	13.5	14.4	127	85	107	40	32	35	440	344	
142093	J-196	B.F.	4/ 5/50	3/24/50	1	44.0	42.0	14.0	12.8	13.6	123	91	105	36	31	33	384	320	
142172	J-197	B.F.	4/ 7/50	3/28/50	1	42.4	40.6	13.8	12.8	13.2	119	84	102	32	27	30	432	344	
142173	J-198	B.F.	4/ 7/50	3/28/50	1	43.6	41.6	13.7	12.9	13.2	120	86	105	34	28	31	472	344	
142194	J-199	B.F.	4/10/50	4/ 3/50	1	44.2	42.2	14.1	12.7	13.3	118	76	104	36	31	33	528	304	
142195	J-200	D.F.	4/10/50	4/ 4/50	1	43.6	42.0	15.1	13.4	14.2	121	84	110	37	31	35	408	336	
142331	J-201	B.F.	4/21/50	4/14/50	1	44.0	42.4	14.2	13.0	13.6	115	78	102	35	31	33	432	352	
142332	J-202	B.F.	4/21/50	4/14/50	1	44.2	41.6	13.8	13.0	13.3	138	85	111	33	29	32	400	304	
Current Mill Average:															42.9	13.6	106	33	
Cumulative Mill Average:															42.9	14.3	106	33	
Mill Factor, %:															100.0	95.1	100.0	100.0	
Mill Index, %:															99.3	93.8	100.0	89.2	

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE XIII
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (continued)

Mch No.	Basis Weight, lb.		Caliper, points		Fursting Strength, points		G. E. Puncture, units		Elmendorf Tear, G./sheet							
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
1	45.6	43.6	14.3	13.9	119	86	107	44	38	41	496	416	447	480	376	423 ^a
1	50.4	48.0	15.9	14.9	151	92	119	48	43	46	544	432	468 ^a	576	424	485 ^a
1	49.2	47.2	14.9	13.7	115	87	102	47	41	44	496	400	447 ^a	440	352	398 ^a
1	50.0	48.2	14.9	14.0	120	84	104	47	41	44	536	408	483 ^a	480	384	430 ^a
1	49.6	47.2	15.1	13.8	110	70	94	47	39	43	528	432	457 ^a	456	384	410 ^a
1	45.6	44.0	14.0	13.0	109	83	96	42	36	38	488	392	439 ^a	416	352	387 ^a
1	45.6	42.6	13.0	12.0	126	79	105	40	33	36	432	368	398 ^a	456	360	397 ^a
																419
																437
																95.9

one or more specimens which tore beyond the 3/8-inch limit.

TABLE XIII

SUMMARY OF INDIVIDUAL TEST LOTS - APRIL 1 THROUGH APRIL 30, 1950 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		In Max. Min.				
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
Mill # 44/46-lb. Drum Linerboard																	
142089	E-152	4/ 5/50	3/30/50	1	45.6	43.6	44.6	14.3	13.3	119	86	107	44	38	41	496	416
142174	E-153	4/ 7/50	4/ 4/50	1	50.4	48.0	49.2	15.9	14.2	151	92	119	48	43	46	544	432
142192	E-154	4/10/50	4/ 7/50	1	49.2	47.2	48.0	14.9	13.7	115	87	102	47	41	44	496	400
142205	E-155	4/13/50	4/11/50	1	50.0	48.2	48.8	14.9	14.0	120	84	104	47	41	44	536	408
142327	E-156	4/20/50	4/14/50	1	49.6	47.2	48.3	15.1	13.8	110	70	94	47	39	43	528	432
142328	E-157	4/20/50	4/17/50	1	45.6	44.0	44.8	14.0	13.0	109	83	96	42	36	38	488	392
142385	E-158	4/27/50	4/24/50	1	45.6	42.6	44.1	13.0	12.0	126	79	105	40	33	36	432	368
Current Mill Average:							46.8		14.0		104		42				
Cumulative Mill Average:							46.8		14.0		100		41				
Mill Factor, %							100.0		100.0		104.0		102.4				

a This average includes the readings for one or more specimens which were beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XIV, the atmospheric conditions used prior to and during the testing period varied considerably.

TABLE XIV

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., ° F.	Time, hr.	R.H., %	Temp., ° F.	Time, hr.
A	45-50	70	--	45-55	70	--
B	43-65	59-80	1/2	50	70	24
C	40-56	73-75	24-96	39-57	73-75	24-48
D	34-35	70-71	8	50	74	16
E	No samples submitted					
F	No preconditioning			No conditioning		
G	No preconditioning			No conditioning		
H	No preconditioning			50	73	24
I	No preconditioning			55-60	74-75	--
J	No preconditioning			49-51	73-74	1/2

A summary of the mill comparisons for the current period as compared with the previous period may be seen in Tables XV and XVI, respectively. The comparisons for the various mills are given in Tables XVII to XXVI, inclusive, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XXVII. In all the comparisons given in Tables XV to XXVII, inclusive, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XV and XVI indicates that in the majority of cases there is good agreement between the mill and Institute data. Table XV shows the average difference encountered in the comparison of Institute and mill results for the sample lots submitted by each mill for the current period, as well as the maximum difference encountered in comparing the Institute and mill test results for a given sample lot. In Table XVI, the average differences shown in Table XV have been calculated on a percentage basis for each test and each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XVI that the maximum variation in the average basis weight between the results of the Institute and those of a given mill on corresponding samples is two per cent for the current period. This figure compares favorably with the maximum variation of two per cent for the preceding two periods. Further, it may be noted that the average basis weight results for all mills are lower than those for the Institute. The agreement in basis weight results is very good for the current period.

The maximum variation in caliper for the current period is seven per cent. Compared with the values for the Institute, the average results for Mills B, C, D, F, and I are lower, the average result for Mill G is higher, and the average results for Mills A, H and J are the same. None of these differences appear to be significantly large with the possible exception of the difference for Mill F.

It may be noted in Table XVI that the bursting strength results show a maximum variation of six per cent for the current period. The results for Mills B, C, D, F, H, and J are lower than those for the Institute, while the average results for Mills G and I are the same and the average result for Mill A is higher. The agreement in bursting strength results is very good for the current period.

The G. E. puncture results exhibit a maximum variation of twelve per cent for the current period. Compared with the values for the Institute, the result for Mill A is higher, the average result for Mills B, C, F, and J are lower, and the average results for Mills G and H are the same. The differences encountered for Mills B and J appear to be rather large.

It may be seen in Table XV that the average differences encountered in connection with the machine direction tear results are negative for Mills B, C, D, F, G, H, I, and J and positive for Mill A. The maximum variation for the current period is fourteen per cent. The differences encountered for Mills B, D, F, and H appear to be rather large.

With regard to the across-machine direction tear results, it may be noted that positive difference is shown for Mill J, and negative differences for Mills A, B, C, D, F, G, H, and I. A maximum variation of 13 per cent is noted for the current period. The differences encountered for Mills B, D, and F appear to be incompatible with the variations for the other mills.

TABLE XV
SUMMARY OF TEST RESULT COMPARISONS

Average Mill and Institute Results	Mills*									
	A	B	C	D	E	F	G	H	I	J
No. Samples Compared	4	6	8	10	0	6	6	5	2	8
Basis Weight										
Institute	43.3	45.0	43.1	43.4	--	44.5	42.9	43.7	42.6	42.9
Mill	43.2	44.5	42.3	43.1	--	43.4	42.7	43.6	42.4	42.8
Av. difference**	-0.1	-0.5	-0.8	-0.3	--	-1.1	-0.2	-0.1	-0.2	-0.1
Max. difference***	-0.3	-1.0	-1.3	-0.6	--	-1.4	-1.3	-0.6	-0.4	±0.5
Caliper										
Institute	13.3	14.4	13.5	13.1	--	14.7	13.2	14.2	11.6	13.6
Mill	13.3	14.3	13.3	12.8	--	13.7	13.4	14.2	11.4	13.6
Av. difference**	0.0	-0.1	-0.2	-0.3	--	-1.0	+0.2	0.0	-0.2	0.0
Max. difference***	-0.3	-0.4	-0.5	-0.6	--	-1.5	+0.3	+0.2	-0.5	-0.2
Bursting Strength										
Institute	107	109	107	116	--	113	111	109	109	106
Mill	112	107	106	113	--	106	111	105	109	102
Av. difference**	+5	-2	-1	-3	--	-7	0	-4	0	-4
Max. difference***	+9	-6	-3	-9	--	-9	-4	-7	+2	-8
G. E. Puncture										
Institute	36	38	38	41	--	42	35	36	28	33
Mill	39	34	37	--	--	39	35	36	--	29
Av. difference**	+3	-4	-1	--	--	-3	0	0	--	-4
Max. difference***	+6	-6	±2	--	--	-7	-4	+3	--	-5
Tearing Strength, in										
Institute	363	380	380	414	--	428	356	408	307	372
Mill	364	328	363	355	--	357	341	355	301	355
Av. difference**	+1	-52	-17	-59	--	-71	-15	-53	-6	-17
Max. difference***	+19	-89	-44	-80	--	-96	-34	-82	-29	-46
Tearing Strength, across										
Institute	409	423	427	438	--	460	388	413	358	375
Mill	400	382	419	402	--	402	384	392	345	377
Av. difference**	-9	-41	-8	-36	--	-58	-4	-21	-13	+2
Max. difference***	-27	-79	-50	-56	--	-94	-19	-42	-24	-26

- * Comparison based on averages involves only those samples on which mill test data were submitted.
- ** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
- *** Maximum difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XVI
 SUMMARY OF TEST RESULTS--COMPARISON BY PERIODS

	Average Differences, per cent					
	Basis Weight	Caliper	Bursting Strength	G. Z. Puncture	Tearing Strength, 1 in	Tearing Strength across
Mill A						
Current period	-0.2	0	+5	+8	+0.3	2
33rd period	-0.7	-1	-3	+12	+1.3	2
32nd period	+0.2	-1	+3	+9	+2	2
Mill B						
Current period	-1	-0.7	-2	-11	-14	-10
33rd period	-1	0	-3	+6	-6	-6.7
32nd period	+0.9	-0.7	0	-6	-5	-5
Mill C						
Current period	-2	-1	-0.9	-3	-4	2
33rd period	-2	-1	-2	-11	-6	2
32nd period	-0.2	-1	+2	-8	-6	0
Mill D						
Current period	-0.7	-2	-3	--	-14	2
33rd period	-0.9	-3	0	--	-14	2
32nd period	-0.5	-1	+3	--	-17	-10
Mill E						
Current period	--	--	--	--	--	--
33rd period	--	--	--	--	--	--
32nd period	--	--	--	--	--	--
Mill F						
Current period	-2	-7	-6	-7	-17	-13
33rd period	-2	-6	-4	-2	-17	-4
32nd period	-0.2	-4	-4	-5	--	-5
Mill G						
Current period	-0.5	+2	0	0	-4	-1
33rd period	-0.2	0	-0.9	+3	-2	2
32nd period	+1	+0.7	+4	+5	-1	-3
Mill H						
Current period	-0.2	0	-4	0	-13	-5
33rd period	-0.7	+0.7	0	+3	+10	+9
32nd period	0	-2	+3	0	-14	-10
Mill I						
Current period	-0.5	-2	0	--	--	--
33rd period	--	--	--	--	--	--
32nd period	--	--	--	--	--	--
Mill J						
Current period	-0.2	0	-4	-12	--	+6.5
33rd period	-0.7	0	-3	-5	--	+6
32nd period	0	+1	-3	-5	--	+6.5

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950
Institute Data versus Mill Data

TABLE XVII

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.	IPC Mill Diff.	Caliper, points	IPC Mill Diff.	Bursting Strength, points	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	G. E. Puncture, units	IPC Mill Diff.	In Mill	Elmc g
142022	A-130	WF1S	3/29/50	2	43.5	+0.2	13.1	+0.1	107	+8	37	39	+2	356 ^a	351	
142206	A-131	WF1S	4/ 3/50	1	43.8	-0.3	13.1	0.0	115	+1	36	42	+6	380 ^a	399	
142329	A-132	WF1S	4/17/50	2	43.3	-0.2	13.9	-0.3	100	+9	36	38	+2	354	347	
142330	A-133	WF1S	4/18/50	2	42.4	+0.2	13.1	0.0	107	+1	36	38	+2	361	357	
Current Mill Average:																
					43.3	-0.1	13.3	0.0	107	+5	36	39	+3	363	364	

Mill A-42-1b. Linerboard

TABLE XVIII

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.	IPC Mill Diff.	Caliper, points	IPC Mill Diff.	Bursting Strength, points	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	G. E. Puncture, units	IPC Mill Diff.	In Mill	Elmc g
142023	B-209	WF1S	3/12/50	1	45.0	0.0	14.7	-0.2	107	0	39	35	-4	382 ^a	346	
142024	B-210	WF1S	3/21/50	1	45.2	-0.5	14.5	+0.2	109	0	38	33	-5	387 ^a	309	
142193	B-211 ^b	WF1S	3/27/50	3	44.7	-0.4	13.8	-0.3	116	0	37	33	-4	379 ^a	344	
142198	B-212	WF1S	4/ 1/50	1	45.4	-0.8	14.4	+0.1	108	0	40	34	-6	366	338	
142199	B-213	WF1S	4/ 3/50	1	43.7	-0.7	14.3	-0.2	104	-3	34	32	-2	363 ^a	274	
142204	B-214	WF1S	4/ 4/50	3	46.1	-1.0	14.8	-0.4	109	-6	40	34	-6	405 ^a	357	
Current Mill Average:																
					45.0	-0.5	14.4	-0.1	109	-2	38	34	-4	380	328	

Mill B-42-1b. Linerboard

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^b The sample received by the Institute contained a "C" series instead of a "D" series.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIX

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950 (Continued)
Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		Puncture, units		IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	In Mill D		
					IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill					Diff.	
<u>Mill C--42-lb. Linerboard</u>																		
142072	C-198	W.F.	3/27/50	1	42.8	42.0	-0.8	13.7	13.4	-0.3	109	106	-3	38	36	-2	412 ^a	373
142073	C-199	W.F.	3/28/50	1	42.8	42.3	-0.5	13.7	13.3	-0.4	109	108	-1	38	36	-2	388 ^a	344
142196	C-200	W.F.	3/31/50	1	43.4	42.6	-0.8	14.1	14.0	-0.1	106	104	-2	38	38	0	353 ^a	381
142277	C-201	W.F.	4/10/50	1	43.0	41.7	-1.3	13.2	13.0	-0.2	104	105	+1	38	36	-2	361 ^a	329
142280	C-202	W.F.	4/13/50	1	42.8	41.9	-0.9	13.0	12.8	-0.2	109	108	-1	38	36	-2	387 ^a	350
142344	C-203	W.F.	4/17/50	1	42.6	42.0	-0.6	13.7	13.2	-0.5	104	102	-2	38	38	0	375 ^a	384
142407	C-204	D.F.	4/21/50	1	44.5	43.7	-0.8	13.7	13.6	-0.1	108	108	0	39	41	+2	392	373
142408	C-205	W.F.	4/24/50	1	42.6	42.2	-0.4	13.0	13.0	0.0	110	108	-2	39	40	+1	370 ^a	366
Current Mill Average:																		
					43.1	42.3	-0.8	13.5	13.3	-0.2	107	106	-1	38	37	-1	380	363

TABLE XX

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		Puncture, units		IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	In Mill D		
					IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill					Diff.	
<u>Mill D--42-lb. Linerboard</u>																		
142025	D-208	D.F.	3/30/50	4	43.3	43.5	+0.2	13.0	12.6	-0.4	119	111	-8	40	40	0	411 ^a	347
142026	D-209	D.F.	3/31/50	4	43.2	42.9	-0.3	13.2	12.8	-0.4	113	112	-1	43	43	0	406 ^a	341
142090	D-210	D.F.	4/ 1/50	4	42.5	42.4	-0.1	12.4	12.4	0.0	120	111	-9	38	38	0	374 ^a	331
142091	D-211	D.F.	4/ 2/50	4	43.5	43.4	-0.1	13.5	12.9	-0.6	109	110	+1	42	42	0	401 ^a	355
142207	D-212	D.F.	4/11/50	4	42.3	42.1	-0.2	12.3	12.2	-0.1	114	113	-1	39	39	0	409 ^a	339
142275	D-213	D.F.	4/12/50	4	43.7	43.2	-0.5	13.1	12.9	-0.2	113	112	-1	43	43	0	425 ^a	373
142276	D-214	D.F.	4/13/50	4	43.6	43.1	-0.5	13.4	12.9	-0.5	111	112	+1	42	42	0	421 ^a	367
142341	D-215	D.F.	4/20/50	4	43.4	43.1	-0.3	12.9	12.7	-0.2	129	120	-9	41	41	0	437 ^a	357
142360	D-216 ^b	D.F.	4/21/50	4	43.9	43.3	-0.6	13.8	13.4	-0.4	114	112	-2	41	41	0	415 ^a	360
142361	D-217	D.F.	4/22/50	4	44.2	44.1	-0.1	13.5	13.2	-0.3	116	116	0	43	43	0	439 ^a	384
Current Mill Average:																		
					43.4	43.1	-0.3	13.1	12.8	-0.3	116	113	-3	41	41	0	414	355

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
b The sample sent to the Institute had two sheets marked B-2 in the B series but none marked B-1. One sheet was arbitrarily changed to B-1.

Note: All "C" values individual

TABLE XXI

SUMMARY OF INDIVIDUAL TEST LOTS - APRIL 1 THROUGH APRIL 30, 1950 (Continued)
Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		G. E. Puncture, units		Elm. In Mill Diff. IPC Mill Diff. IPC Mill Diff.
					IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.	

Mill E-42-lb. Linerboard

No samples submitted.

TABLE XXII

Mill F-42-lb. Linerboard

142202	F-29	S.F.	4/5/50	--	43.9	42.8	-1.1	14.1	13.3	-0.8	120	111	-9	42	40	-2	431 ^a	370
142203	F-30	S.F.	4/6/50	--	45.4	44.0	-1.4	14.7	13.8	-0.9	118	114	-4	40	39	-1	436 ^a	350
142281	F-31 ^b	S.F.	4/13/50	--	44.3	43.0	-1.3	14.8	13.9	-0.9	105	100	-5	43	38	-5	425 ^a	329
142282	F-32	S.F.	4/14/50	--	46.0	44.6	-1.4	16.1	14.6	-1.5	112	105	-7	47	40	-7	435 ^a	345
142362	F-33	S.F.	4/18/50	--	43.4	42.5	-0.9	14.2	13.5	-0.7	113	106	-7	40	40	0	432 ^a	376
142363	F-34	S.F.	4/19/50	--	44.2	43.4	-0.8	14.3	13.4	-0.9	111	103	-8	40	38	-2	407 ^a	372
Current Mill Average:					44.5	43.4	-1.1	14.7	13.7	-1.0	113	106	-7	42	39	-3	428	357

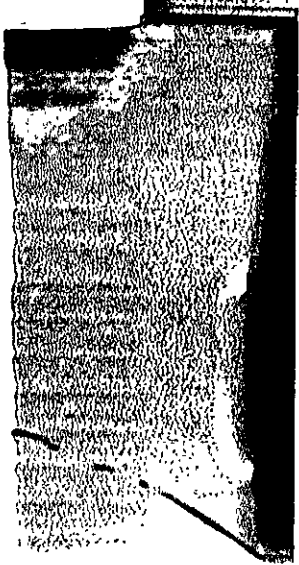
TABLE XXIII

Mill G-42-lb. Linerboard

142200	G-246	W.F.	4/8/50	1	43.0	43.0	0.0	13.1	13.1	0.0	113	113	0	35	36	+1	369 ^a	335
142201	G-247 ^c	W.F.	4/8/50	1	43.4	42.1	-1.3	13.2	13.5	+0.3	112	112	0	38	34	-4	359 ^a	348
142208	G-248 ^d	W.F.	4/10/50	1	42.2	42.7	+0.5	13.2	13.5	+0.3	111	107	-4	35	36	+1	337 ^a	341
142209	G-249	W.F.	4/11/50	1	42.5	42.8	+0.3	12.9	13.1	+0.2	115	115	0	32	33	+1	352 ^a	330
142339	G-250	W.F.	4/20/50	1	43.0	42.8	-0.2	13.3	13.5	+0.2	110	109	-1	36	35	-1	373 ^a	344
142340	G-251	W.F.	4/20/50	1	43.4	43.1	-0.3	13.5	13.5	0.0	107	109	+2	34	36	+2	349 ^a	351
Current Mill Average:					42.9	42.7	-0.2	13.2	13.4	+0.2	111	111	0	35	35	0	356	341

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
 b Sheets B-7 and D-8 of the Institute sample had stained spots on them, apparently from water after drying.
 c The sample received by the Institute contained two sheets marked F-1 but none marked F-6. One of the F-1 sheets was tested as if it were F-6.
 d Only the top sheet in each series was identified as to series and number; these sheets were labeled B-1, D-1, and F-1. It was assumed that the remainder of the sheets were in the usual order and they were therefore arbitrarily identified as B-2 through B-8, D-2 through D-8, and F-2 through F-8.

Note: All " are c of tr



SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1950. (Cont. Inued)

TABLE XXIV

Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, points		IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	In Mill Diff.	Elmenc S./				
					IPC	Mill	IPC	Mill	IPC	Mill						IPC	Mill		
142197	H-158	WF1S	3/28/50	2	44.5	44.0	-0.5	14.7	14.6	-0.1	107	103	-4	38	37	-1	436 ^a	373	-63
142278	H-159	WF1S	4/ 3/50	2	42.8	43.3	+0.5	13.8	13.8	0.0	113	110	-3	33	36	+3	365	355	-10
142279	H-160	WF1S	4/ 4/50	2	44.0	44.0	0.0	14.5	14.4	-0.1	105	103	-2	36	37	+1	431 ^a	349	-82
142342	H-161 ^b	WF1S	4/11/50	2	43.0	43.1	+0.1	13.8	13.8	0.0	107	106	-1	36	36	0	398	331	-67
142343	H-162	WF1S	4/12/50	2	44.2	43.6	-0.6	14.4	14.6	+0.2	110	103	-7	38	36	-2	412	365	-47
Current Mill Average					43.7	43.6	-0.1	14.2	14.2	0.0	109	105	-4	36	36	0	408	355	-53

Mill H-42-lb. Linerboard

TABLE XXV

Mill I-42-lb. Linerboard

142386	I-96 ^c	W.F.	4/18/50	1	42.3	42.5	+0.2	11.6	11.7	+0.1	111	110	-1	28			312 ^a	329	+17
142387	I-97	W.F.	4/21/50	1	42.8	42.4	-0.4	11.7	11.2	-0.5	107	109	+2	27			302 ^a	273	-29
Current Mill Average:					42.6	42.4	-0.2	11.6	11.4	-0.2	109	109	0	28			307	301	-6

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^b Only F-1 sheet in the F series of the Institute sample was identified. The numbers F-2 through F-8 were arbitrarily assigned to the rest of the sheets in this series.
^c There was one unidentified sheet in the F series of the Institute sample. Since the F-8 sheet was missing, this number was arbitrarily assigned to the unidentified sheet.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXVI

SUMMARY OF INDIVIDUAL TEST LOTS APRIL 1 THROUGH APRIL 30, 1950 (Continued)

Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, points		IPC Mill Diff.	Caliper, points		IPC Mill Diff.	Bursting Strength, points		IPC Mill Diff.	IPC Mill Diff.	In Mill	Elme g.	
					IPC	Mill		IPC	Mill		IPC	Mill					IPC
142092	J-195	D.F.	3/24/50	1	43.2	43.0	-0.2	14.4	14.5	+0.1	107	104	-3	35	379a	353	-2
142093	J-196	B.F.	3/24/50	1	43.0	43.5	+0.5	13.6	13.4	-0.2	105	104	-1	33	353a	351	-
142172	J-197	B.F.	3/28/50	1	41.8	42.0	+0.2	13.2	13.2	0.0	102	98	-4	30	379a	333	-4
142173	J-198	B.F.	3/28/50	1	42.6	42.8	+0.2	13.2	13.2	0.0	105	97	-8	31	378a	346	-3
142194	J-199	B.F.	4/ 3/50	1	43.2	42.9	-0.3	13.3	13.1	-0.2	104	101	-3	33	379a	365	-1
142195	J-200	D.F.	4/ 4/50	1	43.1	42.7	-0.4	14.2	14.2	0.0	110	104	-6	35	369a	355	-1
142331	J-201	B.F.	4/14/50	1	43.5	43.0	-0.5	13.6	13.6	0.0	102	100	-2	33	380a	377	-
142332	J-202	B.F.	4/14/50	1	42.6	42.7	+0.1	13.3	13.4	+0.1	111	108	-3	32	364a	359	-
Current Mill Average:					42.9	42.8	-0.1	13.6	13.6	0.0	106	102	-4	33	372	355	-17

TABLE XXVII

Mill E-44/46-lb. Drum Linerboard

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, points		IPC Mill Diff.	Caliper, points		IPC Mill Diff.	Bursting Strength, points		IPC Mill Diff.	IPC Mill Diff.	In Mill	Elme g.	
					IPC	Mill		IPC	Mill		IPC	Mill					IPC
142089	E-152		3/30/50	1	44.6	43.7	-0.9	13.9	12.4	-1.5	107	106	-1	41	447	324	-123
142174	E-153		4/ 4/50	1	49.2	48.2	-1.0	14.9	13.9	-1.0	119	107	-12	46	468 ^a	415	-53
142192	E-154		4/ 7/50	1	48.0	47.1	-0.9	14.3	13.2	-1.1	102	97	-5	44	447 ^a	363	-84
142205	E-155		4/11/50	1	48.8	48.3	-0.5	14.4	13.3	-1.1	104	100	-4	44	483a	437	-46
142327	E-156		4/14/50	1	48.3	46.5	-1.8	14.7	13.4	-1.3	94	95	+1	43	457 ^a	353	-104
142328	E-157		4/17/50	1	44.8	42.8	-2.0	13.5	12.0	-1.5	96	98	+2	38	439 ^a	362	-77
142385	E-158		4/24/50	1	44.1	44.4	+0.3	12.6	11.9	-0.7	105	105	0	36	398a	437	+99
Current Mill Average:					46.8	45.9	-0.9	14.0	12.9	-1.1	104	101	-3	42	448	384	-64

^a This average includes the readings for one or more specimens which were beyond the 3/8-inch limit.

Note: All "average" data are calculated from the basis of the individual readings.

