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McCORMACK
#5

ASTEN HILL MANUFACTURING COMPANY

PHILADELPHIA, PENNSYLVANIA

1957

PENNSYLVANIA MANUFACTURERS' ASSOCIATION
CASUALTY INSURANCE COMPANY
SAFETY ENGINEERING DEPARTMENT

#9

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

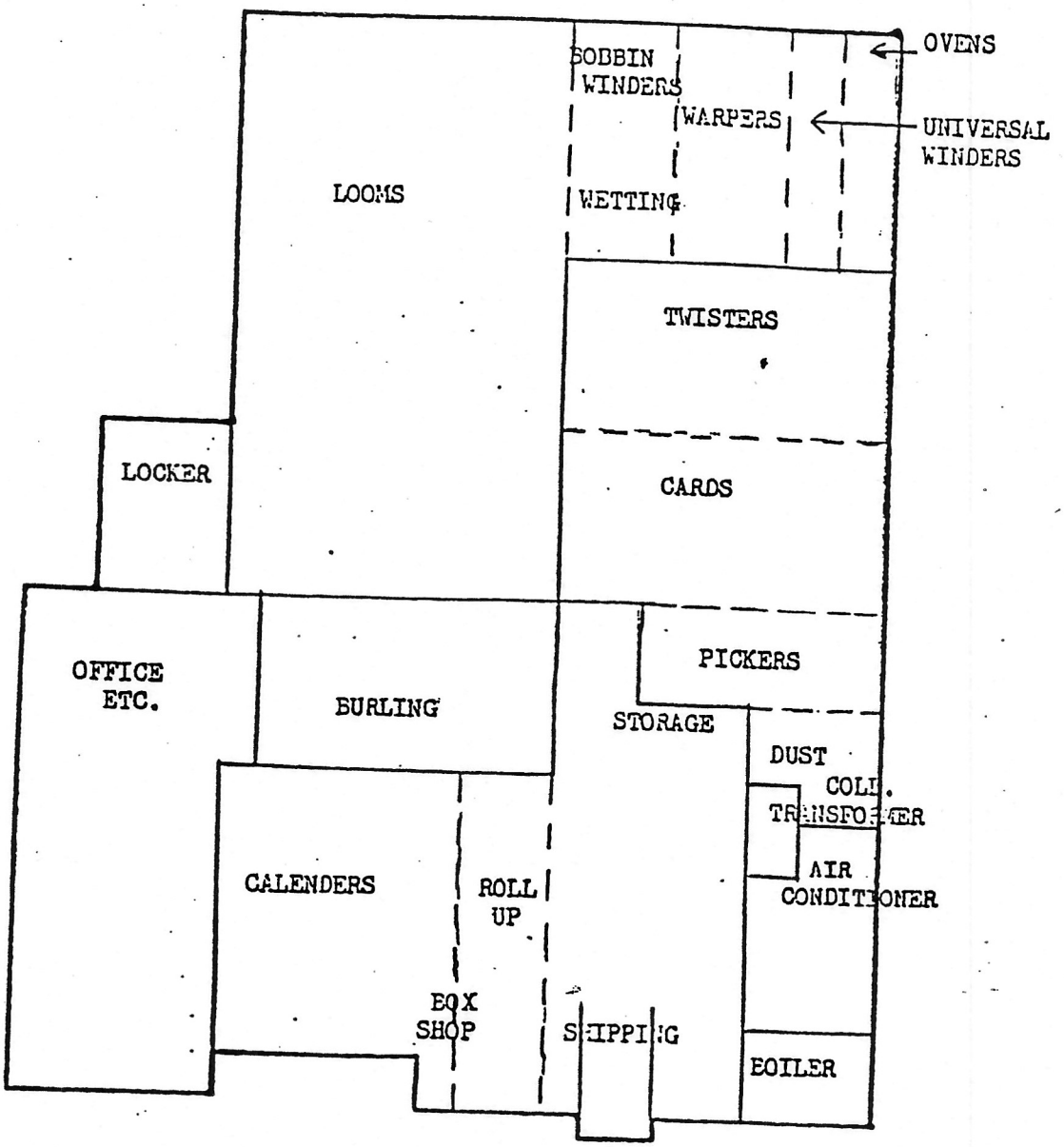
In response to a request from Mr. D. R. Holmes, General Superintendent and Mr. John McCormick, Plant Engineer of the above named plant a survey was made in each of the areas of this plant to determine the concentrations of dust existing in the atmosphere at these areas. This survey was started in February 1957 and samples were taken intermittently until July 1957.

It is common practice in the asbestos industry to take atmospheric samples for 30 minutes at the rate of one cubic foot of air per minute. This procedure was followed throughout the plant when the large impinger was used as the sampling instrument. However, the samples of 10 minute duration using the midget impinger were taken at various areas throughout the plant. This was done for two main reasons. First, samples could be processed in those areas between and around the areas where the larger impinger was used, and secondly, certain areas were more easily accessable with the midget impinger. It is not intended to deviate from the technique as used by the asbestos industry by the use of these shorter time samples, but rather they are used to augment the facts gained by the conventional sampling. In this case they merely supported the information found by the conventional sampling.

Because of the similarity of machines it was decided that each sampling position would be indicated on a plant layout in order for the plant officials to better fix the sampling position.

PHILADELPHIA, PENNSYLVANIA

FLOOR PLAN



Dust Collection Area

This area is enclosed on three sides by walls but opens on the other side to the picking and blending rooms. Dust collectors take up most of the area of the room itself but there are passage ways through and around the collectors. The bottoms of the collectors have access doors from which the "fly" is removed. The fly (a combination of cotton and asbestos) is either gathered in storage piles in the area or bagged. With the exception of the times when the fly is being handled or transported this room should offer no excessive exposure to anyone in this area. Judging from some samples taken elsewhere in the plant when the "fly" is transported or bagged it is possible for dust samples in excess of the maximum allowable concentration to exist. However, the range of dissemination of this dust is small so as to expose only the operator of the task. It is also true that these tasks are performed only intermittently, thereby only part of a man's time would be required by this operation. Therefore, it is doubtful if the man performing this operation is exposed to excessive dust when an average exposure for a 40 hour work week is considered.

However, to remove any doubt of an excessive exposure, an approved type respirator may be used when the fly is being moved or bagged. It is believed that this would adequately reduce the exposure in this room to insure safe working conditions.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

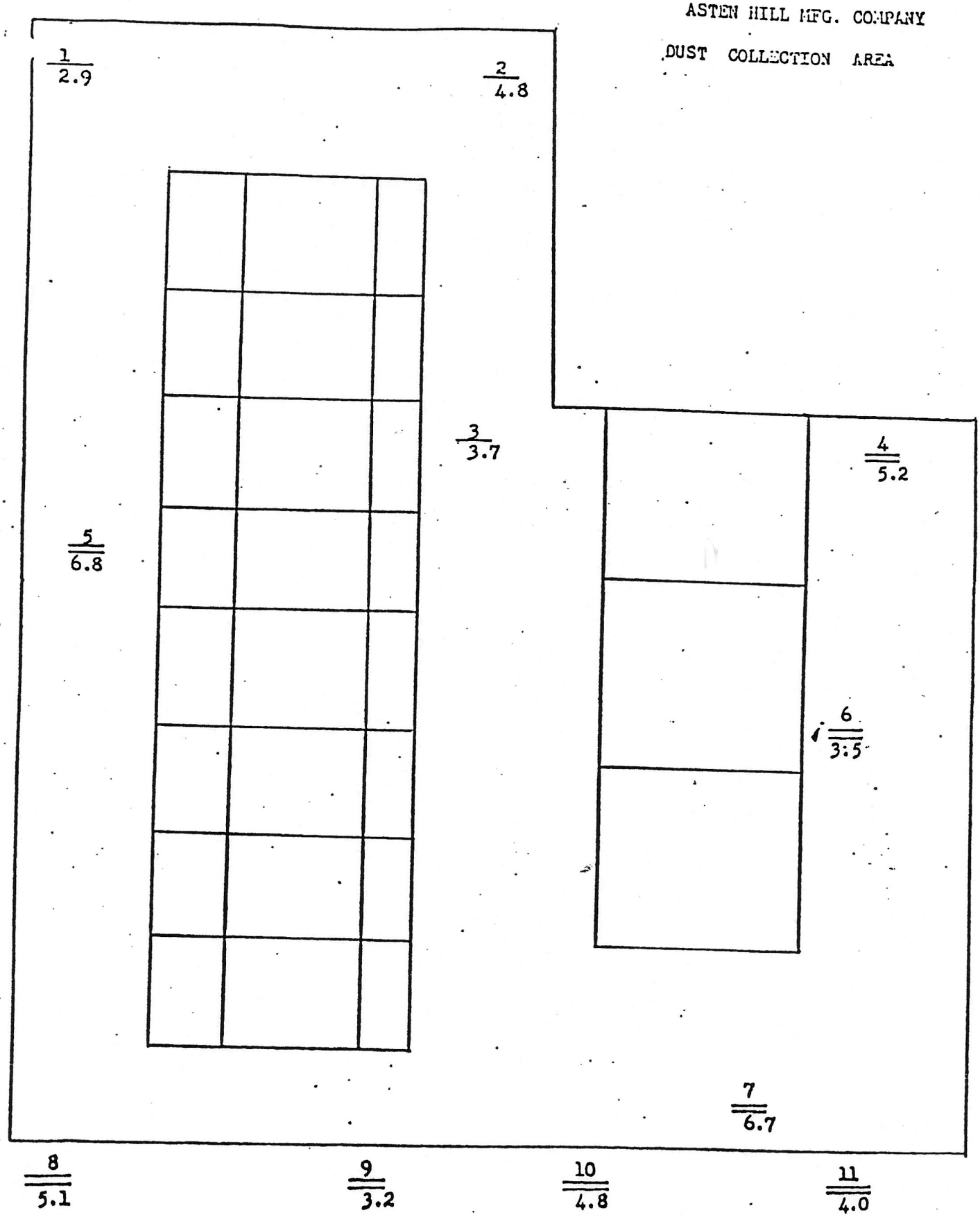
DUST COLLECTION AREA

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air. 30 minutes sampling	10 minutes sampling	Remarks
1	Dust Collection Area		2.9	Rear of room (No bagging)
2	"		4.8	" "
3	"		3.7	Center of room "
4	"	5.2		Corner of room "
5	"	6.8		Center of room " East
6	"	3.5		" " West
7	"	6.7		Near asbestos blender
	Average	5.2	3.8	
	Over-all Average	4.5		

Maximum allowable concentration for asbestos dust is 5 millions of particles per cubic foot.

ASTEN HILL MFG. COMPANY

DUST COLLECTION AREA



[illegible] Room

This room is open on two sides one of which faces the dust collection room and other the card room. There are walls on both ends.

On the first day this room was surveyed, samples taken at all areas with the exception of the picker and loader area and another area where piled asbestos fly was being shoveled from one location to another, were found to be below the maximum allowable concentration of 5 million particles of asbestos dust per cubic foot.

Trouble with the final picker had developed previous to the sampling and a large pile of asbestos was being hand fed into the production line immediately before the final picker. Samples No. 8, 15 to 18 inclusive, were taken at or near this operation. These samples were found to average 7.3 millions of particles of this dust per cubic foot. Subsequent samples #196 to #201 each taken on a different day indicated a lower concentration than that found on the first day. These samples were found to average 4.5. It is believed that this latter average (4.5) is a more acceptable indication of the average dust count at this operation. The first samples (average 7.3) were included so as to show the concentrations which may develop when piled asbestos is handled.

Other samples (No. 19, 20 and 26) indicated that when the piled asbestos is handled concentrations in excess of 5 million particles may exist in the air.

As a result of all the samples taken it is doubtful if any of the men in this department are exposed to excessive dust when a 40 hour work week is considered. However, as indicated short term exposures exceeding the accepted limit may occur. It is believed that the use of a respirator during those periods would adequately insure safe conditions.

Philadelphia, Pennsylvania

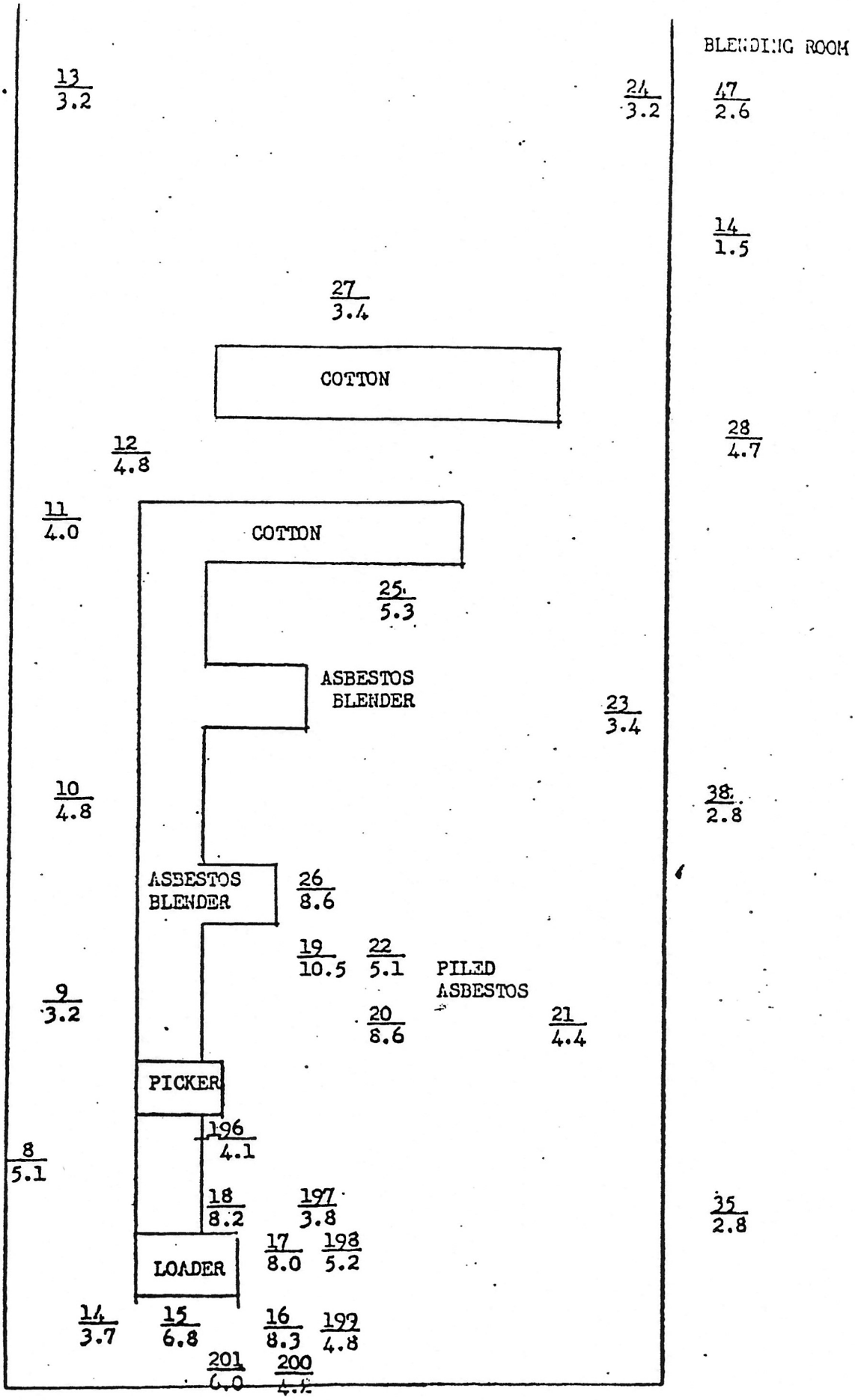
DUST CONCENTRATIONS

PICKER & BLENDING ROOM

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
8	Picker & Blender	5.1		Behind truck loader
9	"		3.2	Behind picker
10	"		4.8	Behind blender
11	"	4.0		Behind picker
12	"		4.8	Between cotton & picker
13	"		3.2	Corner of picker room
14	"		3.7	At bin truck and picker
15	"	6.8		"
16	"	8.3		"
17	"	8.0		"
18	"	8.2		"
19	"	10.5		At asbestos blender - shoveling piled asbestos
20	"		8.6	Piles asbestos - shoveling piled asbestos
21	"		4.4	Area near cards
22	"		5.1	At asbestos pile
23	"		3.4	Area near cards
24	"		3.2	"
25	"	5.3		At cotton blender - shoveling
26	"		8.6	At asbestos blender - "
27	"	3.4		At cotton picker
196	Picker & Loading Truck		4.1	Taken on different day
197	"		3.8	Taken on separate day
198	"		5.2	Taken on separate day
199	"	4.8		"
200	"		4.2	"
201	"	6.0		"
Average		6.4	4.5	
Total Average		5.4		
Average	Hand fed Operation	7.3		#8 & #15 to #18
Average	Same on Subsequent Days	4.5		#196 to #201
Average	Shoveling Piled Asbestos	8.3		#19, #20, #25, & #26
Average	General Samples no hand feeding	4.2		no shoveling

UFACTURING CO.

DELPHIA, PENNA.



Card Room

The card room is open on two sides one of which faces the picking room, the other, the twisting room. Samples taken in this room average below the threshold limit of 5 million particles. Samples No. 28, 29 and 30, where concentrations showed, 4.7, 5.1, and 7.0 respectively, were taken on the day that the high concentrations at the picker were found and "fly" shoveling was being done in an adjacent area. It is believed that these represent an exaggerated rather than a normal condition. Samples No. 35, 36 and 37 were higher than most of those taken throughout the room. It is believed that the dust concentrations found in this area may be due somewhat to its nearness to the truck loading operation in the picker room.

Little difference was noted from the dust concentration average from one side of the cards to the other.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

CARD ROOM

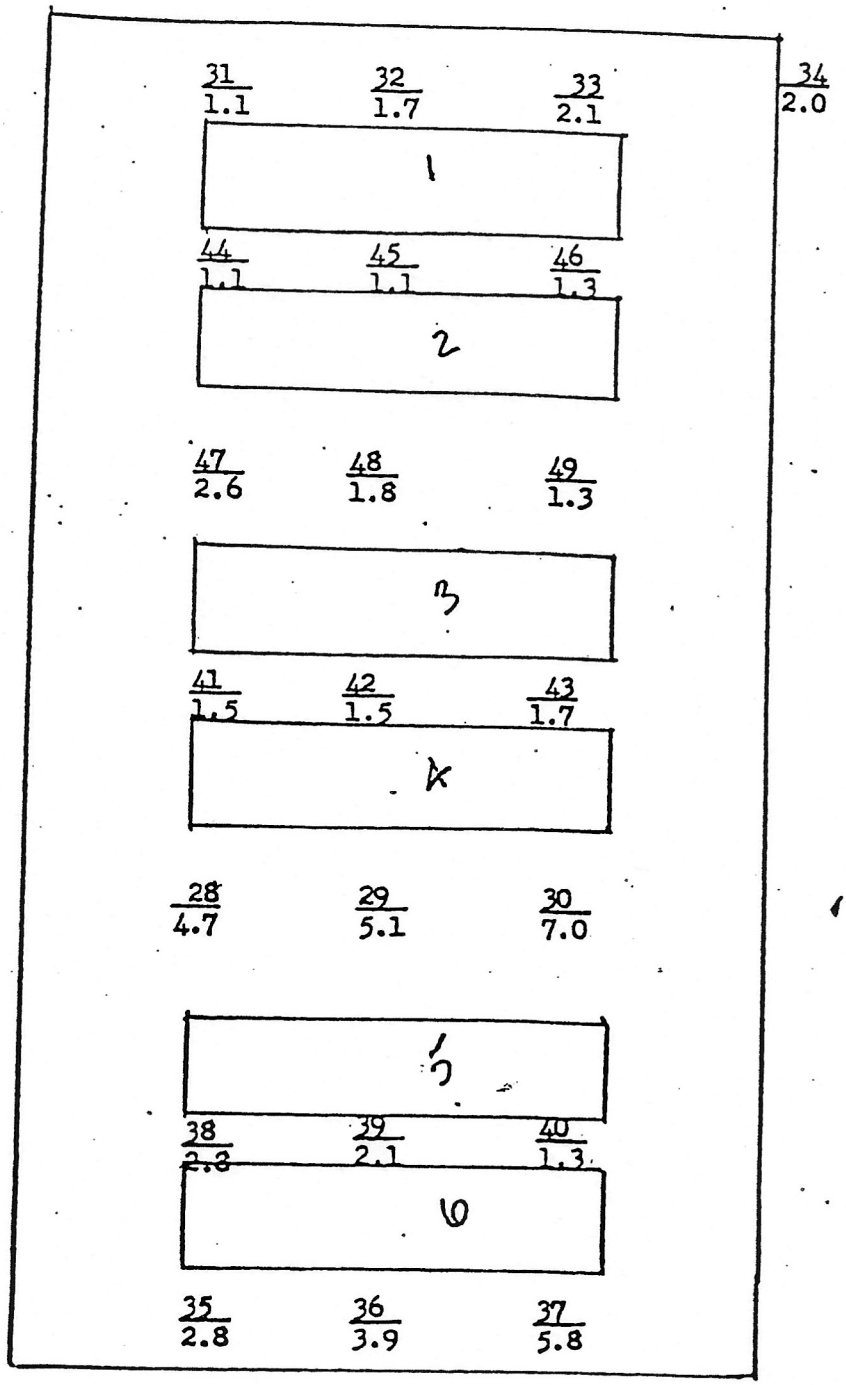
Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
28	Card Room	4.7		Feed end
29	"	5.1		Center
30	"	7.0		Take off end
31	"	1.1		Feed end
32	"	1.7		Center
33	"	2.1		Take off end
34	"		2.0	At desk
35	"	2.8		Feed end
36	"	3.9		Center
37	"	5.8		Take off end
38	"		2.8	Feed end
39	"		2.1	Center
40	"		1.3	Take off end
41	"		1.5	Feed end
42	"		1.5	Center
43	"		1.7	Take off end
44	"		1.1	Feed end
45	"		1.1	Center
46	"		1.3	Take off end
47		2.6		Feed end
48		1.8		Center
49		1.3		Take off end
Average		3.3	1.6	
Total Average		2.5		
Average Picker Side		2.4		
Average Center Side		2.5		
Average Take Off Side		2.9		

ASTEN HILL MANUFACTURING COMPANY

PHILADELPHIA, PENNSYLVANIA

DUST CONCENTRATIONS

CARD ROOM



Twisting Room

Samples were taken between each of the twisters and at three different points laterally. The dust concentrations found were low and were consistant throughout the entire area.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

Twisting Room

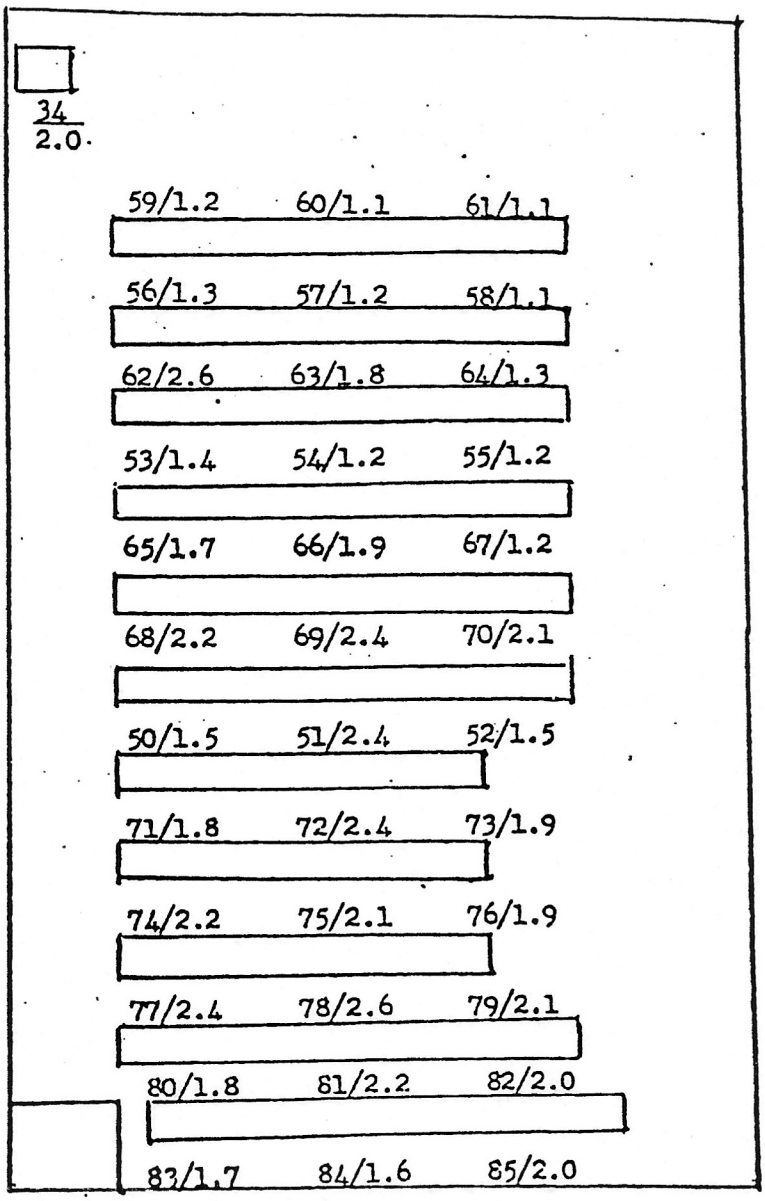
Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air. 30 minutes sampling	Dust Conc. in millions of particles per cubic foot of air. 10 minutes sampling	Remarks
50	Twisting Room	1.5		Card side
51	"	2.4		Center
52	"	2.1		Wall side
53	"		1.4	Card side
54	"		1.2	Center
55	"		1.2	Wall side
56	"		1.3	Card side
57	"		1.2	Center
58	"		1.1	Wall side
59	"		1.2	Card side
60	"		1.1	Center
61	"		1.1	Wall side
62	"	2.6		Card side
63	"	1.8		Center
64	"	1.3		Wall side
65	"		1.7	Card side
66	"		1.9	Center
67	"		2.1	Wall side
68	"		2.2	Card side
69	"		2.4	Center
70	"		2.1	Wall side
71	"		1.8	Card side
72	"		2.4	Center
73	"		1.9	Wall side
74	"	2.2		Card side
75	"	2.1		Center
76	"	1.9		Wall side
77	"	2.4		Card side
78	"	2.6		Center
79	"	2.1		Wall side
80	"		1.8	Card side
81	"		2.2	Center
82	"		2.0	Wall side
83	"		1.7	Card side
84	"		1.6	Center
85	"		2.0	Wall side
34			2.0	At desk
Average		2.1	1.7	
Total Average		1.9		

ASTEN HILL MANUFACTURING COMPANY

PHILADELPHIA, PENNSYLVANIA

DUST CONCENTRATIONS

TWISTING ROOM



Ovens and Universal Winders

Dust samples taken in these two areas were low and as in the twisting room were consistant throughout both of the areas.

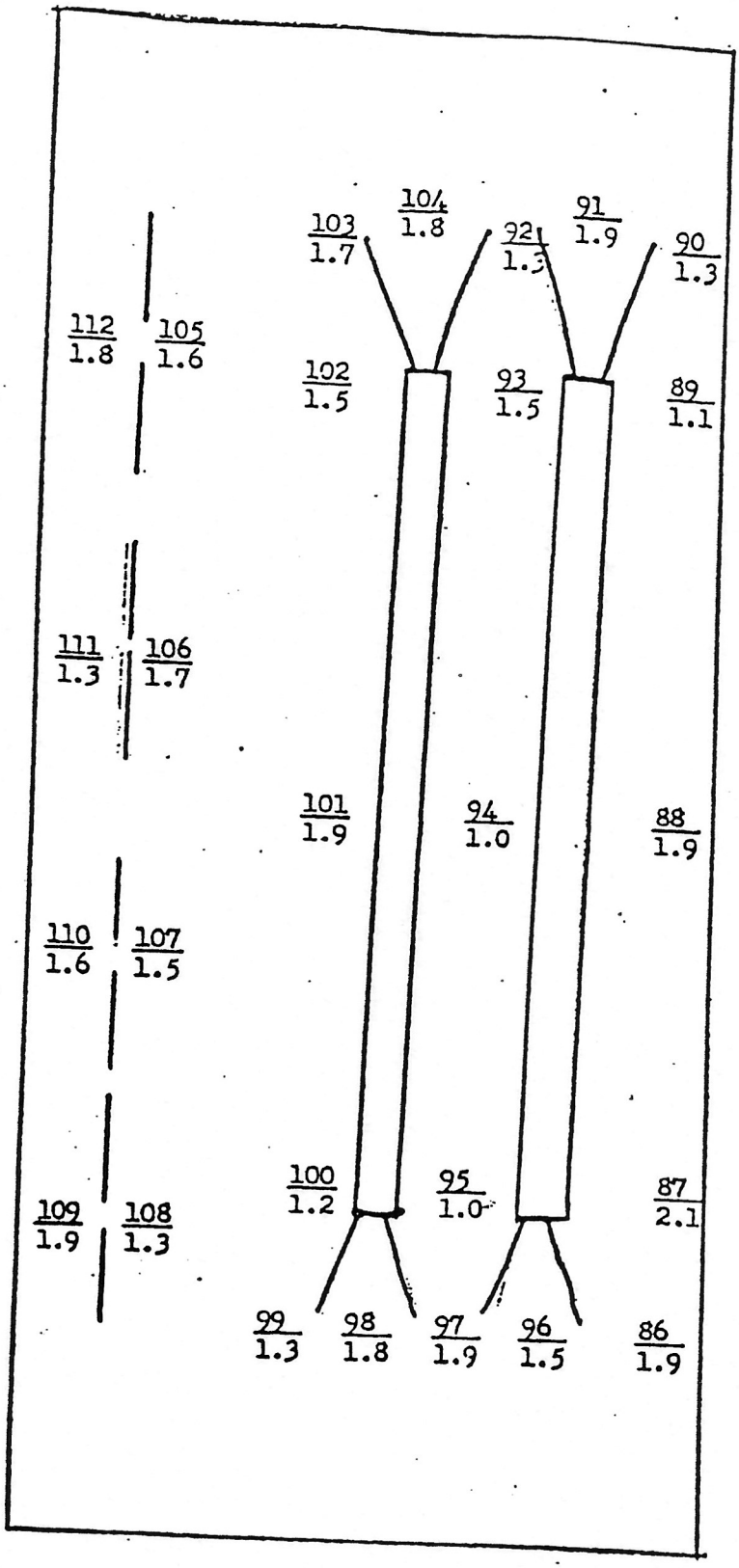
ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

OVENS AND UNIVERSAL WINDERS

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
86	Ovens		1.9	Feed end at operator
87	"		2.1	" oven
88	"		1.9	Center
89	"		1.1	Take off end (oven)
90	"		1.3	"
91	"	1.9		"
92	"		1.3	"
93	"	1.5		" (oven)
94	"	1.0		Center
95	"	1.0		Feed end
96	"	1.5		"
97	"		1.9	"
98	"	1.8		"
99	"		1.3	"
100	"		1.2	" (oven)
101	"		1.9	Center
102	"		1.5	Take off end
103	"		1.7	"
104	"	1.8		"
105	Universal Winders		1.6	Front universal winders
106	"	1.7		"
107	"		1.5	"
108	"	1.3		"
109	"		1.9	Rear universal winder at operator
110	"	1.6		"
111	"		1.3	"
112	"	1.8		"
Average		1.5	1.6	
Total Average		1.6		
Average Ovens		1.5		
Average Winders		1.6		

OVENS AND UNIVERSAL WINDERS



Warpers

The dust concentrations found in this department were low and were all below the accepted threshold limit of 5 million particles of dust per cubic foot. Because of a partial reduction of ventilation brought about by a vent in one of the ventilating ducts, on the day of the sampling conditions may even be better in this area under normal ventilation conditions.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

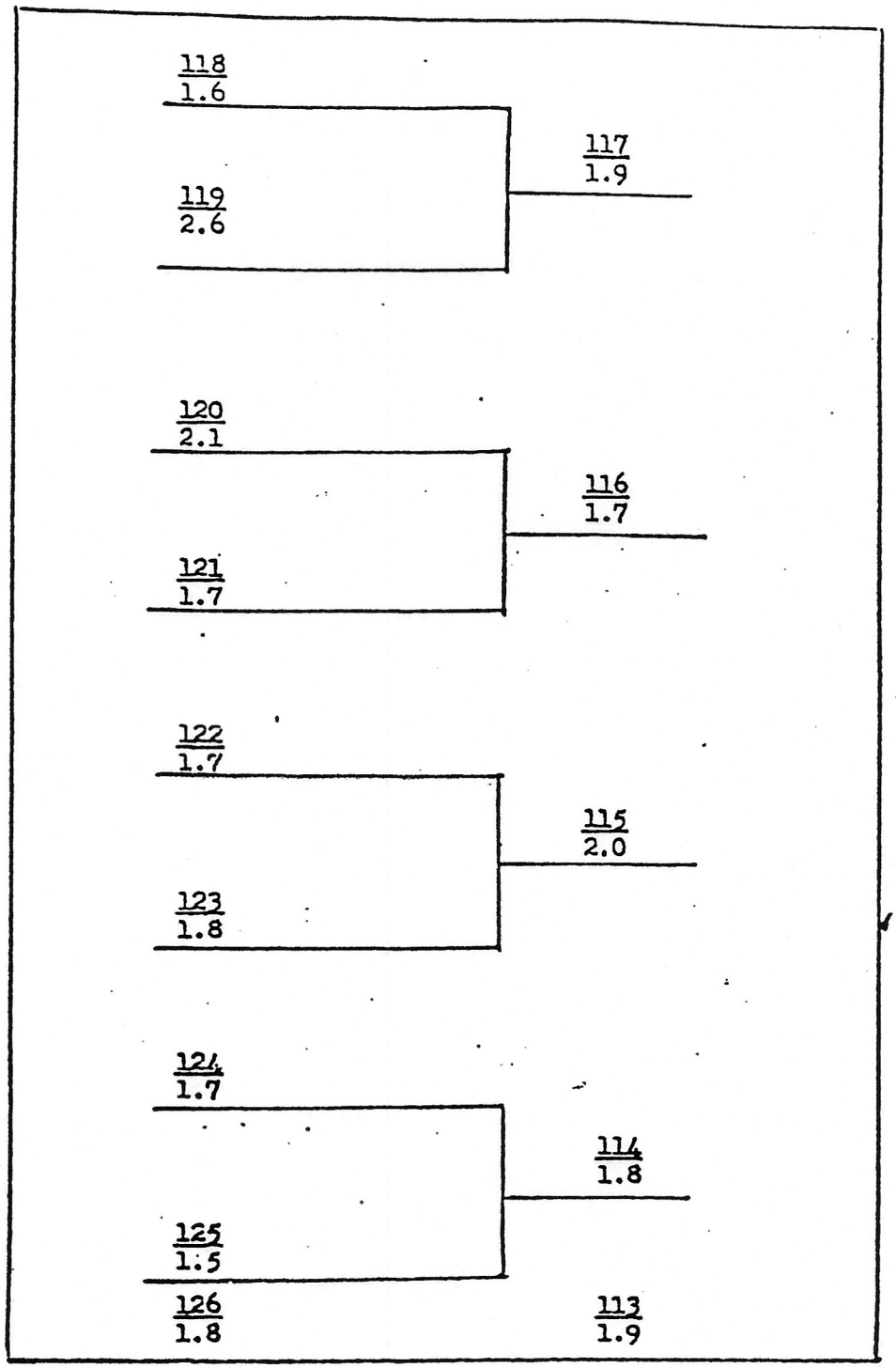
WARPERS

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
113	Warpers		1.9	At winder
114	"	1.8		"
115	"	2.0		"
116	"	1.7		"
117	"		1.9	"
118	"		1.6	At spools
119	"		2.6	"
120	"	2.1		"
121	"		1.7	"
122	"		2.0	"
123	"		1.8	"
124	"	1.7		"
125	"		1.5	"
126	"		1.8	"
Average		1.9	1.8	
Total Average		1.9		
Average rear Spool		1.9		
Average winder		1.9		

PHILADELPHIA, PENNSYLVANIA

DUST CONCENTRATION

WARPERS



Bobbin Winders

This area was sampled on the same day as the warper area, and the same condition concerning the ventilation is true here also. However, all the samples taken indicated low concentrations of dust for this area.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

BOBBIN WINDERS

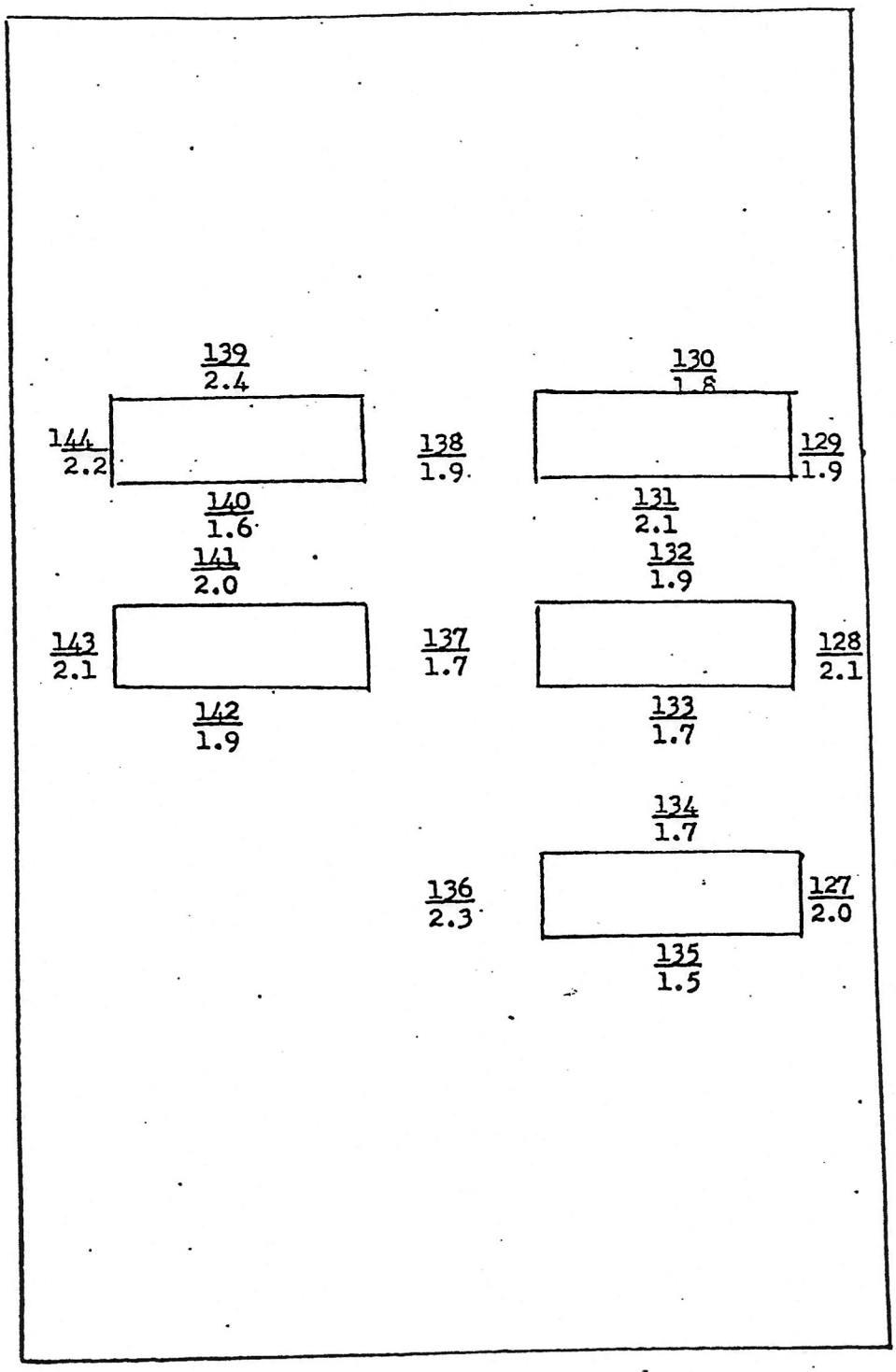
Sample No.	Location	Dust Conc, in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
127	Bobbin Winders		2.0	Oven side of winders
128	"	2.1		"
129	"		1.9	"
130	"		1.8	Side of winders
131	"		2.1	"
132	"		1.9	"
133	"		1.7	"
134	"		1.7	"
135	"		1.5	"
136	"		2.3	Between winders
137	"	1.7		"
138	"	1.9		"
139	"		2.4	Side of winders
140	"		1.6	"
141	"	2.0		"
142	"		1.9	"
143	"	2.1		Weaving side of winders
144	"		2.2	"
Average		2.0	1.9	
Total Average		2.0		

ASTER HILL MANUFACTURING COMPANY

PHILADELPHIA, PENNSYLVANIA

DUST CONCENTRATIONS

BOBBIN WINDERS



Looms

The samples taken in this room were all below the maximum allowable concentration of 5 million particles of asbestos dust per cubic foot.

The concentration found at the operators level did not differ from those found at the rear of the looms or the general air samples. Samples were found to be slightly higher in this room than the few previous areas, but it is believed that the size of the room and the increased activity would probably account for this difference.

Dust concentrations found in the machine shop area were also quite low.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

LOOMS

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air.		Remarks
		30 minutes sampling	10 minutes sampling	
145	Loom #19		1.6	Operators side
146	"	1.5		Rear
147	"	2.0		"
148	Loom #13		2.6	Operators side
149	"		3.0	Rear
150	Loom #6	2.3		Rear
151	"		2.7	Operators side
152	Loom #21		3.2	Operators side
153	"	2.1		Rear
154	Loom #5		3.1	At operator
155	"	3.5		Rear
156	Loom #22		1.3	Rear
157	"	1.7		At operator
158	Loom #31	3.2		At operator
159	"		1.6	Rear
160	Loom #33	3.0		Rear
161	"		1.5	At operator
162	Loom #32		1.8	Rear
163	"		1.7	At operator
164	Loom #4	2.3		At operator
165	"		1.2	Rear
166	Loom #17	2.7		Rear
167	"		1.8	At operator
168	Loom #7		2.3	At operator
169	"		1.7	Rear
170	Loom #8	1.9		Rear
171	"		1.2	Operators side
172	Loom #11		1.3	Operators side
173	"	2.1		Rear

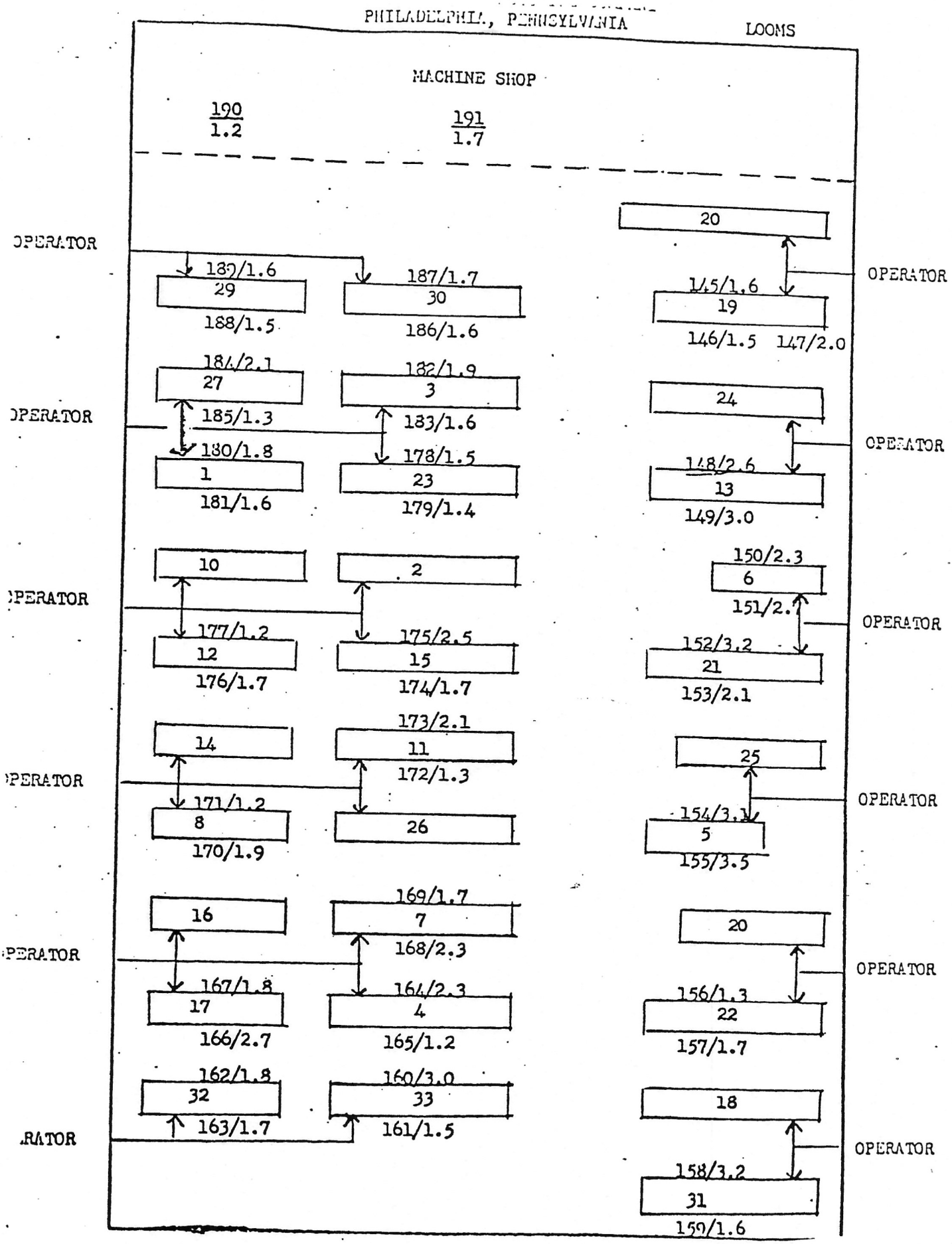
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ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

LOOMS

Sample No.	Location	Dust Conc, in millions of particles per cubic foot of air		Remarks
		30 minutes sampling	10 minutes sampling	
174 175	Loom #15 "	2.5	1.7	Rear Operators side
176 177	Loom #12 "		1.7 1.2	Rear Operators side
178 179	Loom #23 "	1.5	1.4	Operators side Rear
180 181	Loom #1 "		1.8 1.6	Operators side Rear
182 183	Loom #3 "		1.9 1.6	Rear Operators side
184 185	Loom #27 "		2.1 1.3	Rear Operators side
186 187	Loom #30 "	1.7	1.6	Rear Operators side
188 189	Loom #29 "		1.5 1.6	Rear Operators side
190 191	Machine Shop	1.2 1.7		
Average		2.4	2.1	
Average " "	Operators side Rear side Machine Shop	2.3 2.1 1.5		Operators side Rear side Machine shop


PHILADELPHIA, PENNSYLVANIA
LOOMS
MACHINE SHOP
190
1.2
191
1.7
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
OPERATOR
189/1.6
29
188/1.5
187/1.7
30
186/1.6
20
145/1.6
19
146/1.5
147/2.0
184/2.1
27
185/1.3
180/1.8
1
181/1.6
182/1.9
3
183/1.6
178/1.5
23
179/1.4
24
148/2.6
13
149/3.0
10
177/1.2
12
176/1.7
2
175/2.5
15
174/1.7
150/2.3
6
151/2.1
152/3.2
21
153/2.1
14
171/1.2
8
170/1.9
173/2.1
11
172/1.3
26
25
154/3.1
5
155/3.5
16
167/1.8
17
166/2.7
169/1.7
7
168/2.3
164/2.3
4
165/1.2
20
156/1.3
22
157/1.7
162/1.8
32
163/1.7
160/3.0
33
161/1.5
18
158/3.2
31
159/1.6

Burling & Calender Rooms

All of the samples taken in these two rooms indicated concentrations of l less than two million particles of dust per cubic foot. Additionally it is believed that the asbestos content of this dust should be low. Consequently, it is believed that there is no exposure to asbestos in these areas.

ASTEN HILL MANUFACTURING COMPANY
Philadelphia, Pennsylvania

Dust Concentrations

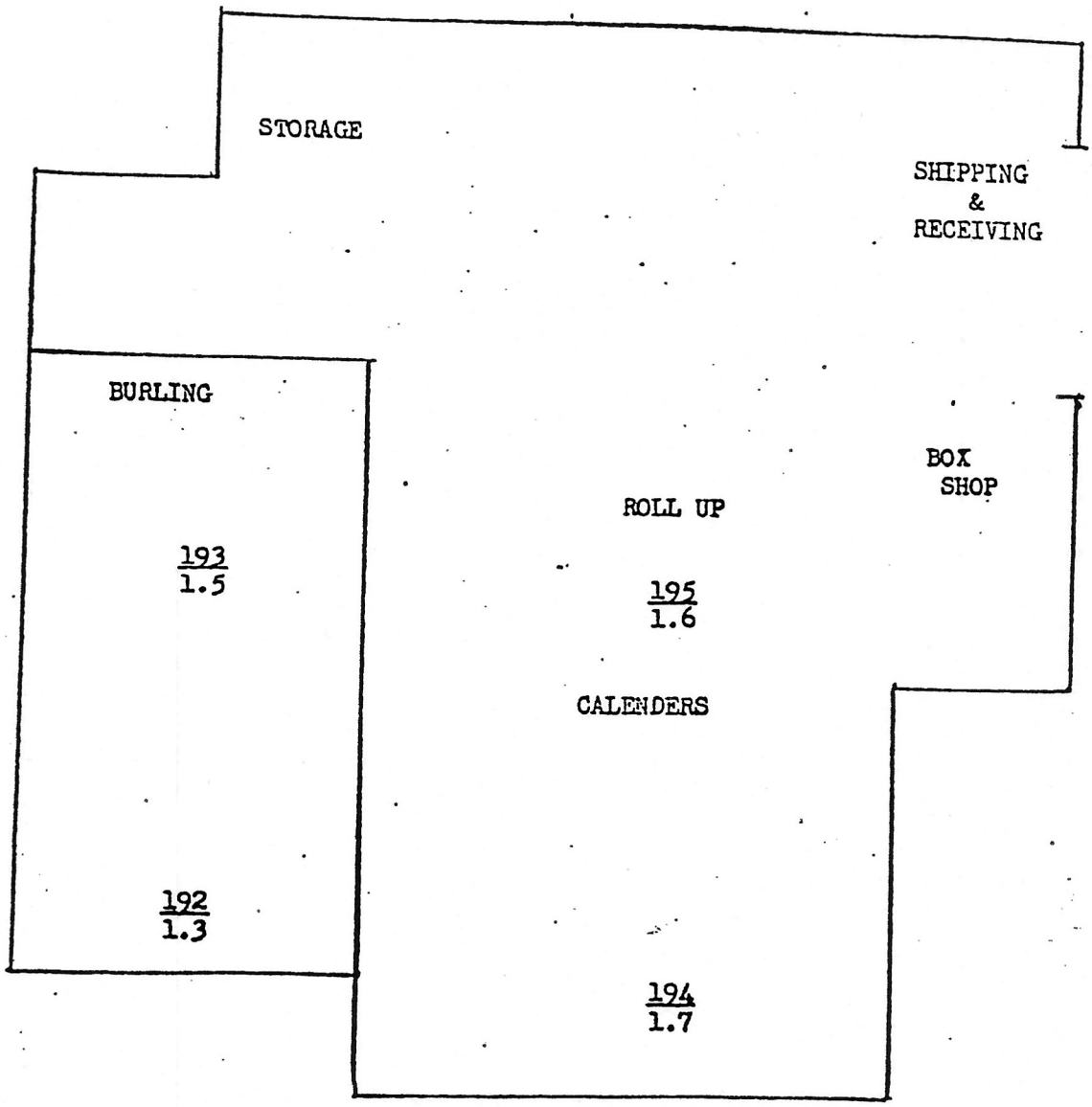
BURLING & CALENDER AREA

Sample No.	Location	Dust Conc. in millions of particles per cubic foot of air		Remarks
		30 minutes sampling	10 minutes sampling	
192	Burling Room	1.3		Bench working
193	"	1.5		Roll inspection
194	Calender Room	1.7		Center of calenders
195	"	1.6		Near roll up
Average	Burling Room	1.4		
	Calender Room	1.7		

ASTEN HILL MANUFACTURING COMPANY

PHILADELPHIA, PENNSYLVANIA

BURLING AND CALENDER AREA



Summary

In view of the concentrations found and the over-all exposures encountered it is not believed that the conditions indicate remedial measures. This is especially true since not all of the dust found in each room would be asbestos dust but rather a combination of asbestos, cotton, and common dust such as is found in most atmospheres. However, several suggestions are made which reduce the over-all exposure.

1. It is suggested that the handling of the fly be investigated with the thought in mind of reducing or discontinuing the manual handling as much as possible.

2. It is suggested that an approved type respirator may be worn in the picker and blending operations when these operations are abnormal. A respirator may also be used when cleaning or transferring the collected dust.

3. Although the concentrations found did not indicate that more frequent cleaning was necessary to reduce the dust, from the standpoint of physical appearance of rooms and machines, this may be done.

It should be added that this plant is in excellent condition and has a very extensive and well maintained ventilation system. As stated before it is not believed that there are any excessive exposures to asbestos dust in this plant under normal conditions. It is my considered opinion that this plant ranks favorably in working conditions with others of similar nature.

AIR HYGIENE AND MANUFACTURING COMMITTEE

HOLMES #25

March 7th, 1957

IN ATTENDANCE WERE:

D. R. Ho_ s - Asten-Hill Mfg. Co.
R. B. Smit - Raybestos-Manhattan, Inc.
B . W. Lutt_berger - Raybestos-Manhattan Inc.
J. W. Weber - American Asbestos Textile Corp.
A. E. May - Keasbey & Mattison Co.
W. C. Atkinson - Johns-Manville Corp.
J. L. Mitchell - Southern Asbestos Co.

MORNING SESSION

The first item for discussion was the "Memorandum on Proposed Epidemiological Study of Lung Cancer in Asbestos Workers" for the Asbestos Textile Institute.

This proposal had been under discussion for approximately one year and the cost of it could run from about $17,000.00 to possibly $30,000.00. After a lengthy discussion, the proposal was put to a vote and six of the eight members of the Committee voted against the continuance of the consideration of the proposal. It, therefore, was rejected for the following reasons.

1. It was decided that as the Q.A.M.A. has a similar program, we should not enter into a program of our own as the results of the Q.A.M.A. investigation will be made available to us upon the conclusion of that investigation.

2. There is a feeling among certain members that such an investigation would stir up a hornet's nest and put the whole industry under suspicion.

3. We do not believe there is enough evidence of cancer or asbestosis, or cancer and asbestosis, in this industry to warrant this survey.

The second item to be taken up was a "Memorandum regarding Environmental Dust Survey" for the Asbestos Textile Institute.

This survey would have cost in the vicinity of $7500.00 to $8,000.00, and it would have been part of the type survey made for the industry back in 1947. However, dust counts would only be taken and recommendations made. There would be little or no engineering information or data made available for such a survey due to its low cost.

After much discussion by the committee, a vote was taken on this survey and the entire committee voted against it as it was the opinion of the committee that we did not believe it to be of great enough value to justify the cost. It was our opinion that we can locate our own trouble spots involving high dust counts and correct them, and perhaps later on, we could

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use the facilities of Travelers Life Insurance Company laboratories to make a comparison of dust counts for little or no expense similar to the survey made by the committee three years ago.

The Chairman was instructed by the committee on both of the above proposals to advise the Industrial Hygiene Foundation that both of the proposals are to be withdrawn.

AFTERNOON SESSION

The entire afternoon was taken up with open discussion concerning methods and means of eliminating dust in plants of member companies.

We discussed the means and methods of eliminating dust from the following type machines: Flyframes, Cards, Twisters, Spinners, Kickers, Blending, Batching, Dust Collectors, etc.

It is understandable that when we have a discussion concerning the elimination of dust by whatever means that we get into many ramifications involving manufacturing methods. This does not mean that we compare or exchange manufacturing ideas or secrets, but it only means that as far as elimination of dust is concerned, we do have open discussion and free exchange of information on each type of machine in order that we may aid each other in eliminating these hazardous dust spots. This discussion took up the entire afternoon.

The committee was very happy to receive in attendance two new members, Mr. W. C. Atkinson from Johns-Manville and Mr. Jerry Mitchell from the Southern Asbestos Company.

Mr. Mitchell indicated at the end of our meeting that he would be the permanent member of our committee.

NEXT MEETING AGENDA

1. Analysis and discussion of the Southern Asbestos Company Report entitled "Analysis of Fibres as Received from Bags", as reported in the Minutes of the Technical Committee for the December Meeting.
2. A continued discussion of Dust Collectors and the best methods of operating such equipment.
3. A continued discussion of the removal of dust from any and all sections of manufacturing by any means.
4. A discussion of dust counts in high count areas and methods of correction.

D. R. Holmes, Chairman
Air Hygiene Committee
Asbestos Textile Institute