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ML Docs Part 4

Republic Steel Corporation

GENERAL OFFICES, REPUBLIC BUILDING

Youngstown, Ohio

A. J. GERTMENIAN
ASST GENERAL ATTORNEY

April 7, 1954

Dr. A. J. Lanza, Ass't. Medical Director
Metropolitan Life Insurance Company
New York, N. Y.

Dear Dr. Lanza:

Would appreciate very much your advising whether your organization has taken any action in connection with the presentation of the Occupational Disease Act now pending before the legislature in New York State under Int. #2078, Print 2382. Undoubtedly you are familiar with this legislation and your ideas on the proposed law will be very helpful in our campaign with respect to it.

If a silicosis law cannot be avoided in New York, it seems to me that generally speaking, the proposed Act is fairly satisfactory, inasmuch as the proponents have set up in the Act many provisions which should limit the amount of liability for silicosis cases.

Very truly yours,

Assistant General Attorney
Republic Steel Corporation

16325

AJG:MF

April 11, 1934

Mr. A. J. Gentheltz,
Assistant General Attorney,
Republic Steel Corporation,
Youngstown, Ohio.

Dear Mr. Gentheltz:

I have not been able to identify the particular bill to which you refer in your letter of April 7. I enclose a copy of a proposed occupational disease act which is now before the Legislature. The number is Senate Bill 1632 and it was introduced by Senator O'Brien. My information is that if there is any bill passed, it will be this. Apparently everyone is agreed to it except that the Rochester industries would prefer that no legislation at all be enacted this year. They are working on a physiological test of disability in silicosis which they hope to perfect. How practical this is going to be I do not know.

It seems to me that this enclosed act is a pretty good one. You might be interested in writing to Mr. Manfred Bonditch, Secretary of the Special Industrial Disease Commission of the State Department of Labor, State House, Boston, and ask him to send you a copy of the recent report of his Commission. It is a very thorough piece of work.

We have not taken any action with respect to this sort of proposed legislation. Inasmuch as we do not write compensation insurance, this hardly comes within our scope.

With best regards,

Sincerely yours,

A. J. Lanza, M.D.
Assistant Medical Director

Republic Steel Corporation

GENERAL OFFICES, REPUBLIC BUILDING

Youngstown, Ohio

A. J. GENTHOLTS
Asst General Attorney

February 12, 1934

cc

Dr. A. J. Lanza, Ass't. Medical Director
Metropolitan Life Insurance Company
New York, N. Y.

Dear Dr. Lanza:

Re: SILICOSIS

Beg to acknowledge with thanks receipt of your communication of the 7th instant, together with enclosures. This subject seems to be causing me a great deal of trouble at the present time, particularly with respect to our activities in Illinois. It may be of interest to you to know that the larger manufacturers in Chicago are determined to have the compensation law amended to include silicosis. We have taken the position that such a concession by the manufacturers in Illinois would open the flood gates for similar legislation all over the Country and consequently have refused to approve such procedure.

Very truly yours,

Assistant General Attorney
Republic Steel Corporation

AJG:MF

I appreciate very much the data furnished on this subject and hope you will continue to keep me ...

THE EDWARD L. TRUDEAU FOUNDATION

POST OFFICE BOX 971
7 CHURCH STREET
SARANAC LAKE, N.Y.

February 23, 1934

Dr. Anthony J. Lanza
Metropolitan Life Insurance Co.
New York City

Dear Tony:

We have decided to introduce, as part of our regular Trudeau School of Tuberculosis, a week's symposium on silicosis. Owing to the general interest in the subject and to its intimate association with tuberculosis, it is logical that we should do this.

It has been our custom in the past to invite distinguished specialists to address the regular sessions of the school on subjects related to tuberculosis. We would like to persue the same policy in this special silicosis session. It would be necessary for us to hold these meetings during the week of June 18th to June 23rd. Would you be willing to sacrifice the time to come to Saranac Lake for this occasion? We would, of course, insure your traveling expenses but we are not in a position to offer any honorium.

In order to avoid the possibility of our getting undesirable applicants for the school, we have very carefully selected those whom we accepted. In adding the subject of silicosis we shall have to be doubly cautious that we do not accept any fly-by-night silicosis specialists. I hope we can limit the number of those who attend this session to plant physicians who are of reputable standing in their communities.

I am enclosing a tentative schedule. I would like your criticism and suggestions. I sincerely trust that you will give it favorable consideration and that you may be able to participate with us in this endeavor.

P.S. I have put you down for a title which may not be your exact. I'd like to hear you tell 'em what to do about it after they have discovered it. Sorry I couldn't get back to Met. [illegible]

Sincerely yours,

Leroy U. Gardner
Director

M E M O R A N D U M

TO: Mr. Dunlap, Assistant Actuary.

FROM: Dr. Lanza

DATE: March 9, 1928

SUBJECT: Picher Clinic, Picher, Oklahoma.

The Picher Clinic is carried on as a cooperative enterprise between the Metropolitan, the United States Bureau of Mines, and the mining companies in the district. The Metropolitan contributes $8,000 a year, the U.S.Bureau of Mines $8,000 a year, and the mine operators $16,000 a year. Formal contracts have been entered into as between the Metropolitan and the Government and each individual mining company and the Government. The original plan was to have it continue for three years from February 1926.

The staff of the clinic consists of Dr. Harivother, Surgeon-in-Charge, 2 assistant physicians, a medical officer in charge of the laboratory, an X-ray technician, and 4 clerks. Every mining company in the district contributes to the clinic upon a per capita payroll basis. Up to the present time only two small mines have refused to come in, one employing 40 men and another employing 80 men, but one of these has signified its intention of joining. Not all of these participating mines are Group policyholders, but all the big companies in the field are covered by the Metropolitan with the exception of the Eagle Picher Lead Company.

We have just completed a complete physical examination including an X-ray of every man working in the district, which includes Ottawa County, Oklahoma; Cherokee County, Kansas; Jasper County, Missouri and a few outlying villages; upwards of 10,000 men have been examined. Every man when he is examined is given a card on which is his photograph, his signature, his summary of his physical condition, the card being stamped with the United States Government seal. The card is then placed in a little leather folder.

As you know, there has been some investigative work done in the Joplin-Picher district off and on for a number of years, but no attempt has been made to deal with the condition. Previous investigations have merely been for the purpose of establishing the facts. To adequately deal with this situation two forms of endeavor are necessary; that is, mining conditions underground must be improved and every effort made to control the dust hazard, and second, the physical condition of the men must be constantly supervised so that those whose lungs have become dust damaged may be removed from the industry before they become hopelessly ill. As you know, these miners with dust damaged lungs (silicosis) contract and die of tuberculosis.

Mr. Ewing Fisher Clinic March 9, 1936

The mining companies in recent years have been gradually improving underground conditions and these mines are less dusty than they were. I do not believe that the present conditions represent the maximum possible results in the way of dust control, but at least there is a forward movement.

Our purposes in making physical examinations of miners was first of all to detect all men working underground who had tuberculosis and remove them from the industry, and secondly to guarantee that no new men could be hired for underground work whose lungs were not normal. If we can get tuberculous men out of the ground and keep men with tuberculosis from being hired and if we can maintain an annual physical check-up, I do not see but what we must eventually diminish the amount of tuberculosis and the total permanent disability costs. The first effect of these examinations among group policyholders is probably to cause an increase in the total permanent disabilities, but that should be followed by an improvement in the number of these cases.

Whether we will get to the point where we can or wish to exclude men with silicosis from underground work I do not know; time alone can tell. It is our plan to, at the end of three or possibly four or five years, turn over the whole enterprise to the mining companies and let them run it.

Of course aside from its legal features the physical examination and re-examination of so many thousands of men are going to give us a lot of valuable information both in regard to silicosis and other lung conditions which will be of general use to us. It must not be forgotten, too, that we carry group insurance in other places where the silicosis hazard is a very serious one, notably Barre, Vermont.

The most remarkable thing about this clinic has been the entire absence of objections or serious complaints from the men. I should not have believed it possible that such a scheme as this could have been put over without some serious objections. Of course the moral force of the Government and the Metropolitan is the deciding factor. It should be remembered that all the men working in this district are Americans, there being no foreigners and no negroes in that part of the country. So we are dealing with a homogeneous population which is another factor which I believe will facilitate the securing of some worth while statistics that might have a bearing on the general questions of health insurance.

Mr. Dunlap Fisher Clinic March 8, 1928

The attached leaflet is handed to the miner at the same time that he gets his card from the clinic. I have in my files Dr. Meriwether's report for the year 1927. It is rather long, but it is very interesting and comprehensive and, if you would care to read it, let me know and I shall send it up to you. Also if there are any points that are not clear or about which you would like to have further information, let me know.

[redacted], Medical Director.

B Stuggel
Chalfonte Hotel #527

FORTY-THIRD ANNUAL MEETING

Industrial Medical Association

• Pages 32-41

NINETEENTH ANNUAL MEETING

American Industrial Hygiene Association

• Pages 12-28

TWENTIETH ANNUAL MEETING

American Conference of Governmental Industrial Hygienists

• Pages 8-11

SIXTEENTH ANNUAL MEETING

American Association of Industrial Nurses, Inc.

• Pages 42-46

FIFTEENTH ANNUAL MEETING

American Association of Industrial Dentists

• Pages 29-31

1958 INDUSTRIAL HEALTH CONFERENCE
April 19th to April 25th, 1958
Atlantic City, New Jersey • Convention Hall

REGISTRATION AND MEETING ROOM INFORMATION

★

Registration for Conference

Sunday, April 20 Claridge Hotel (for A.C.G.I.H. and A.I.H.A.)
Haddon Hall (I.M.A., A.A.I.N., A.A.I.D.)
..... 9:00 a.m.—6:00 p.m.

Monday, April 21 through Thursday, April 24
Convention Hall..... 8:30 a.m.—5:00 p.m.

★

Registration Fee—A.C.G.I.H. and A.I.H.A.....$3.00
I.M.A., A.A.I.N., A.A.I.D. $5.00

★

Color of Registration Cards and Badges:

Blue — Industrial Medical Association
Green — American Conference of Governmental Industrial Hygienists
Yellow — American Industrial Hygiene Association
Pink — American Association of Industrial Nurses
Salmon — American Association of Industrial Dentists
Purple — Exhibitors

★

Technical Exhibits

Tuesday, April 22, and Wednesday, April 23, 8:30 a.m.—6:00 p.m.
Thursday, April 24, 8:30 a.m.—1:00 p.m.

★

Scientific Exhibits

See Page 47—same schedule as Technical Exhibits.

★

Meeting Room Locations

CONVENTION HALL—

Rear of Auditorium—MAIN FLOOR
Stage (Middle)—Room A (left)—Room B (right)—Room C (forward right)—Room D (forward left)
THIRD FLOOR—Rooms 20 and 21 (forward North)
Exhibits—Main Floor Arena

LADIES' HEADQUARTERS—

Claridge Hotel—Trophy Room. Haddon Hall—Sun Porch
Sunday noon, April 20 to Friday noon, April 25

1969 Conference Planning Meeting will be held Friday morning, April 25, Haddon Hall, Mandarin Room; 8:00 breakfast.

SUMMARY OF MEETINGS

★

KEY — ACGIH — American Conference of Governmental Industrial Hygienists

AIHA — American Industrial Hygiene Association

IMA — Industrial Medical Association

AAIN — American Association of Industrial Nurses

AAID — American Association of Industrial Dentists

Day of Week and Date	Participating Groups	A.M.	P.M.	Evening
Saturday, April 19th	ACGIH	9	9	9
Sunday, April 20th	ACGIH	9	9	—
	IMA	34	34	—
Monday, April 21st	ACGIH	9-10	10	—
	AIHA	15	15	15
	AAID	30	30	30
	IMA	34	—	34
Tuesday, April 22nd	ACGIH	11	11	11
	AIHA	15	15-16	—
	AAID	31	31	—
	IMA	35-36	36-37	—
	AAIN	44	44-45	45
Wednesday, April 23rd	AIHA	15-16	16	17-18
	AAID	31	—	—
	IMA	37-38	39	39
	AAIN	45	45	—
Thursday, April 24th	AIHA	18-19-20-21	22-3-4-5	—
	IMA	39-40	41	—
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Whitney, L. Holland 39
Wilkening, George M. 13
Williams, Charles R. 12-16-24
Wilson, Dorothy 45
Wilson, Herbert B. 28
Wilson, Robert H. 27
Wilson, W. L. 11
Winn, Rev. A. R. 39
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Wohlers, Henry C. 22
Wolfsie, J. H. 7-34
Woodson, G. S. 28

Yaffe, Charles D. 8-11-13-15
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Yenger, David 18-23
Young, R. L. 26
Young, Ralph A. 7-34
Younker, W. J. 18

Zachary, Mabel C. 45

1958 INDUSTRIAL HEALTH CONFERENCE

★

Atlantic City, New Jersey
April 19-25, 1958

★

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AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

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TWENTIETH ANNUAL MEETING
Atlantic City, New Jersey
April 19-22, 1958

★

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Program—Charles E. Couchman, Baltimore City Health Department, Baltimore, Maryland

Arrangements—E. Lynn Schall, New Jersey State Department of Health, Trenton, New Jersey

Publicity—Tula S. Brocard, U. S. Public Health Service, Washington, D.C.

Scientific Exhibits—Harold J. Paulus, Ph.D., University of Minnesota, Minneapolis, Minnesota

SATURDAY, APRIL 19

(Claridge Hotel—see bulletin board)

9:00 a.m.-5:00 p.m.—Meeting of Standing Committees

6:00 p.m.—Dinner Meeting, Executive Committee

★

SUNDAY, APRIL 20

(Claridge Hotel—see bulletin board)

9:00 a.m.—Registration—Claridge Hotel

9:30 a.m.-12:30 p.m.—Round Table Discussions:
Chemists—Mr. Walter R. Halpin and Mr. Robert G. Keenan, Co-chairmen
Engineers—Mr. Andrew D. Hosey and Mr. Raymond Smith, Co-chairmen
Nurses—Miss Erica J. Koehler and Mrs. Mabelle J. Markee, Co-chairmen
Physicians—Dr. Donald J. Birmingham and Dr. R. R. Sayers, Co-chairmen

1:30 p.m.-3:00 p.m.—Public Health Service Progress Reports

3:00 p.m.-5:00 p.m.—Continuation of Round Table Discussions

Concurrent with—

Meeting of Directors of State and Local Industrial Hygiene Programs only, with Staff Members of Occupational Health Program, U. S. Public Health Service

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MONDAY, APRIL 21

8:30 a.m.—Registration—Convention Hall

9:00 a.m.—General Session—Room B
Welcome: Dr. Thomas F. Mancuso, Chairman, ACGIH

9:02 a.m.—The Occupational Health Program in Peru — Dr. Frederick J. Vintinner and Dr. Ramon Vallenas, Institute of Occupational Health, Lima, Peru

9:30 a.m.—Recent Industrial Hygiene Developments in Canada—Dr. Kingsley Kay, Department of National Health and Welfare, Ottawa, Canada

10:00 a.m.—Intermission

10:05 a.m.—Business Session including Discussion of Committee Reports:

Worker Health Information—Dr. Miriam Sachs, New Jersey Department of Health, Chairman

Threshold Limits—Mr. Allan L. Coleman, Connecticut Department of Health, Chairman

Standard Labeling Procedures—Dr. Hervey B. Elkins, Massachusetts Department of Labor and Industries, Chairman

Small Plant Health Services—Dr. Joseph J. Stapor, Connecticut State Department of Health, Chairman

Recommended Analytical Methods—Mr. Robert G. Keenan, U. S. Public Health Service, Chairman

Ionizing Radiation—Mr. D. E. Van Farowe, Michigan Department of Health, Chairman

Industrial Ventilation—Mr. George M. Hama, Detroit Department of Health, Chairman

Industrial Hygiene Records and Reports—Miss Victoria M. Traske, U. S. Public Health Service, Chairman

Industrial Hygiene Codes and Regulations—Mr. Andrew D. Hosey, U. S. Public Health Service, Chairman

Awards—Dr. Ralph R. Sullivan, Oregon State Board of Health, Chairman

Air Sampling Instruments—Mr. Irving H. Davis, Michigan Department of Health, Chairman

Air Pollution—Mr. Bernard D. Bloomfield, Michigan Department of Health, Chairman

Agricultural Health—Dr. William H. Clark, California Department of Public Health, Chairman

Epidemiology of Occupational Diseases—Dr. J. Winter Meigs, Yale University, Chairman

★

Monday Afternoon

General Session ..... Convention Hall, Room B

2:00 p.m.—Highlights of Industrial Hygiene in the Armed Services—Far East—R. Elbridge Merrill, Jr., 5th Epidemiological Flight, U. S. Air Force

2:30 p.m.—An Occupational Health Program for a University—George S. Michaelsen, University of Minnesota

3:00 p.m.—Intermission

3:30 p.m.—The Pennsylvania Radiation Protection Program and Its Application to Shoe-Fitting Fluoroscopes—Dr. Jan Lieben, Pennsylvania Department of Health

4:00 p.m.—Labeling Requirements for Toxic Substances—The Governmental Industrial Hygienists' Viewpoint—Dr. Hervey B. Elkins, Massachusetts Department of Labor and Industries

4:30 p.m.—The Chemical Industry and Precautionary Labeling—Dr. Thomas W. Nale, Medical Director, Union Carbide Corporation, New York, New York

TUESDAY, APRIL 22

General Session.....Convention Hall, Stage Room

9:00 a.m.—Public Health Experiences with Economic Poisons in Texas (Practical Lessons Learned)—Dr. W. L. Wilson, Texas Department of Health

9:20 a.m.—Calibration of Alnor Velometers—George M. Hama, Detroit Department of Health

9:50 a.m.—Intermission—Visit Exhibits

10:20 a.m.—Microwave Radiation Hazards—Lt. Col. L. C. MacMurray, Lt. Col. R. J. Dehne and Dr. Robert H. Duguid, U. S. Army Environmental Health Laboratory, Army Chemical Center, Maryland

10:50 a.m.—Summary Seminar Reports

11:40 a.m.—Business Meeting

★

Tuesday Afternoon

Joint Session, ACGIH and AIHA — Convention Hall, Stage Room

Co-chairmen: Dr. Thomas F. Mancuso, Ohio Department of Health and Dr. John A. Spence, Standard Oil Company of California

2:00 p.m.—A Venezuelan Approach to Industrial Hygiene—Erich Schmidt-Smith, Ministry of Health, Caracas, Venezuela

2:20 p.m.—Industrial Noise and Hearing Loss in a Controlled Population—First Report of Findings—Charles D. Yaffe and Herbert H. Jones, U. S. Public Health Service, and Edward S. Weiss, Allegheny County Health Department

3:00 p.m.—Intermission—Visit Exhibits

3:30 p.m.—Re-evaluation of the Pneumoconiosis Problem in the United States—Henry N. Doyle, Dr. Robert H. Flinn and Dr. W. C. Dreessen, U. S. Public Health Service

4:00 p.m.—Control of Potential Radiation Hazards at the Raleigh Reactor—Dr. E. Jack Story, Radiological Safety Officer, North Carolina State College

★

Tuesday Evening

6:30 p.m.—ACGIH 20th ANNIVERSARY DINNER—Smithville Inn, State Highway Route 9, Smithville, New Jersey. $4.00 including gratuity but no transportation, or $4.75 including round trip transportation.

Speaker: J. J. Bloomfield

Topic: What the ACGIH Has Done for Industrial Hygiene

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

★

NINETEENTH ANNUAL MEETING
Atlantic City, New Jersey
April 21-25, 1958

★

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William G. Fredrick, Sc.D., Secretary
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American Smelting & Refining Company,
Salt Lake City, Utah

★

MONDAY, APRIL 21

9:00 a.m.
Meeting of Technical Committees.....Claridge Hotel
Analytical Chemistry .....Trimble Hall
Hygienic Guides .....Board Room
Noise .....Park Lounge
Radiation .....Trimble Hall
Toxicology .....Trimble Hall

12:00 Noon—Local Section Council Luncheon — Claridge Hotel, West Room

1:30 p.m.—Board of Directors Meeting—Claridge Hotel, East Room

6:30 p.m.—Board of Directors Dinner—Claridge Hotel, West Room

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TUESDAY, APRIL 22

8:30 a.m.—Registration, Convention Hall

9:00 a.m.—Meetings: Technical Committee on Air Pollution — Claridge Hotel, Park Lounge; Technical Committee on Engineering (See Bulletin Board, Claridge Hotel)

9:30 a.m.—Meeting, Chairmen of Technical Committees—Claridge Hotel, Park Lounge

★

Tuesday Afternoon

Joint Session, AIHA-ACGIH—Stage of Convention Hall

Co-chairmen—Thomas F. Mancuso, M.D., Ohio State Department of Health, Columbus, Ohio, and John A. Spence, Ph.D., Standard Oil Company of California, San Francisco, California

Paper No. 1

2:00 p.m.—A Venezuelan Approach to Industrial Hygiene—Erich Schmidt-Smith, Ministry of Health, Caracas, Venezuela

Paper No. 2

2:20 p.m.—Industrial Noise and Hearing Loss in a Controlled Population—First Report of Findings—Charles D. Yaffe and Herbert H. Jones, Public Health Service, Department of Health, Education, and Welfare, Cincinnati, Ohio, and Edward S. Weiss, Allegheny County Health Department, Pittsburgh, Pennsylvania

3:00 p.m.—Intermission—Visit Exhibits

Paper No. 3

3:30 p.m.—Re-evaluation of the Pneumoconiosis Problem in the United States—Henry N. Doyle, Robert H. Flinn, M.D., and W. C. Dreessen, M.D., Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

Paper No. 4

4:00 p.m.—Control of Potential Radiation Hazards at the Raleigh Reactor—E. Jack Story, Ph.D., North Carolina State College of Agriculture and Engineering, University of North Carolina, Raleigh, North Carolina

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Employment Service for AIHA members and employers seeking industrial hygienists—call at AIHA Information Booth, Convention Hall, for information.

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WEDNESDAY, APRIL 23

General Session—Stage of Convention Hall

Co-chairmen—Lester V. Cralley, Ph.D., Aluminum Company of America, Pittsburgh, Pennsylvania, and Elmer P. Wheeler, Monsanto Chemical Company, St. Louis, Missouri

9:00 a.m.—Welcome—Charles R. Williams, Ph.D., Liberty Mutual Insurance Company, Boston, Massachusetts, AIHA President

Paper No. 5

9:05 a.m.—Organic Mercury—Environmental Exposure, Excretion and Prevention of Intoxication in its Manufacture—B. D. Dinman, M.D., D.Sc., Department of Preventive Medicine, The Ohio State University, Columbus, Ohio (formerly fellow in Industrial Medicine, Kettering Laboratory, University of Cincinnati, Cincinnati, Ohio), E. E. Evans, M.D., and A. L. Linch, E. I. du Pont de Nemours and Company, Inc., Penns Grove, New Jersey

Paper No. 6

9:40 a.m.—Chemical Constitution and the Toxic Action of Narcosis—Emil A. Pfitzer, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

10:15 a.m.—Intermission—Visit Exhibits

Paper No. 7

10:45 a.m.—Air Pollution and the Public Health—Excerpts from the Harben Lectures Given before the Royal Institute of Public Health and Hygiene, London, May, 1957—Philip Drinker, D.Sc., School of Public Health, Harvard University, Boston, Massachusetts

Paper No. 8

11:05 a.m.—Evidentiary Problems in Proving Radiation Injury—Gerald L. Hutton, U. S. Atomic Energy Commission, Washington, D. C.

Paper No. 9

11:25 a.m.—Industrial Hygiene Experiences with Toluene Diisocyanates—Herbert T. Walworth and Warren E. Virchow, Lumbermens Mutual Casualty Company, Chicago, Illinois

Paper No. 10

11:45 a.m.—Noise Control Principles—A. L. Cudworth, Liberty Mutual Insurance Company, Hopkinton, Massachusetts

★

Employment Service for AIHA members and employers seeking industrial hygienists—call at AIHA Information Booth, Convention Hall, for information.

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Wednesday Afternoon

1:00-2:30 p.m.—Annual Business Meeting of The American Industrial Hygiene Association—Stage of Convention Hall

General Session—Stage of Convention Hall

Co-chairmen—John F. Ege, Jr., Argonne National Laboratory, Lemont, Illinois, and Ralph G. Smith, Ph.D., Wayne State University, Detroit, Michigan

Paper No. 11

2:30 p.m.—Occupational Health Program during Continental Nuclear Weapons Tests—William S. Johnson, Reynolds Electrical and Engineering Company, Inc., Mercury, Nevada

Paper No. 12

2:50 p.m.—New Instrumental Techniques for Evaluating Environmental Exposures—N. A. Talvitie, Public Health Service, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

Paper No. 13

3:10 p.m.—Operational, Emotional and Legal Problems in the Application of Maximum Permissible Radiation Doses—Hanson Blatz and W. B. Harris, Health and Safety Laboratory, U. S. Atomic Energy Commission, New York, New York

3:30 p.m.—Intermission—Visit Exhibits

Paper No. 14

3:50 p.m.—Observations on Industrial Hygiene Practice in Europe—T. F. Hatch, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

Paper No. 15

4:10 p.m.—The Effect of an Inert Aerosol on the Respiratory Response to Formaldehyde—Mary O. Amdur, Ph.D., School of Public Health, Harvard University, Boston, Massachusetts

Paper No. 16

4:30 p.m.—Upper Limits of Thermal Stress for Workmen—Edward J. Largent and William F. Ashe, M.D., Department of Preventive Medicine, Ohio State University College of Medicine, Columbus, Ohio

★

Wednesday Evening

6:30 p.m.—AMERICAN INDUSTRIAL HYGIENE ASSOCIATION ANNUAL BANQUET—Trimble Hall, Claridge Hotel

8:00 p.m.—Presentation of Honorary Membership to Dr. A. J. Lanza, New York University Medical Center, New York, New York

—Presentation of Donald E. Cummings Memorial Award to J. J. Bloomfield, Institute of Inter-American Affairs, Lima, Peru

—Donald E. Cummings Memorial Lecture—Major General James P. Cooney (MC), USA, Deputy Surgeon General, Department of the Army, Washington, D. C.

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THURSDAY, APRIL 24

7:30 a.m.—Past Presidents' Breakfast — East Room, Claridge Hotel

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Concurrent Session—AIR POLLUTION—Stage, Convention Hall

Session Arranger—William A. Munroe, New Jersey State Department of Health, Trenton, New Jersey

Co-chairmen—Raymond Smith, City of Philadelphia Air Pollution Control Section, Philadelphia, Pennsylvania, and Joseph F. Meller, Jr., American Cyanamid Company, Linden, New Jersey

Paper No. 17

9:00 a.m.—Air Pollution Control in New Jersey—A Progress Report of the New Jersey Air Pollution Control Commission—William R. Bradley, Chairman, New Jersey Air Pollution Control Commission, American Cyanamid Company, New York, New York

Paper No. 18

9:20 a.m.—The Application of Simplified Techniques to Air Pollution Measurements—R. R. Hendrickson, Ph.D., Engineering and Industrial Experiment Station, University of Florida, Gainesville, Florida

Paper No. 19

9:40 a.m.—Air Pollution Problems in Petroleum Refining—Frank J. Ellis, Socony Mobil Oil Company, Inc., Paulsboro, New Jersey

Paper No. 20

10:00 a.m.—Studies on Smog Produced in Irradiated Reaction Chambers—R. W. Shortridge, Ph.D., F. V. Morris, Ph.D., C. C. Bolze and R. E. Herton, Jr., Midwest Research Institute, Kansas City, Missouri

10:20 a.m.—Business Session

10:25 a.m.—Intermission—Visit Exhibits

Paper No. 21

10:45 a.m.—The Effects of Air Pollution on Human Health—J. J. Phair, M.D., D.P.H., G. C. R. Carey, M.B., D.P.H., and R. J. Shephard, M.B., Ph.D., University of Cincinnati College of Medicine, Cincinnati, Ohio

Paper No. 22

11:05 a.m.—The Relationship between the Concentration of Sulfur Dioxide and That of Particulate Matter in the Atmosphere—J. Cholak, L. J. Schafer, W. J. Younker, and D. Yeager, University of Cincinnati College of Medicine, Cincinnati, Ohio

Paper No. 23

11:25 a.m.—The Occurrence of Phenols in Air and Combustion Products—Ralph G. Smith, Ph.D., and James D. MacEwen, Wayne State University College of Medicine, Detroit, Michigan

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Thursday Morning

Concurrent Session—CHEMICAL AND ANALYTICAL—Room D, Convention Hall

Session Arranger—William H. Hill, Ph.D., Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

Co-chairmen—Donald M. Ross, Sc.D., University of Pittsburgh, and Urbane C. Pozzani, Mellon Institute, Pittsburgh, Pennsylvania

Paper No. 24

9:00 a.m.—A Solenoid Operated Microburet for Producing Uniform Droplets—Gabrielle Asset, U. S. Army Chemical Warfare Laboratories, Army Chemical Center, Maryland

Paper No. 25

9:20 a.m.—Evaluation of Methods for the Determination of Halogenated Hydrocarbons in Air—Evan E. Campbell, Morris F. Milligan, Ph.D., and Helen M. Miller, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Paper No. 26

9:40 a.m.—Method for Determining Ozone—Spencer R. Watts and Edward J. Baier, Division of Industrial Hygiene, Pennsylvania Department of Health, Harrisburg, Pennsylvania

Paper No. 27

10:00 a.m.—Analytical Methods for Phenols in Air—Ralph G. Smith, Ph.D., and Robert E. Barrow, Wayne State University, Detroit, Michigan

10:20 a.m.—Business Session

10:25 a.m.—Intermission—Visit Exhibits

Paper No. 28

10:50 a.m.—Field Type Colorimetric Testers for Gases and Particulate Matter—Paul W. McConnaughey, Mine Safety Appliances Company, Pittsburgh, Pennsylvania

Paper No. 29

11:10 a.m.—A Dynamic Apparatus for Preparing Air-Vapor Mixtures of Known Concentrations—Richard F. Scherberger, Glenn P. Happ, Franklin A. Miller, David W. Fassett, M.D., Eastman Kodak Company, Rochester, New York

Paper No. 30

11:30 a.m.—Colorimetric Determination of Boron Hydrides by Means of Phosphomolybdic Acid—William H. Hill, Ph.D., Jean M. Merrill, Russell H. Larsen, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania; David L. Hill and James F. Heacock, U. S. Army Chemical Warfare Laboratories, Army Chemical Center, Maryland

Thursday Morning

Concurrent Session—ENGINEERING—Room B, Convention Hall

Session Arranger—V. H. Kindsvatter, Ph.D., Philadelphia Navy Yard, Philadelphia, Pennsylvania

Co-chairmen—J. C. Radcliffe, Ford Motor Company, Dearborn, Michigan, and James F. Morgan, The Pennsylvania Railroad, Philadelphia, Pennsylvania

Paper No. 31

9:00 a.m.—Two Unique Ventilating Systems for Control of Methanol Vapor from Duplicating Operations—D. J. Bessemer and J. B. McElhiney, Industrial Hygiene Division, Puget Sound Naval Shipyard, Bremerton, Washington

Paper No. 32

9:20 a.m.—Free Silica Dust Concentrations Measured in Nine Brick Manufacturing Plants—William J. Schreibeis, Industrial Hygiene Foundation, Pittsburgh, Pennsylvania, and Lee Schreibeis, Jr., Allegheny County Health Department, Pittsburgh, Pennsylvania

Paper No. 33

9:40 a.m.—Ventilation of Large Industrial Buildings under Heat Load—Fred E. Tucker, Weirton Steel Company, Weirton, West Virginia

Paper No. 34

10:00 a.m.—Health Hazards Associated with Rolling Normal and Enriched Uranium—Evaluation and Control—E. C. Hyatt, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

10:20 a.m.—Business Session

10:30 a.m.—Intermission—Visit Exhibits

Paper No. 35

11:00 a.m.—Health Hazards and Control of an Epoxy Resin Operation—W. H. Kingsley, Sandia Corporation, Albuquerque, New Mexico

Paper No. 36

11:20 a.m.—Testing Laboratory Hoods — Evaluation of Design Changes and Periodic Performance Testing—N. H. Ketcham, Union Carbide Chemicals Company, South Charleston, West Virginia

Paper No. 37

11:40 a.m.—Lead-in-Air Analyzer, Specialized "Uni-Jet" Air Sampling Kit—T. Dowling and R. R. Davis, E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware, and R. C. Charsha and A. L. Linch, E. I. du Pont de Nemours and Company, Inc., Penns Grove, New Jersey

★

Thursday Morning

Concurrent Session—TOXICOLOGY—Room A, Convention Hall

Session Arranger—Edward D. Palmes, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Co-chairmen—Charles P. Carpenter, Ph.D., Mellon Institute, Pittsburgh, Pennsylvania, and Joseph F. Treon, Ph.D., Chemical Research Department, Atlas Powder Company, Wilmington, Delaware

Paper No. 38

9:00 a.m.—The Sub-Acute and Chronic Toxicity of 1,1-Dimethylhydrazine Vapor—William E. Rinehart and Earle A. Greene, U. S. Army Chemical Warfare Laboratories, Army Chemical Center, Maryland

Paper No. 39

9:15 a.m.—The Toxicity of ...nobromotrifluoromethane (Freon 13B1) and that of the Products of its Partial Thermal Decomposition when Breathed by Experimental Animals—Joseph F. Treon, Ph.D., Frank P. Cleveland, M.D., Edwin E. Larson, and John Cappel, Kettering Laboratory, University of Cincinnati, Cincinnati, Ohio

Paper No. 40

9:30 a.m.—Toxicity of 1,1,1-Trichloroethane as Determined on Experimental Animals—T. R. Torkelson, F. Oyen, D. D. McCollister and V. K. Rowe, Biochemical Research Laboratory, The Dow Chemical Company, Midland, Michigan

Paper No. 41

9:45 a.m.—The Toxicology of Allyl Alcohol—M. K. Dunlap, D.V.M., J. K. Kodama, Ph.D., H. H. Anderson, M.D., and C. H. Hine, M.D., Ph.D., University of California School of Medicine, San Francisco, California

10:00 a.m.—Business Session

10:15 a.m.—Intermission—Visit Exhibits

Paper No. 42

10:45 a.m.—Toxicological Testing of Chemical Specialties Used in Household and Plant Maintenance—Bernard L. Oser, Ph.D., Food and Drug Research Laboratories, Inc., New York, New York

Paper No. 43

11:00 a.m.—Toxicological Studies on Hydrocarbons-Biochemomorphology of the Phenylalkanes and Phenylalkenes—Horace W. Gerarde, M.D., Ph.D., Esso Research and Engineering Company, Linden, New Jersey

Paper No. 44

11:15 a.m.—Increase in the Magnesium Activated Fraction of Serum Alkaline Phosphatase as an Indicator of Toxic Responses—John T. Mountain, Fulton R. Stockell, Jr., Lester D. Scheel, Ph.D., and Arthur E. Cohen, M.D., Occupational Health Program, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

Paper No. 45

11:30 a.m.—Decaborane Effects upon Yeast Metabolism—George J. Levinskas, Ph.D., and Marian R. Paslian—Department of Occupational Health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

Paper No. 46

11:45 a.m.—Environmental Temperature and Toxicity of Drugs—Grady E. Lanier, D.V.M., and Wm. B. Deichmann, Ph.D.,

with the assistance of Davis Gates, Department of Pharmacology, University of Miami School of Medicine, Coral Gables, Florida

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Employment Service for AIHA members and employers seeking industrial hygienists—call at AIHA Information Booth, Convention Hall, for information.

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Thursday Afternoon

Concurrent Session—AIR POLLUTION—ENGINEERING—Stage, Convention Hall

Session Arrangers—William A. Munroe, New Jersey State Department of Health, Trenton, New Jersey, and V. H. Kindsvatter, Ph.D., Philadelphia Naval Shipyard, Philadelphia, Pennsylvania

Co-chairmen—Bernard D. Bloomfield, Michigan Department of Health, Lansing, Michigan, and John P. Brady, Edell Laboratories, Newark, New Jersey

Paper No. 47
2:00 p.m.—Recent Developments in High Temperature Filtration—J. B. Graham, Buffalo Forge Company, Buffalo, New York, and M. W. First, Sc.D., Consulting Engineer, Newton Centre, Massachusetts

Paper No. 48
2:20 p.m.—Pollen Removal by Air Filters—Leslie Silverman, Sc.D., and Richard Dennis, Harvard School of Public Health, Boston, Massachusetts

Paper No. 49
2:40 p.m.—A New Technique for Fabric Filter Evaluation—A. H. Rose, David G. Stephan, Paul Bohuslav, R. A. Herrick, and George Walsh, Robert A. Taft Sanitary Engineering Center, U. S. Department of Health, Education and Welfare, Cincinnati, Ohio

Paper No. 50
3:00 p.m.—The Adhesion and Removal of Particles Attached to Air Filter Surfaces—Ralph I. Larsen, Ph.D., Robert A. Taft Sanitary Engineering Center, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

3:20 p.m.—Intermission—Visit Exhibits

Paper No. 51
3:40 p.m.—Sampling of Particulate Matter in Effluent Gases—R. W. Wasser, Public Service Electric and Gas Testing Laboratory, Maplewood, New Jersey

Paper No. 52
4:00 p.m.—The Application of Atmospheric Diffusion Formulas—Raymond C. Wanta, Robert A. Taft Sanitary Engineering Center, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

Paper No. 53
4:20 p.m.—Community Air Pollution Sources—Henry C. Wohlers, Stanford Research Institute, Menlo Park, California

Paper No. 54
4:40 p.m.—Atmospheric Particulate Background in Rural Environs—Frank E. Adley and Wallace E. Gill, General Electric Company, Richland, Washington

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Thursday Afternoon

Concurrent Session—CHEMICAL AND ANALYTICAL—Room D, Convention Hall

Session Arranger—William H. Hill, Ph.D., Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

Co-chairmen—Ralph G. Smith, Ph.D., Wayne State University, Detroit, Michigan, and Wesley E. Piros, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Paper No. 55
2:00 p.m.—Estimation of Hydrazine and Three of its Methyl Derivatives — Leo Feinsilver, Joseph A. Perregrino and Courtney J. Smith, Jr., U. S. Army Chemical Warfare Laboratories, Army Chemical Center, Maryland

Paper No. 56
2:20 p.m.—Determination of Thallium in Urine and Air—Evan R. Campbell, Morris F. Milligan, Ph.D., and Jean A. Lindsey, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Paper No. 57
2:40 p.m.—Determination of Thorium in Urine—George A. Welford, Doris C. Sutton, Robert S. Morse and Seymour Tarras, Health and Safety Laboratory, U. S. Atomic Energy Commission, New York, New York

Paper No. 58
3:00 p.m.—Urinary Arsenic Levels as an Index of Industrial Exposure—Helmuth H. Schrenk, Ph.D., and Lee Schreibeis, Jr., Industrial Hygiene Foundation, Pittsburgh, Pennsylvania

3:20 p.m.—Intermission—Visit Exhibits

Paper No. 59
3:40 p.m.—Application of Ion Exchange Resins to the Determination of Fluoride in Blood—Walter W. Melvin, David Yeager, and Jacob Cholak, Kettering Laboratory, University of Cincinnati College of Medicine, Cincinnati, Ohio

Paper No. 60
4:00 p.m.—Determination of Free Silica in Fine Dust—N. A. Talvitie, Occupational Health Program, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

Paper No. 61
4:20 p.m.—Destruction of Animal and Vegetable Tissue by Combustion in the Parr Oxygen Bomb—Jack Seals, William H. Hill, Ph.D., and Ethel C. Montiegel, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania

Paper No. 62
4:40 p.m.—New Developments in Oxygen Deficiency Testing—M. G. Jacobson and N. W. Hartz, Mine Safety Appliances Company, Pittsburgh, Pennsylvania

Thursday Afternoon

Concurrent Session—RADIATION—Room B, Convention Hall

Session Arranger—R. G. Gallaghar, Research Center, Liberty Mutual Insurance Company, Hopkinton, Massachusetts

Co-chairmen—F. P. Cowan, Ph.D., Brookhaven National Laboratory, Upton, L. I., New York, and W. D. Claus, Ph.D., U. S. Atomic Energy Commission, Washington, D. C.

Paper No. 63

2:00 p.m.—Standardization in Nuclear Energy—Charles R. Williams, Ph.D., Liberty Mutual Insurance Company, Boston, Massachusetts

Paper No. 64

2:15 p.m.—Radiation Protection Laws and Codes—A Scramble for Action—William A. McAdams, General Electric Company, Schenectady, New York

Paper No. 65

2:30 p.m.—The Industrial Code as a Tool in Radiation Protection—Morris Kleinfeld, M.D., and Melvin M. Udel, M.D., State of New York Department of Labor, New York, New York

2:45 p.m.—Discussion

3:00 p.m.—Business Session

3:05 p.m.—Intermission—Visit Exhibits

Paper No. 66

3:30 p.m.—Radiation—A Photofluorographic Study—Edward J. Baier, Pennsylvania Department of Health, Harrisburg, Pennsylvania

Paper No. 67

3:45 p.m.—Radiation Dosages to Medical Personnel—Russell F. Cowing, Deaconess Hospital, Boston, Massachusetts

Paper No. 68

4:00 p.m.—Radiation Hazards Associnted with Dental Roentgenography—William E. Nolan and Seymour Block, University of California Radiation Laboratory, Livermore, California

4:15 p.m.—Discussion

Paper No. 69

4:30 p.m.—Environmental Radioactivity in the Nuclear Test Airplane Test Area—Robert F. Schackley, Convair Division of General Dynamics Corporation, Fort Worth, Texas

4:45 p.m.—Discussion

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Thursday Afternoon

Concurrent Session—TOXICOLOGY—Room A, Convention Hall

Session Arranger—Edward D. Palmes, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Co-chairmen—Mary O. Amdur, Ph.D., Department of Physiology, Harvard School of Public Health, Boston, Massachusetts, and Horace W. Gerarde, M.D., Ph.D., Medical Research Division, Esso Research and Engineering Company, Linden, New Jersey

Paper No. 70

2:00 p.m.—The Deposition of a Submicronic Aerosol in the Respiratory Tract of Dogs—P. E. Morrow, Ph.D., F. R. Gibb, and J. N. Stannard, Ph.D., University of Rochester School of Medicine and Dentistry, Rochester, New York

Paper No. 71

2:15 p.m.—Regional Deposition of Aerosol in the Human Respiratory Tract—Bernard Altshuler, Ph.D., Leonard Yarmus, Ph.D., E. D. Palmes, Ph.D., and Norton Nelson, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Paper No. 72

2:30 p.m.—Synergistic Effects of Aerosols. II. Interaction Between Particles in the Lung—Charles W. LaBelle, Jefferson Medical College, Philadelphia, Pennsylvania

Paper No. 73

2:45 p.m.—Progression of Experimental Silicosis in the Rat—Marian L. Westrick, Ph.D., Paul Gross, M.D., and James H. McNerney, Industrial Hygiene Foundation, Pittsburgh, Pennsylvania

3:00 p.m.—Intermission—Visit Exhibits

Paper No. 74

3:30 p.m.—Distribution and Excretion Studies in Dogs Exposed to an Aerosol Containing Po^{210}—F. A. Smith, Ph.D., P. E. Morrow, Ph.D., F. R. Gibb, R. J. Della Rosa, and J. N. Stannard, Ph.D., University of Rochester School of Medicine and Dentistry, Rochester, New York

Paper No. 75

3:45 p.m.—Observations on the Fate of Inhaled Cobalt Dust—Norton Nelson, Ph.D., and E. D. Palmes, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Paper No. 76

4:00 p.m.—The Acute and Sub-Acute Toxicity of Certain Indium Compounds — William L. Downs, James K. Scott, M.D., Elliott A. Maynard, Ph.D., and Luville T. Steadman, Ph.D., Department of Radiation Biology, University of Rochester School of Medicine and Dentistry, Rochester, New York

Paper No. 77

4:15 p.m.—Two Year Feeding Study with Rats Receiving a Diet Supplemented with L-Lysine Hydrochloride—D. B. Hood, J. W. Clayton, Ph.D., E. M. Gay, M.D., J. R. Barnes, Ph.D., E. P. Radford, M.D., Haskell Laboratory, E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware

Paper No. 78

4:30 p.m.—Toxicity of Organic Thiols in Combination with Respiratory Irritant Air Pollutants—Edward J. Fairchild, Ph.D., and Herbert E. Stokinger, Ph.D., Occupational Health Field Headquarters, U. S. Public Health Service, Cincinnati, Ohio

FRIDAY, APRIL 25

Concurrent Session—NOISE—Stage, Convention Hall

Session Arranger—P. L. Michael, Ph.D., Mine Safety Appliances Company, Pittsburgh, Pennsylvania

Co-chairmen—J. H. Botsford, Bethlehem Steel Company, Bethlehem, Pennsylvania, and V. H. Hill, E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware

Paper No. 79

9:00 a.m.—Industrial Audiometry—R. E. Allison, Allison Laboratories, Puente, California

Paper No. 80

9:30 a.m.—Hearing Loss Related to Non-Steady Noise Exposure—N. E. Rosenwinkel, M.D., and K. C. Stewart, University of Pittsburgh, Pittsburgh, Pennsylvania

10:00 a.m.—Business Session and Intermission

Paper No. 81

10:15 a.m.—Reduction of Air Flow Noise—H. W. Crouch and Daniel Andrews, Eastman Kodak Company, Rochester, New York

Paper No. 82

10:45 a.m.—Acoustical Treatment of Walls and Ceiling — T. Mariner, Armstrong Cork Company, Lancaster, Pennsylvania

Paper No. 83

11:15 a.m.—Some Noise Control Methods Used in Industrial Operations—R. L. Young, Employers Mutual Liability Insurance Company, Wausau, Wisconsin

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Friday Morning

Concurrent Session—RADIATION—Room B, Convention Hall

Session Arranger—R. G. Gallagher, Research Center, Liberty Mutual Insurance Company, Hopkinton, Massachusetts

Co-chairmen—Lauriston S. Taylor, Ph.D., National Bureau of Standards, Washington, D.C., and Elda E. Anderson, Ph.D., Oak Ridge National Laboratory, Oak Ridge, Tennessee

Paper No. 84

9:00 a.m.—Surface Contamination Control of Uranium Rolling Operations—Charles D. Blackwell, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Paper No. 85

9:15 a.m.—Particle Size Studies on Uranium Aerosols from Machining and Metallurgy Operations—Edwin C. Hyatt, W. D. Moss, and Harry F. Schulte, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Paper No. 86

9:30 a.m.—Estimation of Plutonium Wound Contamination by Gamma Spectrometer—E. A. Putzier, J. R. Mann, and V. P. Johnson, Dow Chemical Company, Denver, Colorado

Paper No. 87

9:45 a.m.—Review of Information on the Maximum Permissible Limits for Thorium—John W. Healy, General Electric Company, Richland, Washington

10:00 a.m.—Discussion

10:15 a.m.—Intermission

Paper No. 88

10:45 a.m.—Radiation Safety Monitoring of Reactor Demolition—G. T. Lonergan, Argonne National Laboratory, Lemont, Illinois

Paper No. 89

11:00 a.m.—Factors for Consideration in Environmental Hazard Analysis—J. J. Fitzgerald, General Electric Company, Schenectady, New York

Paper No. 90

11:15 a.m.—The Licensee Inspection Program of the Atomic Energy Commission—M. M. Mann, P. A. Morris, L. D. Low, and C. C. Palmiter, U. S. Atomic Energy Commission, Washington, D. C.

11:30 a.m.—Discussion

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Friday Morning

Concurrent Session—TOXICOLOGY—Room A, Convention Hall

Session Arranger—Edward D. Palmes, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Co-chairmen—C. Boyd Shaffer, Ph.D., Central Medical Department, American Cyanamid Company, New York, New York, and Dorothy B. Hood, Haskell Laboratory, E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware

Paper No. 91

9:00 a.m.—Ozone as a Catalyst of Lung Tumor Production in Mice—Herbert Stokinger, Ph.D., and William D. Wagner, Occupational Health Program, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Cincinnati, Ohio

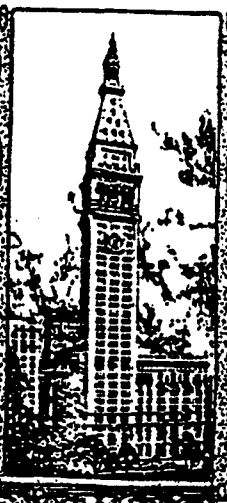
Paper No. 92

9:15 a.m.—The Experimental Production of Lung Cancers from Ru^{106}-Rh^{106} Sources—Sidney Laskin, Marvin Kuschner, M.D., Bernard Altshuler, Ph.D., John Harley, Ph.D., and Norton Nelson, Ph.D., Institute of Industrial Medicine, New York University Medical Center, New York, New York

Paper No. 93

9:30 a.m.—A Multiple Chamber Exposure Unit Designed for Chronic Inhalation Studies—Leonard J. Leach, Charles J. Spiegl, Ph.D., Robert H. Wilson, George E. Sylvester, and Kenneth E. Lauterbach, Department of Radiation Biology, University of Rochester School of Medicine and Dentistry, Rochester, New York

Assuring Life by Insuring Lives



METROPOLITAN LIFE
INSURANCE COMPANY
NEW YORK
1924

THE THETFORD MINES EXPERIMENT

The high rate of infant mortality in French Canada caused the Company, in 1921, to undertake a demonstration in child welfare intended to prove that this waste of child life was needless. After a careful survey, the town of Thetford Mines, an asbestos mining center in the Province of Quebec, was selected as the seat of the experiment. A French-speaking nurse with extensive experience in maternity center work was placed in charge and assigned a staff of two other French-Canadian nurses and later a physician, all of whom were given special training in New York City.

As a result of the three-year experiment, the infant death rate in Thetford Mines has been reduced from 338 per 1000 to 96.4 per 1,000.

Another gratifying outcome of the experiment has been that because of the results obtained in Thetford Mines, the Provincial Government of Quebec has appropriated $500,000 to be used during the next five years in child welfare work in the province.

THE INFLUENZA COMMISSION

Because of the enormous loss of life that occurred during the influenza epidemics of 1918 and 1919, the Metropolitan undertook to finance a study of this disease, about which so little is known. A commission composed of five of the leading sanitarians of the country and two representatives from the Company was organized. All of the research work on influenza being carried on in the country to-day is mobilized under this commission.

Thus far the cause of influenza has not been determined, but encouraging results have been obtained in studies of

MEMORANDUM

TO: Dr. Wright

FROM: Dr. Lanza

DATE: March 31, 1927.

SUBJECT: Progress of work at Tri-State Lead and Zinc District.

I was in the vicinity of Picher, Oklahoma from the 11th to the 21st of March, visiting various mine operators and endeavoring to secure their participation in our cooperative venture with the U. S. Bureau of Mines. The first four days Dr. R. R. Sayers, Chief Surgeon, U.S. Bureau of Mines, was with me and I was in constant contact with Dr. F. W. Merriwether, who is in charge of the Bureau of Mines clinic there, and with Mr. Ageton of the Tri-State Zinc and Lead Producers Association. The present mining field extends from Miami, Oklahoma, 10 miles south of Picher, Oklahoma, to Baxter Springs, Kansas, about 12 miles north, the greatest concentration being around Picher.

After a preliminary visit to some of our Groups, a meeting was arranged with some of the larger operators. This meeting was held on March 15 at the office of the Tri-State Lead and Zinc Producers Association, and representatives of the following mines and local organizations were present:

The Cortez-King Brand Mining Company
Consolidated Lead and Zinc Company
Crystal Mineral Trust
Federal Mining and Smelting Company
Rock Mining Company
Vinegar Hill Zinc Company
Black Eagle Mining Company
Anna Beaver Mining Company
L. & C. Mining Company
Golden Rod Mining and Smelting Corp.
Eagle-Picher Lead Company
Commerce Mining Company
Rialto Mining Company
Tulsa Lead and Zinc Company
Bonanza Mining Company
American Zinc Institute
Tri-State Lead and Zinc Producers Ass'n.

Both Dr. Sayers and myself addressed the meeting, making explanatory statements and answering questions. We asked for the cooperation of the mine operators. The response was [illegible] and gratifying. After a general discussion, the chairman, Mr. Martin of the Vinegar Hill Zinc Company, nominated a committee to confer with Dr. Sayers and myself to perfect plans. This committee consisted of Mr. S. M. Bandelari, representing the

TO: Dr. Wright SUBJECT: Tri-State Lead and Zinc District.

Consolidated and the Eagle-Picher interests; Mr. A. T. St. Clair, representing the Federal Mining and Smelting Company; Mr. H. C. Mills, representing the Golden Rod Company; Mr. J. A. Robinson, the Commerce Mining and Smelting Company; and Mr. S. H. Davis, the Vinegar Hill Zinc Company. To this committee was added Mr. Scott Thompson, a Miami attorney, who is the Acting Chief Justice of the Supreme Court of Oklahoma. All of the above committee represented Group policyholders, except Mr. Bendelari - (the Metropolitan, however, covers the Eagle-Picher properties at other places).

I travelled over the entire district interviewing the principal mine operators and explaining our plans. Among others, I interviewed Mr.Dike, representing the Interstate and Woodchuck Mines; Mr. Wallower, the head of the Golden Rod Company; Mr. Coleman, of the Commerce Company; Mr. Barton of the Kansas Exploration Company (St. Joseph Lead Company); Mr. Filius of the Anna Beaver Company; Mr. Childress of the Childress Lead and Zinc Company; Mr. Wolf of the New Chicago Company and Mr. Johnston of the American Zinc Company.

Every person we interviewed promised the support of his company and there was no question but that the fact that the Metropolitan was actively concerned in this venture helped to put it over. I was impressed with the general appreciation of the attitude of the Metropolitan, to which several of the managers of the larger companies referred in a very complimentary manner. The managers of the four or five largest companies stated that they would be glad to underwrite the whole business themselves if the smaller companies were unable to come in.

After several meetings of the committee of five, a general meeting was again held at which plans were presented and adopted. The operators decided to contribute a sum equal to that put up by the Bureau of Mines and the Metropolitan, so that their contribution would be $16,000 a year, making available $32,000 a year to carry on the work. This money is to be raised by assessing the companies on the basis of $3 per man per year of the average annual payroll, provision being made for corrections and readjustments at the end of the year. Necessary legal documents were prepared by Mr.Scott Thompson, and the next move in order at the time when I left was to secure the signature of the various companies to an agreement with the Tri-State Lead and Zinc Producers Association which acts as the agent of the operators. The Tri-State Association will in turn make a contract with the Bureau of Mines similar to that now existing between the Bureau and the Metropolitan.

Work will immediately be started on the construction of suitable quarters to house the clinic, it being necessary to increase the size of the present quarters. Plans for this were drawn up by Dr. Sayers and myself. The clinical staff will eventually consist of the medical officer in charge, 4 assistant physicians, an X-ray technician, a laboratory assistant and two

clerks. It will take at least six weeks before the new quarters are completed and the personnel will be gradually increased as circumstances may require.

In the meantime the various companies will sign their agreement. At the last meeting of the operators, managers representing a total of 6,400 employees definitely stated that they would come into this project on the basis of $5 per man per year. The committee itself thought it best to raise the per capita assessment from $? to $5 so that they would be certain not to have a deficit and the agreement therefore provides for pro rata return of surplus funds at the end of each year.

Comments

I visited some of the representative mines of the district and find that underground working conditions are a great deal better than they used to be. Wet drilling is now the rule, and constant attention is given to allay injurious rock dust and to the promotion of safety. The Tri-State Producers Association has a very competent safety engineer and has about 20 men in the various mines whose duty it is to constantly check dust conditions. The fact that many of the mines in this district are being gradually consolidated under 4 or 5 large companies tends to promote good working conditions and increased attention to ventilation and sanitation. A movement is also on foot to provide sanitorium facilities.

Dr. Herriwether has made about 3,000 examinations to date, and is experienced in this type of work. He informed me, confidentially, that he had recently examined the entire personnel of two mines belonging to one of our groups, totalling 800 men and found 22% tuberculous and 58% with silicosis.

I expect to visit Picher from time to time so as to keep in active touch with the work.

The two Metropolitan nurses in Picher are doing very good work and are very well thought of by the mine operators. They will continue to have their office in the same building with the clinic.

C. E. Yeomans
Assistant Medical Director

TREASURY DEPARTMENT

BUREAU OF
THE PUBLIC HEALTH SERVICE

OFFICE OF
INDUSTRIAL HYGIENE
AND SANITATION

RRS:La

WASHINGTON, D. C.

Room 1-123, "C" Bldg.,
16 Seventh St., S. W.

April 18, 1933

Dr. A. J. Lanza,
Assistant Medical Director,
Metropolitan Life Insurance Company,
New York City.

Dear Dr. Lanza:

In reply to your letter concerning Mr. Cummings' report to the Industrial Commission of Wisconsin, and Dr. Gardner's letter to Dr. Knight, I agree with you that the thing is done and there is not much to be done except hope for the best. We all realize that is it probably Cummings' enthusiasm that has caused this data to be presented. I do not think that any of us would question Dr. Gardner's sincerity.

I did intend to be in New York on Friday, the 21st; however, this will not be possible and now I expect to be there on Wednesday, the 26th. If it would be agreeable to you, and you still desire a conference, I will of course be pleased to attend. At least I will call you that day as soon as I get in.

O.K. for me asK

Yours sincerely,

(R. R. Sayers)
Medical Officer in Charge

April 24, 1933

Mr. H. D. Harbaugh, Secretary,
Tri-State Lead and Zinc District,
Miami, Oklahoma.

Dear Mr. Harbaugh:

After reading your letter, I turned it over to Mr. Bates, our Assistant General Counsel, and he will reply to it directly. I hope you are not in for any such experience as has been occurring in southeast Missouri. Certainly this type of litigation is now the popular sport all over the country.

Please give my best regards to Mr. Thompson.

Sincerely yours,

A. J. Lanza, M.D.
Assistant Medical Director

March 14, 1933

Dr. R. R. Sayers, Surgeon,
United States Public Health Service,
Division of Industrial Hygiene.
Washington, D. C.

Dear Doctor Sayers:

You have no doubt received a copy of a letter addressed to me by Mr. Harbough relative to the publication of the studies on silicosis occurring in the Picher district.

Dr. Gardner and I had discussed this matter at some length and it appears to us that to deprive the paper of any reference to the type of industry or to its geographic location, robs it of any real significance in the eyes of the people who might be interested in it.

Since your own publications from this district are now available, it seems to me only fair that my own data be published without restrictions. In other words, it seems to me that all those interested can obtain from your publications all of the data presented in my own paper and I cannot therefore, see why there should be so much restriction imposed upon us, particularly since the work was carried out under your auspices. I am, therefore, appealing to you for permission to publish the paper as it was originally forwarded to you or for your good counsel with regard to the whole matter. I think you realize that to attempt to revamp this paper now seems to entirely rewrite it, - a task which I do not relish especially since I have taken such infinite patience in the preparation of the original. Please inform me what your opinion is in regard to this matter at your earliest opportunity.

With kindest personal regards, I am

Very truly yours,

DRC A
cc to Dr. A. J. Lanza

COPY

PHS:LA

Room 1-123, "C" Bldg.,
16 Seventh St., S. W.

March 20, 1933

Mr. Dean Cummings,
The Montreal Mining Company,
Montreal, Nice.

Dear Mr. Cummings:

In reply to your letter of March 14th regarding the paper on the studies on silicosis in the Picher district, I assure you that I greatly sympathize with your point of view, as I have had a similar experience a number of times.

The work at the Picher Clinic was done while I was Chief Surgeon at the Bureau of Mines, and under cooperative agreement with the Tri-State Zinc and Lead Ore Producers Association in which it was agreed that the decision as to whether to publish or not rested with the Director of the Bureau of Mines. Also we agreed to submit manuscripts to the Tri-State Zinc and Lead Ore Producers Association and to the Metropolitan Life Insurance Company previous to publication, for comments and suggestions. This has been found to be of material advantage in protecting the authors from errors in statements that the manuscript might contain. All manuscripts that are under the jurisdiction of the Bureau of Mines must be approved, before publication, by the Director of that Bureau; and when once submitted would be removed from your control until release by the Bureau.

All the above means that I have not the authority to grant to anyone - not even to myself - to publish a manuscript. A similar system is used in the Public Health Service in the control of the publication of manuscripts; and while it does delay publication materially, it has material advantages also.

As to whether you care to submit it in this way, or whether it would be approved when once submitted, I of course am not in a position to say.

Assuring you that I will do anything I can to be of help, I am

Cordially yours,

[R. R. Sayers]
Medical Officer in Charge

TREASURY DEPARTMENT

BUREAU OF
THE PUBLIC HEALTH SERVICE

OFFICE OF
INDUSTRIAL HYGIENE
AND SANITATION

WASHINGTON, D. C.

February 1, 1933.

Dr. A.J.Lanza,
Metropolitan Life Insurance Co.,
New York, N.Y.

Dear Dr. Lanza:

The suggestion in Don Cummings' letter to you regarding his paper is entirely satisfactory to me. I believe, however, that it would be a good policy for him to submit the suggestion to Mr. HarbXaugh for consideration even though he may not receive approval. It is quite possible that the mine operators will be willing to have it published if the locality is not identified. Don can then determine his next action after he receives a reply from Mr. HarbXaugh.

Sincerely yours,

(R.P.Sayers)
Medical Officer in Charge.

LLG

January 30, 1933

Dr. R. Sayers
Office of Industrial Hygiene and Sanitation
United States Public Health Service
Washington, D. C.

Dear Doctor Sayers:

Your letter came this morning with one from Dan Cummings which I am forwarding to you. Maybe this will be a way out. Let me know what you think, or write directly to him, if you prefer.

Very truly yours,

Assistant Medical Director

[redacted]

COPY

United States Department of Commerce
Bureau of Mines Co-operative Clinic
Fisher, Ills.

January 17, 1931

Dr. A. J. Lanza,
Assistant Medical Director
Metropolitan Life Ins. Co.,
New York, N.Y.

Dear Dr. Lanza:

I finished reading the plates of asbestosis cases that you sent down. I wish to apologize for the delay in getting these plates back to you, but following the Christmas holidays we have been short of doctors and have had a rush of work incidental to the establishment of a rustling card system in the field, which has kept us very busy. I hope that the delay has not caused you any inconvenience. My interpretations have been attached to each film, and I will forward the films to you by express Sunday, the 18th.

I wish to say that this is the best set of pictures I have seen in a long time. They are well made and the technique is that used for the detection of silicosis and asbestosis which gives the best results. The group shows a very high percentage of asbestosis and a few cases of healed or active suspected tuberculosis. However, the number of tuberculars compared with the number having asbestosis is small.

One of the surprising things to me is the large number with evidence of heart disease and I am wondering if this bunch, like the Fisher bunch, will not show a high incidence of venereal infection (syphilis). One of the cases in particular has a great deal of evidence of lung pathology that I believe is either a chronic or fibroid tuberculosis or syphilis and I am inclined to believe that it is syphilis. Whether the spirochetal infection of the lung is of the type (Vincent) as believed in Panama Lake or as we believe here from a strain of the organism that gives a positive Wassermann makes little difference from the therapeutic point of view, as these cases show a real improvement upon the administration of arsphenamines.

I have enjoyed very much reading these pictures; they seem to be very good, very interesting, and I will be glad to read any others that you have.

Yours respectfully,

(S.G.S.D) F. V. Hetherington,
Surgeon in Charge, U.S.Bureau of Mines
P.A.Surgeon, U.S.P.H.S.

MEMORANDUM

TO: Dr. Wright

FROM: Dr. Lanza

DATE: July 2, 1928.

SUBJECT: Visit to Picher Clinic in regard to making plans for the next year's work of the Clinic.

I was in Picher on June 17 to the 22nd, this being the end of the fiscal year and it was necessary to attend to the matter of renewing contracts and preparing the budget for the ensuing year.

The mining industry in the Picher district is running on a basis of about one half of last year and it is estimated that it will continue on that basis for the next year. It is estimated that there are 4,000 men working underground in the immediate Picher district and about 5,500 in the whole field.

The Clinic has just concluded a very successful year. Over 11,000 have been examined and the records are in the process of compilation. There has been an entire absence of friction or trouble of any kind, and on the other hand, I have heard nothing but the most enthusiastic comment on the work of the Clinic from the officials of all our Group[illegible] there. I feel that Dr. Harisuther and his staff are deserving of the utmost credit for the manner in which they have so far conducted a difficult job calling for the utmost tact and discretion at all times. The Clinic is very popular throughout the district not only with the mine operators but with the miners, the doctors and the community in general, and people come within a radius of 200 miles for diagnosis. The work of the Clinic is beginning to attract the favorable attention of the entire mining profession in this country and it is impossible to foretell at the present time how far-reaching an effect for good it may have.

Dr. Harisuther and I prepared a budget based on a participation of the mining companies to the extent of a minimum of 4,000 men employed underground. The total budget is $26,000 of which the Metropolitan is contributing $8,000, the Bureau of Mines $6,000, and the mine operators $12,000. On June 20 we submitted this budget to the advisory committee of the Clinic which is composed of representatives of the five big companies, all of whom, with the exception of the Eagle Picher, are Group policyholders, and the budget received their endorsement. On Friday, the 22nd, together with the advisory committee, we presented this budget to a meeting of all the mine operators. It was accepted with enthusiasm and a number of the mine operators present took the occasion to testify not only to their appreciation of the good work of the Clinic in improving the health and well-being of the miners, but also to the

fact that they felt that the work of the Clinic conferred a definite economic advantage to the district. The auditor of the Eagle Picher Lead Company addressed the meeting and testified that owing to the improved physical condition of his underground force, as a result of the work of the Clinic, accidents were less frequent and less severe in their effects. The secretary and treasurer of the Federal Mining and Smelting Company gave testimony to the same effect and throughout the meeting not one single adverse note was sounded. Those who were present at the meeting and who had sufficient authority immediately signed their contracts for participating in the Clinic's work for the next year, while the others promised that they would have their contracts signed within the next few days.

The present status of the Clinic work is this. As a result of the physical examinations of men employed there are no men with tuberculosis now working underground in Picher, nor is it possible for men whose lungs are not in good shape to secure underground work. The whole health level of the mining force is constantly being raised and the yearly re-examinations keep the men informed as to their condition and make it possible for them to leave underground work as soon as any evidence of lung damage indicates that this is desirable.

Again I should like to call attention that this is the most far-reaching demonstration of its kind that has ever been tried in this country or probably in any other country, with the possible exception of the South African gold mining field. Not only has the work been carried on in a very thorough manner but it has been done in a democratic way and the mining population is educated to understand what we are trying to do, and because they appreciate this they have given their full cooperation. It is estimated that there will be not less than 7,000 examinations made this year which represents, as far as we can tell, about the normal work of the Clinic in future years.

The present staff of the Clinic consists of Dr. Meriwether, Surgeon in Charge, two physicians, an X-ray technician, a laboratory technician, a principal clerk, a chief clerk, and three clerical assistants.

C. H. Lavinder
Assistant Medical Director.

ST. JOSEPH LEAD COMPANY.

250 PARK AVENUE

NEW YORK

CLINTON H. CRANE, President
IRWIN H. CORNELL, Vice-President
ANDREW FLETCHER, Vice-President & Treas.
C. MERRILL CHAPIN, Jr., Vice-President
E. V. PETERS, Vice-Pres.
H. B. McGOWN, Secretary
ROBERT BENNETT, Asst. Secretary
GEORGE I. BRIGDEN, Asst. Secretary

TELEPHONE ELDORADO 6-3000
CABLE ADDRESS
"SAINTJOE" NEW YORK

July 5, 1934.

Dr. A. J. Lanza,
Assistant Medical Director,
Metropolican Life Insurance Company,
One Madison Avenue, New York, N. Y.

JUL 6 9 AM

Dear Dr. Lanza:

Upon my return to New York this morning, I was very interested to find your letter of June 27, 1934.

As you know, Mr. Drinker is expecting to spend two weeks with our Bonne Terre Organization, and it would be a great help to us if he had a copy of your proposed form of silicosis classification, as he expects to go over the entire problem with our legal staff, as well as with certain of the local doctors who may aid us in our defense.

I quite appreciate that before any public announcement is made, the matter should be considered as confidential, and therefore, that you may not be in a position to send us copy of the classification, but you probably would have no objection to sending same to Mr. Drinker for such use as he may consider equable.

Very truly yours,

Vice President & Treasurer.

AF:LH
Copy Mr. Drinker

July 8, 1944

Mr. Philip Drinker,
c/o L. T. Hicks,
St.Joseph Lead Company,
Bonne Terre, Missouri.

Dear Phil:

At Mr. Fletcher's request, I am enclosing a copy of the classification of silicosis. This has not been officially O.K.'d yet and I imagine that what will happen is that Sayers, as Chairman of the Committee on Silicosis of the A. P. H. A., will present it at the annt meeting in Pasadena as the annual report of the Committee on Silicosis, then at one time putting on it the stamp of approval of the Public Health Service and of the A. P. H. A. Sayers has been in Europe and I have not had a chance to see him. So, in the meantime, this classification is not for general promulgation.

Sincerely yours,

A. J. Lanza, M.D.
Assistant Medical Director

March 10, 1932

Dr. Philip Drinker
53 Van Dyke Street
Boston, Mass.

Dear Phil:

I have your letter of March 9. Mr. Davis came to see me, accompanied by Mr. Winans, Personnel Manager of the Union Carbon and Carbide Company. Mr. Davis is the head of the department dealing with power development for this Company and struck me as being a very decent citizen and seemed to be quite well informed on the whole subject of silicosis.

I have heard from a number of sources about the high mortality that has been attendant upon the construction of this tunnel. The suits are being brought against the contractor and the insurance company and Union Carbon and Carbide is apparently not liable. However, they have decided to look into the matter thoroughly and be of such assistance as circumstances may warrant to the contractor in defending these suits.

I pointed out to Mr. Davis, and as far as I could make out, he got the same advice from Sayres, that the thing to do was to establish first of all whether these sick men had silicosis and for that purpose, I suggested that he consult Dr. Peacock. My own opinion is that if these men were found to have silicosis and they had worked under conditions exposing them to silicosis, the suits had better be settled. Of course, there is a strong probability that many of these men were old hard-rock workers who may have had silicosis when they went to work for the contractor. Mr. Davis was anxious to establish the status of respirators and I advised him to get in touch with you, both as to type and as to the time when various types appeared on the market.

I imagine that there are probably some genuine cases of silicosis mixed up with a number of more or less fraudulent suits. The majority of these people bringing suits are negroes and naturally the whole think has been engineered by some clever lawyer. I do not know who the contractor is but I expect they have got him across a barrel. A number of suits have been filed on behalf of persons now dead and I believe their lungs have been secured. I advised Mr. Davis to consult Dr. Gardner for this phase of the job. I shall be glad to give you any further dope if I have any.

Sincerely yours,

A. J. Lanza, M.D.
Assistant Medical Director

MEMORANDUM

October 11, 1935

THE PRESIDENT:

Dr. Gardner was in to see Dr. Lanza and me several days ago, concerning the possibility of our renewing our appropriation for his silicosis work next year. We have already contributed $30,000 to this research.

I frankly and completely discouraged any further participation in silicosis research on our part - hence this statement from Dr. Gardner, without the usual request!

Their work will continue and not suffer a great deal from our withdrawal, for other sources of support, as Dr. Gardner says, have been developed. We shall of course continue practical working cooperation with their laboratory, through Dr. Lanza and our own Industrial Hygiene Section.

I have also written Dr. Gardner, asking for a summary report on the results of the work financed by us - as a matter of record.

D. B. Armstrong, M.D.
Third Vice-President.

Dr. ... J. Lanza,
Assistant Medical Director

It would be perfectly sound to approach industrial companies, where silica hazard is present, with the thought of selling annuities for those exposed.

However, the cost of an annuity bearing a reasonable relationship to pay is pretty high at age 55 and much higher at 50.

An annuity payable at 60 costs about two-thirds more than annuity at 65. We have a devil of a time to get employers to put up the necessary fund for Group Annuity Plans which have a normal retirement age of 65, so you can see it would be some sales job to get the money for an age 50 plan.

All in all, while the idea is sound enough, I question its salability unless some employer with the silica hazard is particularly sentimental about it.

If you want any actual figures, please advise.

G. L. Harrold

...../

...., 1935

July 7, 1932

Dr. L. I. Dublin
Third Vice President
and Statistician

In re: Report on Silicosis and Tuberculosis Among Miners of the Tri-State District of Oklahoma and Kansas

I have found it difficult to follow through this second report of the Tri-State Clinic, perhaps because I had no copy of the first report available for reference. Suggestions made in connection with our reading of the first report, still seem to me to apply. There can be no question that these studies will add materially to our knowledge of the extent, causes, and symptoms of silicosis. Especially interesting in this second report, are the production rate of silicosis, silicosis complicated with tuberculosis, and tuberculosis uncomplicated; the apparent connection between syphillis and silicosis; the demonstration of the lack of any protective qualities in coal dust so far as the development of silicosis is concerned. The results, however, are conditioned by the fact that the second and later examinations are made only of men who stay in the district, and who are either working, or trying to secure work there. Those who die, and those who leave the district because of disabilities, or for other reasons, are not accounted for in the record. This all tends to minimize the situation.

No provision apparently, has been contemplated to provide compensation for the men who become silicotic. The chief value to them from the Clinic is the warning card which they receive, telling them of their condition, and the dangers to be avoided. An attempt apparently is also made to place some of the men affected with silicosis in the less hazardous branches of the work.

One is impressed by the fact that certain men (121 in the present study) are able to work 25 years and more in hard rock, and still have negative chests. An intensive study limited to the workers in this group might reveal certain common characteristics which would serve as a guide to the selection of the best men for this type of work.

It would make for easier reading if the tables were more completely descriptive. The arrangement of the tables, I think, might be improved upon. I have made a few marginal notations on the text, and on the tables, but have not had time to make complete suggestions for their revision.

Robert J. Daniel
Supervisor
Occupational Rating

* The number of cases developed during the yea

August 14, 19[illegible]

Dr. Leroy U. Gardner, Director,
Saranac Laboratory for the Study of Tuberculosis,
7 Church Street,
Saranac Lake, N. Y.

Dear Roy:

Herewith is a copy of a letter I have just received from Dr. Sayers, which is self-explanatory. I presume you have a copy of the South African nomenclature, so I am not enclosing that.

I wish you would write me right away about the following:

The St. Joseph Lead Company has mines and a smelter at Bonne Terre, about forty miles south of St. Louis on the Mississippi River. These are lead mines, the ore being lead sulphide, with no history of ever having had cases of lead poisoning, except occasionally in the smelter. The rock is mostly limestone, with not more than 5% silica, of which only 2% or less is free silica. I have never considered that there is any silicosis hazard in this particular area.

These people are faced with several million dollars worth of law suits, alleging silicosis. Company officials are inclined to think that when and if these are thrown out, they may lay their claims to lead poisoning. Anything is possible with the wholesale fraud that is going on nowdays.

On account of various matters which I do not need to detail, our relations with this Company are not entirely cordial, although we carry their Group insurance. On the 30th of this month, the Vice President and Treasurer is coming in to see me with his Company doctor. I am not quite sure what they want but I think they are probably looking for help, the same as the other companies. Do you wish me to refer them to you and Don? I have always found them a decent group and right now they have their backs to the wall. If things work out, it might even be worth your while to come down to New York to see them, provided you would care to take this on.

With best regards,

Sincerely yours,

[illegible]

September 12, 1930

Dr. F. V. Meriwether,
Surgeon-in-Charge,
Bureau of Mines Co-operative Clinic,
Fisher, Oklahoma.

Dear Dr. Meriwether:

I have just had a telephone conversation with Dr. Sayers and he tells me that you passed your P. H. S. examination.

Please accept my sincere congratulations. I cannot tell you how glad I am to hear that you have gotten your commission in the Service and I think the Service is to be congratulated also. I do not know of anybody in the service who has more ability than you have.

About September 25 Dr. Pedley is bringing down from Canada 150 X-ray films and I hope to get hold of 50 others that were taken a few months ago. McConnell will probably go to Fisher about the first week in October and I am asking him to take the pictures with him and go over them with you, if you will be so kind.

I do not know when I shall come to Fisher next. I have got to go to the A. P. H. A. meeting in Fort Worth on October 27, but it is doubtful whether I can get to Fisher at that time.

With best regards and best wishes to Mrs. Meriwether and yourself, I am,

Sincerely yours,

A. J. Lanza, M.D.
Assistant Medical Director.

Dr. A.J. Lanza
Assistant Medical Director

Thanks for your memorandum of August 31st with reference to the Fisher Clinic Reports. From the figures which you quote, there is every indication that the Clinic has been worthwhile in the improvement of silicosis cases, but it will be most difficult to determine what effect this would have on any future Group Life Insurance. Possibly the closing of a large majority of the mines and starting all over again with new employees when they reopen, would make it possible to issue the Group Life Insurance successfully, but how this is to be determined except by experience is something I cannot see.

Certainly based on our past experience we would not want to accept this business, and if we did so now, an almost prohibitive rate would be necessary. We will determine the question however if and when the miners do return to work, and if and when they desire Group Life coverage. The experience in any event would be greatly improved by the fact that beginning today, September 1st, we are no longer issuing Group Life Policies with total and permanent disability provision.

Assistant Actuary

September 1, 1932
EOB/

Box 11
No B/D's

PNL-339
L.T.
4/19/79

THE RAYBESTOS DIVISION OF RAYBESTOS-MANHATTAN, INC.

Bridgeport, Conn.

* * *

The following report is a study of the dust conditions in the Bridgeport and Stratford, Conn. plants of the Raybestos-Manhatten, Inc. and was conducted in June, 1935. This survey is supplementary to the survey made in February and March, 1930.

* * * * * *

1 Copy to Linder 10/3/25

Exhibit D

The Bridgeport Plant

The Bridgeport plant engeges in the weaving of brake-band lining and clutch facing and the treatment and processing of the same. The buildings and processes are the seme as at the time of the first survey, but the majority of the looms have been changed from their previous locations.

The methods used in the collecting of dust samples and counting are identical with those given in reports of other plants of this company and as outlined in the United States Public Health Service Bulletin No. 144, Treasury Department, Washington, D.C.

Looms and Stock Run at Time of this Survey - 3rd Floor

Loom #54
4 space Fletcher
2 5/16 x 1/8 ring stock
2 7/16 x 133 " "
2 5/16 - 1032 mule
2 7/16) 1030 - 1 cotton
) 1033 - 1 cotton
wet filling

Loom #55
12 space C & K
2 9/16 x 5/32 ring stock
1030 - 1 cotton
1033 - 1 cotton

wet filling

Loom #60
12 space C & K
2 x 1/4
2 1/4 x 1/4 Raybestos
2 1/2 x 1/4
1032 mule yarn
Wet filling

Loom #61
12 space Fletcher
2 x 3/16 Raybestos
1032 mule yarn

wet filling

Loom #69
20 space C & K
1 3/4 x 3/16 - 05
820 - 30% cotton yarn
1022 zinc yarn

wet filling

Loom #70
20 space C & K
1 1/2 x 3/16 - 05
1 3/4 x 3/16
820 - 30% cotton yarn
1022 zinc yarn

wet filling
dry binder

Loom #71
20 space C & K
1 1/2 x 5/32 - 05
820 - 30% cotton yarn
1022 zinc yarn wet filling dry binder

2nd floor

Loom #9

12 space C & K
2 9/16 x 5/32 ring stock
1030 - 1 cotton yarn
1033 - 1 " "
wet filling
dry binder

Loom #10

12 space C & K
1 3/4 x 1/4 - 05
2 1/2
820 - 30% cotton yarn
1022 zinc yarn
wet filling
dry binder

Loom #24

12 space C & K
2 3/8 x 245 - 05
820 - 30% cotton yarn
1022 - zinc yarn
wet filling
wet binder

Loom #25

12 space C & K
2 x 3/16 - 05
820 - 30% cotton yarn
1022 - zinc yarn
wet filling
dry binder

Loom #27

16 space Fletcher
2 x 3/16 Raybestos
1032 mule yarn
wet filling
dry binder

Loom #30

16 space Fletcher
2 x 3/16 Raybestos
1032 mule yarn
wet filling
dry binder

Loom #44

6 space C & K
3 x 5/16
4 x 5/16 Free wheeling
4 1/2 x 5/16
1030-2 cotton yarn
1033 - 1 cotton yarn
1032 - 1 cotton zinc yarn
1030 - 1 cotton yarn
wet filling
partially wet binder

Loom #46

10 space C & K
3 x 3/8
3 1/2 x 3/8 Raybestos
4 x 3/8
1033 mule yarn
wet filling
dry binder

Loom #50

20 space C & K
1 1/2 x 5/32 - 05
820 - 30% cotton yarn
1022 zinc yarn
wet filling
dry binder

1st floor

Loom #82

4 space Fletcher
5 x 5/16 Raybestos
1033 mule yarn
wet filling
partially wet binder

Loom #83

2 space Fletcher
9 x 1 no wire
9 3/4 x 1
1030 - 2 cotton yarn
dry weaving

Loom #36 - warp room

3 space Fletcher
12 x 3/8 industrial automotive
1032 - 1 cotton zinc yarn
1033 - 1 cotton yarn
1030 - 1 " "
1030 - 2 " "
wet filling
wet binder

Air Velocities - Taken with Anamometer at Exhaust Intake

Bridgeport Plant

Pratt & Whitney Grinder - 925 feet per minute

Automatic drillers - 1028 feet per minute

2nd floor - inspection table
machine on north side - 270 feet per minute
" " south side - 58 feet per minute

The following table shows the results of analysis of air samples taken at representative positions:

THE RAYBESTOS DIVISION OF RAYBESTOS-MANHATTAN, INC.

Bridgeport, Conn.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per cu. ft. air sampled	Millions of Particles, less than 10 micron in greatest diameter, per cu. ft. air sampled	Type of Dust	Remarks
3rd FLOOR							
1	Between looms #60 and 61	6/19/35	44.7	6.1	5.3	Asbestos	1 man on each loom
2	Between looms #70 and 71	"	49.5	5.5	4.7	"	1 man on each loom; under belt drive
4	At loom #69	"	58.9	6.1	5.3	"	#68 not running; not under belt drive
5	Between looms #54 and 55	"	53.8	5.2	4.5	"	
8	General air, center of room near loom #75	"	38.1	5.4	4.6	"	
33	Same as #4	6/24/35	30.4	6.0	5.2	"	Monday morning after starting up; looms blown off on Friday
2nd FLOOR							
3	At loom #50	6/19/35	46.2	5.5	4.6	"	
6	At loom #44	"	61.6	3.1	2.6	"	
7	At loom #30	"	43.3	3.6	3.0	"	
9	At loom #27	"	39.6	7.5	6.3	"	
10	At loom #24	"	57.3	3.0	2.5	"	
11	At loom #25	"	77.8	3.5	2.9	"	
12	Between looms #9 and 10	"	42.2	9.9	8.3	"	
14	At loom #46	6/20/35	40.3	4.8	4.0	"	
15	At inspection table for woven stock	"	34.1	9.6	8.1	"	Exhaust system on brushes
21	Winding and measuring woven stock	"	28.7	8.1	6.8	"	
32	Same as #9	6/24/35	32.9	5.5	4.6	"	Monday morning after starting up; looms blown off Friday
34	At loom #39 Buick stamped .34 lining	6/27/35	29.3	4.4	3.8	Asbestos lead	
1st FLOOR							
19	At loom #34; all wall brake lining	6/19/35	38.4	3.6	3.3	Asbestos	4 looms in room; #32 only one running

16	Between looms #32 and 33	6/20/35	39.7	2.5	2.3		"	2 looms running; on roller of #33 not warp by hand
17	At loom #34; warping room	"	31.2	1.7	1.6	"	"	12 inch lining
19	At warp machines #1 and 2	"	54.6	1.3	1.1	"	"	8.0 stock
22	At warp machine #7	"	55.6	5.9	5.4	37	"	Mule 1933-1 cotton
25	General air - cop winders	"	80.3	2.6	2.4	15	"	1000 size wire; 1933-1 cotton; 20# press air
BRAKE DEPT. 1st FLOOR								
18	General air inspecting and packing brake lining	"	36.6	1.3	1.1	7	Brake lining	3 men
20	General air, near small press for clutch facing	"	36.8	1.7	1.5	9	"	3 men rolling lining 1 man cutting lining
23	Between two large knuckle presses; woven clutch facing	"	64.6	2.0	1.8	11	Clutch facing	
26	Between two drill presses drilling rivet holes	"	25.5	3.1	2.7	16	Brake lining	Exhaust system; air hose used to clean machine
28	Same as #26	6/21/35	29.6	2.2	1.9	11	"	
29	At Pratt & Whitney grinder; woven brake lining	"	27.6	2.2	1.9	11	"	Exhaust system
31	General air, machine shop	"	38.5	2.2	1.9	11	Clutch facing brake lining	
24	General air, saturation room	6/20/35	97.6	0.95	0.86	5	"	
27	General air, shipping bldg.	6/21/35	43.9	1.0	0.93	5	"	
30	Normal outside air	"	48.0	0.5	0.45	3		

RAYON DUST ANALYSIS

Brake Department 1.44% Pb
At looms #28 and 29 38.16% Pb 14.7% SiO_2 (total) (no free silica)

RELATIVE HUMIDITY

3rd floor - 6/19/35 - 64%
2nd floor - " - 57%
outside - " - 78%
1st floor - 6/20/35 - 47% - room with four looms
1st floor - " - 64% - warping room
1st floor - " - 58% - brake department
outside - " - 89%

All yarn used at this time averages 75% asbestos and 25% cotton.

RAYBESTOS DIVISION OF RAYBESTOS-MANHATTAN, INC.

Bridgeport, Conn.

LEAD ANALYSES

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Milligrams of Lead per cu. ft. air sampled	Milligrams of Lead per cubic meter of air	Lead Intake in Milligrams on basis of workman breathing 10 cubic meters air in 10-hr. day	Type of Dust
34	At loom #29; Buick stuffed .04 lining	6/27/35	29.3	0.00065	0.023	0.23	Asbestos lead
20	General air near small press for clutch facing	6/20/35	36.8	0.000	0.000	0.00	Brake lining
23	Between two large knuckle presses; woven clutch facing	"	64.6	0.000	0.000	0.00	Clutch facing
26	Between two drill presses drilling rivet holes	"	25.5	0.000	0.000	0.00	Brake lining
28	Same as #26	6/21/35	29.6	0.000	0.000	0.00	"
29	At Pratt & Whitney grinder woven brake lining	"	27.6	0.00069	0.0244	0.244	"
31	General air machine shop	"	38.5	0.000	0.000	0.000	Brake lining clutch facing
24	General air - saturation room	6/20/35	97.6	0.000	0.000	0.000	"

Comparative Data of 1930 Survey and 1935 Survey

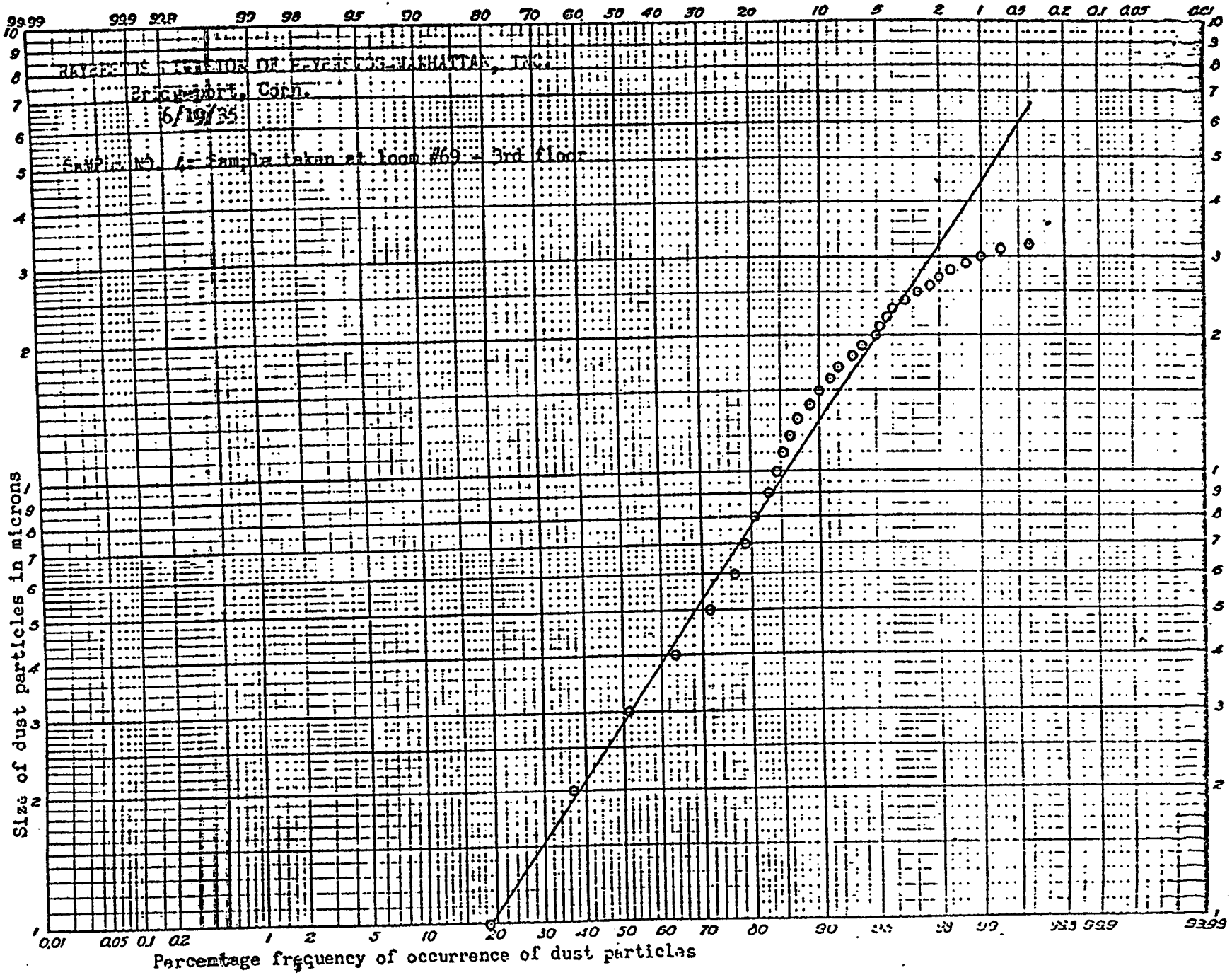
Bridgeport Plant	Millions of Particles per cu. ft. of Air Sampled			
	1930		1935	
3rd floor				
Between looms #60 and 61	1,380,000	8	6,100,000	47
" " #70 and 71	1,000,000	6	5,500,000	33
Average of 3rd floor counts	1,950,000	14	5,700,000	35
2nd floor				
Average of 2nd floor counts	2,970,000	18	5,700,000	35
1st floor - warp room				
Average of counts	4,685,000	28	3,100,000	18

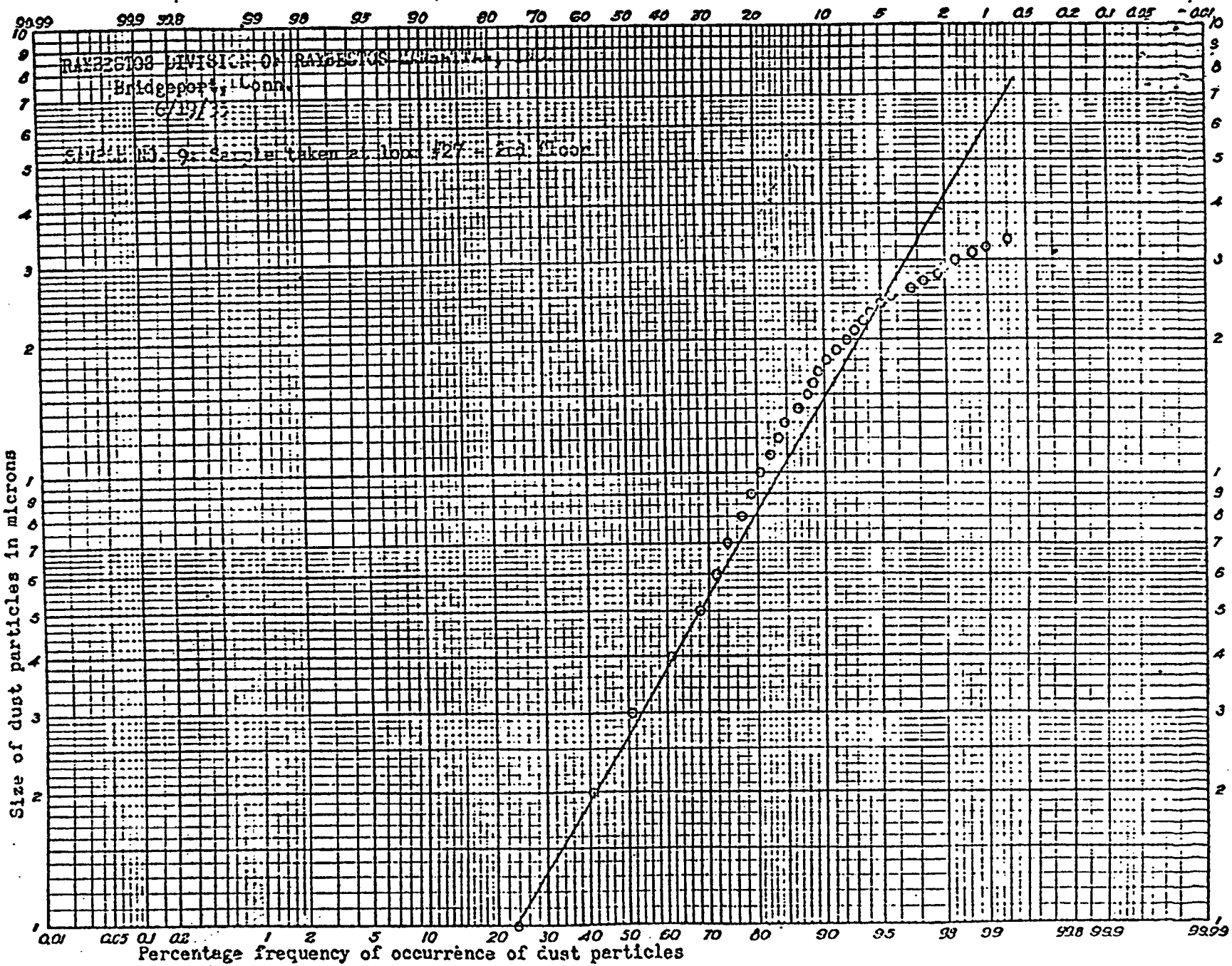
CONCLUSIONS AND RECOMMENDATIONS - Bridgeport Plant

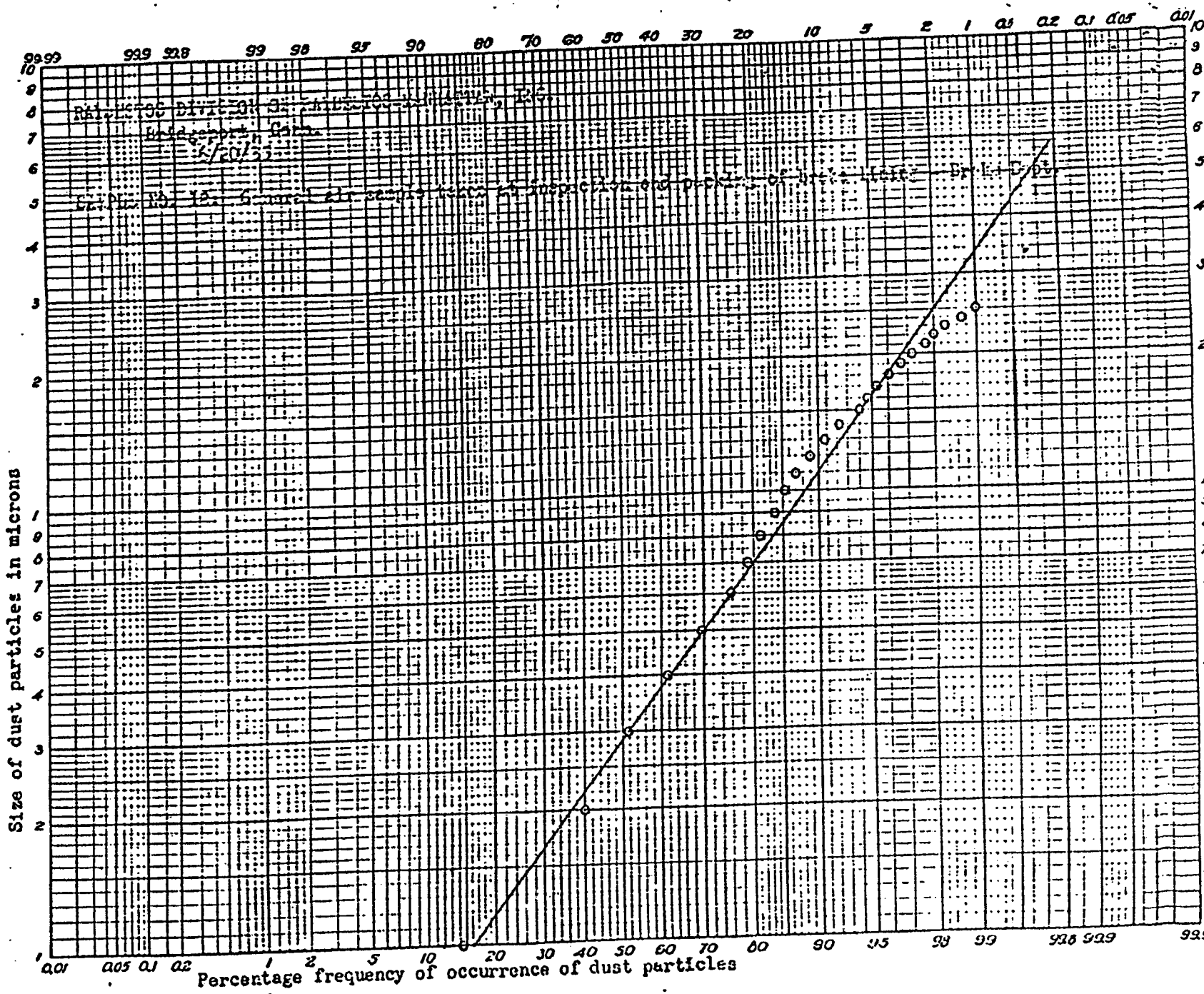
All of the dust counts in this plant show less than ten million particles per cubic foot of air sampled. While these counts are not considered as dangerous concentrations, they are much higher than on the previous survey made in 1930, with the exception of those in the warp room. All but four of the looms have been moved to different locations since the first survey. A check of the records would show a comparison of the type of yarn used and rate of production at the time of the two surveys.

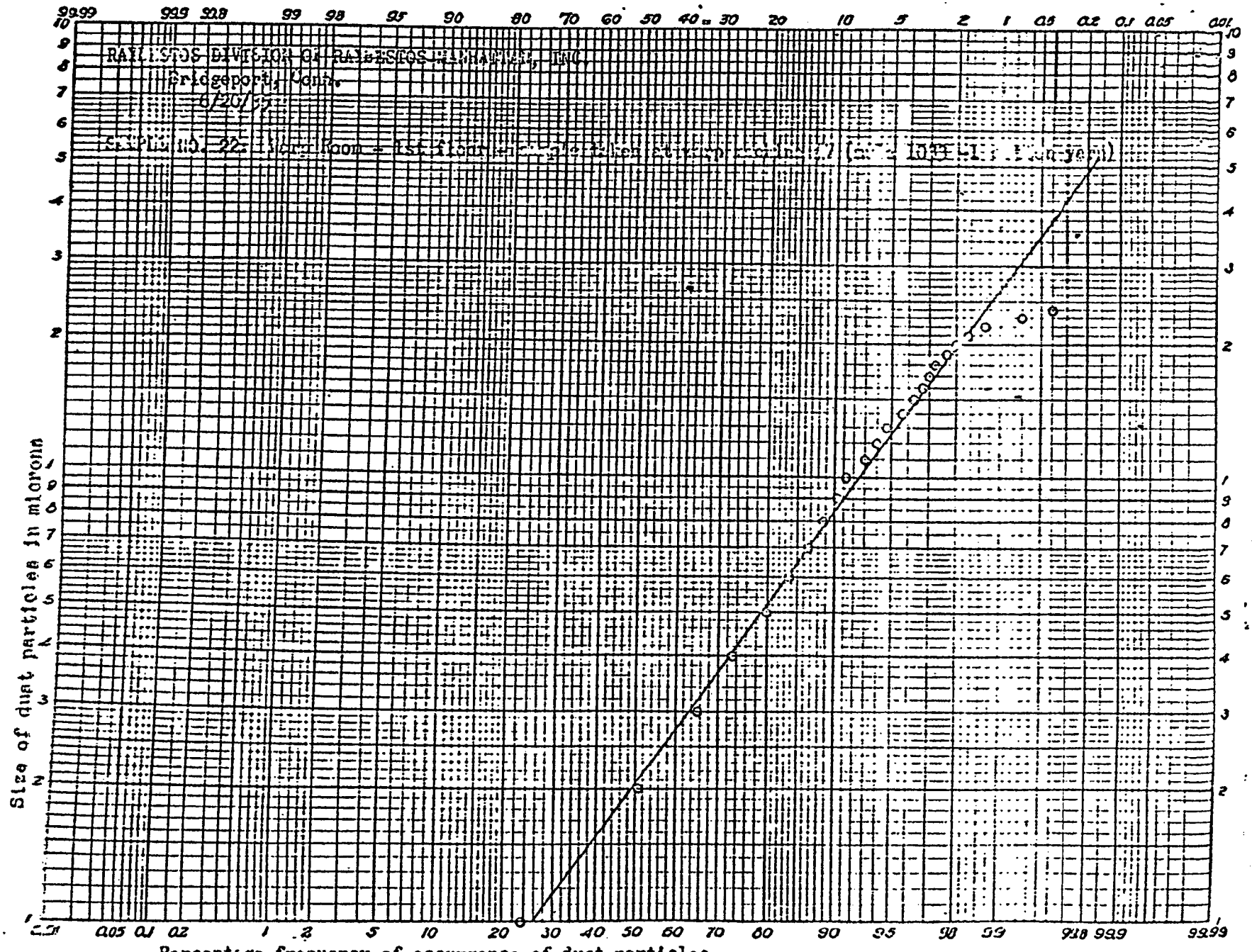
Sample #15, taken at the inspection table on the second floor shows the highest count. The concentration at this point could be decreased materially by the proper exhaust equipment. The present system is not designed properly to take care of the dust generated.

Sample #34 shows the presence of lead. This amount is not considered dangerous, but it would be advisable to have the workmen at these looms examined periodically for any signs of lead poisoning. The only sample in the Brake Department showing lead was sample #29. This is not considered a dangerous amount, but does indicate that there is a potential hazard present.


99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Size of dust particles in microns
Percentage frequency of occurrence of dust particles


RAYTHEON DIVISION OF RAYDISTOR CORPORATION
Bridgeport, Conn.
6/13/73
Size of dust particles in microns
Percentage frequency of occurrence of dust particles


Size of dust particles in microns
Percentage frequency of occurrence of dust particles


RAILSTOS DIVISION OF RAYBESTOS-MANHATTAN, INC.
Bridgeport, Conn.
6/20/57
Size of dust particles in microns
Percentage frequency of occurrence of dust particles

Stratford Plant

The Stratford plant engages in the manufacture of molded brake lining, molded clutch facing and packing.

The molded type brake lining is made in two different processes. One type is made by mixing asbestos, rubber, litharge, mica, whiting, sulphur, zinc oxide and high test gasoline in a mixer. This mixture is formed into sheets by ordinary rubber mills with heated rolls. The sheets are cut into strips for brake lining.

The second type is made of a mixture of rubber, asbestos, litharge, sulphur, zinc oxide and resin. This dry mixture is made into sheets by means of an hydraulic press. The sheets are cured in steam-heated presses. Strips for brake lining are cut from these sheets. Both types of lining are ground to width and thickness on Gardner grinders or Blanchard grinders. The lining is formed into arcs in heated presses and holes are drilled for rivets on automatic drill presses.

Molded type clutch facing is made from asbestos board. Asbestos and water are mixed in beaters to a pulp. This pulp is made into sheets on wet process machines. The sheets are dried in ovens and rolled to thickness in calenders. The large sheets are cut into strips from which the clutch facing rings are punched. The rings are impregnated in large tanks. Different specifications call for different saturants. The rings are ground to thickness on Blanchard grinders. The inside diameters are ground in internal grinders and the outside diameters are ground on external grinders. Rivet holes are drilled on automatic drillers. The finished clutch facing is then inspected

before packing for shipment. Sheet packing is made from a mixture of asbestos, rubber, litharge, whiting, sulphur, zinc oxide and high test gasoline. These materials are mixed in closed mixers. The wet mix is made into large sheets in mills with heated rolls. It is either sold in large sheets or it is cut into gaskets or rings on punch presses. The vapor arising from the heated rolls, due to the gasoline, is collected by hoods and pipes and reclaimed in two large condensers.

The following tables show the results of analyses of air samples taken at representative positions:

THE BARNETT DIVISION OF JOHNS-MANVILLE, INC.

Stratford, Conn.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per cu. ft. air sampled	Millions of Particles, less than 10 microns in greatest diameter, per cu. ft. air sampled	Milligrams of lead per cu. ft. air	Milligrams of lead per cubic meter of air	Lead intake in milligrams per 10-hr. day on basis of workman breathing 10 cubic meters of air	Type of Dust	Remarks
Asst. A										
1	At pulverizer, waste stock	6/25/35	49.0	4.7	4.2	0.000	0.000	0.000	Asbestos	Exhaust system fibre room
2	General air, between mixers #11 and 12	"	49.3	2.3	2.1	0.000386	0.0136	0.136	Asbestos litharge zinc, whiting rubber	Mixers closed while running
3	Taken at mill #9 cardinal brake stock	"	46.7	3.9	3.5	0.00041	0.0145	0.145	"	
4	General air between mixers #5, 9, 17 & 18	"	50.5	2.6	2.3	0.00226	0.080	0.80	"	
5	Taken at mill #1 1502 sheet packing	"	53.5	2.0	1.8	0.000	0.000	0.000	"	Machine #350
6	At fibre opener, truck being filled; hood truck about six feet from opener	"	6.5	20.0	18.0	—	—	—	Asbestos	Shovels fibre off floor fibre comes back into truck through pipe
7	General air, taken near power shear and punch presses	"	42.7	1.2	1.1	0.000	0.000	0.000	Asbestos litharge whiting rubber	
8	Between mills, machines #345 and 346 453R brake lining	"	54.7	3.8	3.4	0.000	0.000	0.000	"	Two mixers near
10	General air, taken near gasoline condenser	"	53.6	2.0	1.8	0.000	0.000	0.000	"	
Main Bldg.										
11	At wet machine #3	"	56.7	2.6	1.9	—	—	—	Asbestos	Asbestos board
12	At punch press machine #15, bostic girl stocking and piling	"	46.0	4.4	3.4	—	—	—	"	Clutch facing rings
13	Dumping asbestos and waste asbestos board into beaters	6/26/35	105.0	1.4	1.1	—	—	—	"	Taken while three beaters were being filled
14	General air, taken near calender for pressing asbestos board to thickness desired	"	48.9	1.6	1.4	—	—	—	"	
15	General air, inspection of brake lining	"	40.0	2.6	2.3	0.000475	0.0166	0.166	Brake lining clutch facing	5 cows - 5 cos
16	General air, inspection of clutch facing and brake lining	"	49.1	1.4	1.1	0.000	0.000	0.000	"	Shipping
17	Between power shears #3 and #4, cutting asbestos board	"	48.4	1.6	1.2	—	—	—	Asbestos	2 cos at #3 1 cos at #5
18	At Blanchard grinder #1 clutch facing	"	39.4	6.3	5.2	0.000	0.000	0.000	Clutch facing	Exhaust system - 1 cos
19	Between 3 cows at inspection machines for brake lining	"	42.1	1.0	0.81	0.000	0.000	0.000	Brake Lining	
20	At Cincinnati grinder clutch facing	"	41.2	1.4	1.1	0.000	0.000	0.000	Clutch facing	Exhaust system
21	Between 2 flat sanders	"	44.1	6.8	5.5	0.000	0.000	0.000	"	1 sanding rasher strips 1 sanding clutch facing
22	At automatic drill press machine #10	"	44.5	2.6	2.1	0.000	0.000	0.000	"	Exhaust system
23	At drill press machine #70	"	41.6	8.2	6.6	0.000	0.000	0.000	Brake lining	Exhaust system
24	At belt sander machine #123, outside of brake lining	"	40.8	1.9	1.5	0.00031	0.011	0.11	"	" "
25	At internal grinder machine #102	"	3.7	18.4	14.8	—	—	—	"	" "
26	At external grinder machine #109	"	11.3	12.0	9.7	—	—	—	"	" "
27	At internal grinder machine #16	"	37.7	4.1	3.3	0.000	0.000	0.000	Clutch facing	" "
28	At internal sander machine #124	"	46.4	1.8	1.5	0.00082	0.029	0.29	Brake lining	" "
29	At press #230, making molded sheet lining	"	55.4	1.4	1.1	0.000	0.000	0.000	"	P.O. material
30	Between two Blanchard grinders, #3 and 4	"	42.1	13.8	10.3	0.0027	0.095	0.95	"	#3 - P.O. brake lining #4 " " "
31	At Kingsbury automatic drilling machine #1	6/27/35	44.2	1.7	1.4	0.00043	0.0152	0.152	"	blows off material with air hose before reversing sides) exhaust system Exhaust system
32	At sander machine #12, brake lining	"	39.5	2.3	1.8	0.000645	0.0226	0.226	"	2 cos - exhaust system

RAYTEX DUST ANALYSIS

Fibre room 0.61% Fe 30.61% SiO_2 (total) no free silica
Over beaters 70.48% SiO_2
Over drills, grinders, 4.70% Fe

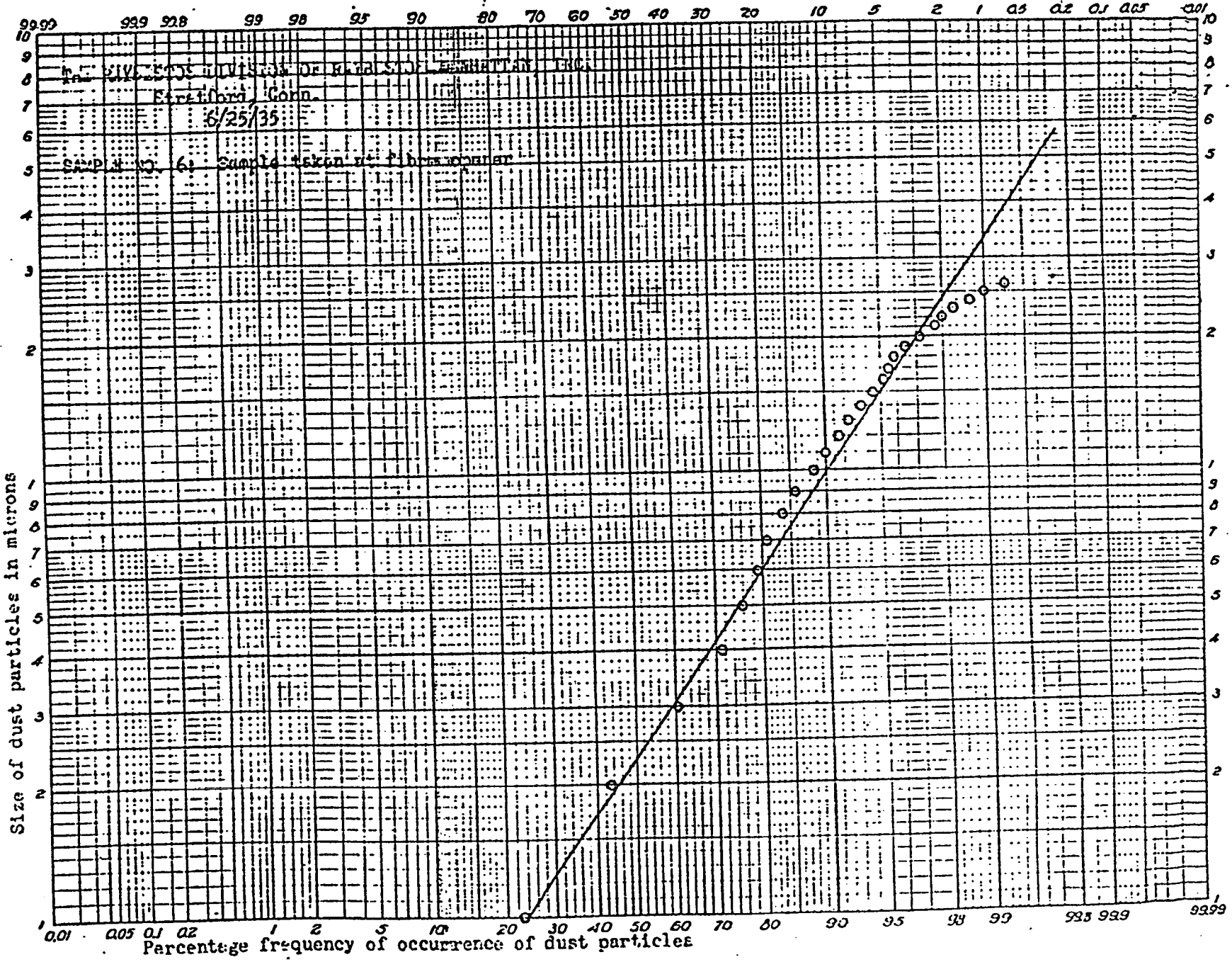
Comparative Data of 1930 Survey and 1935 Survey

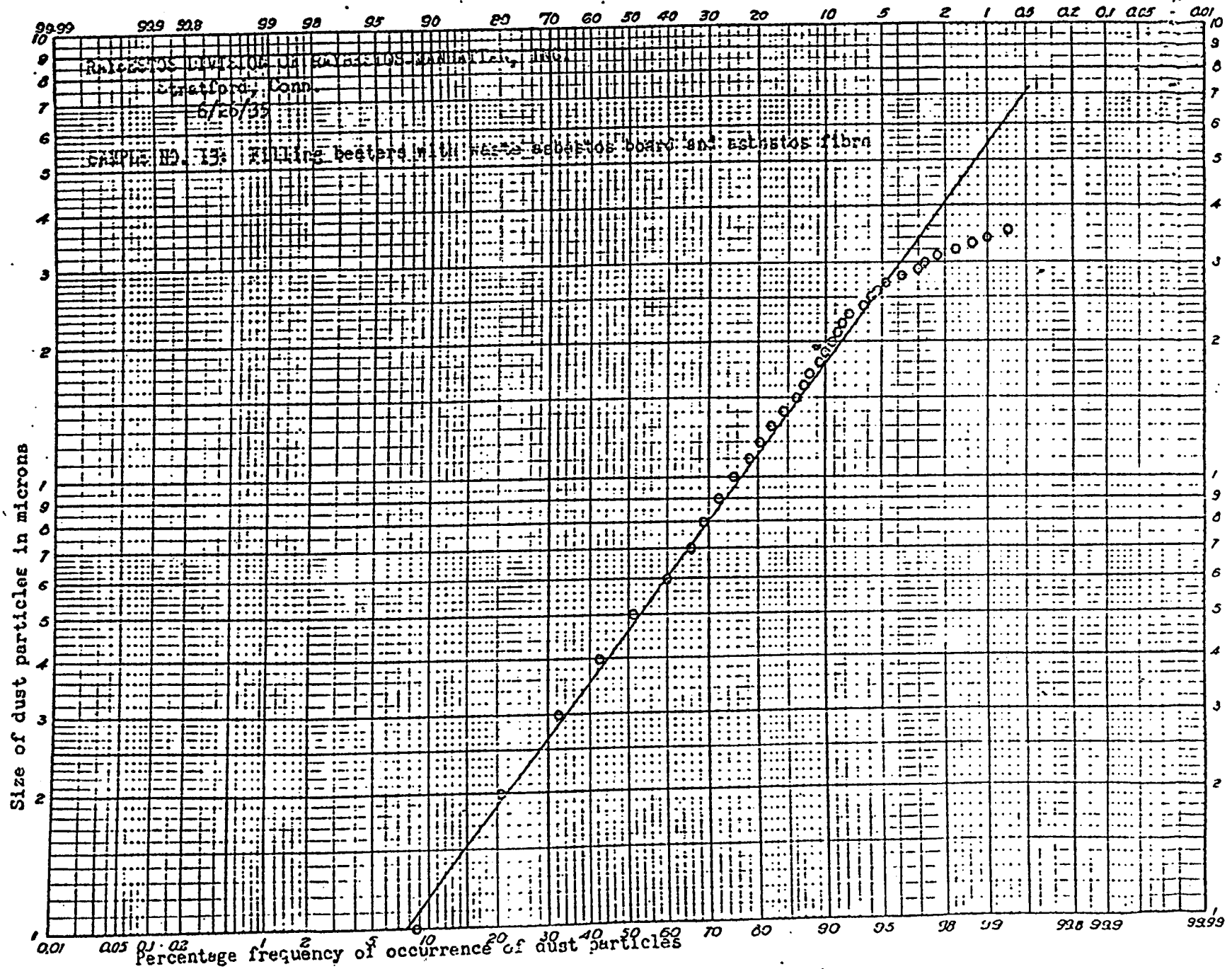
Stratford Plant

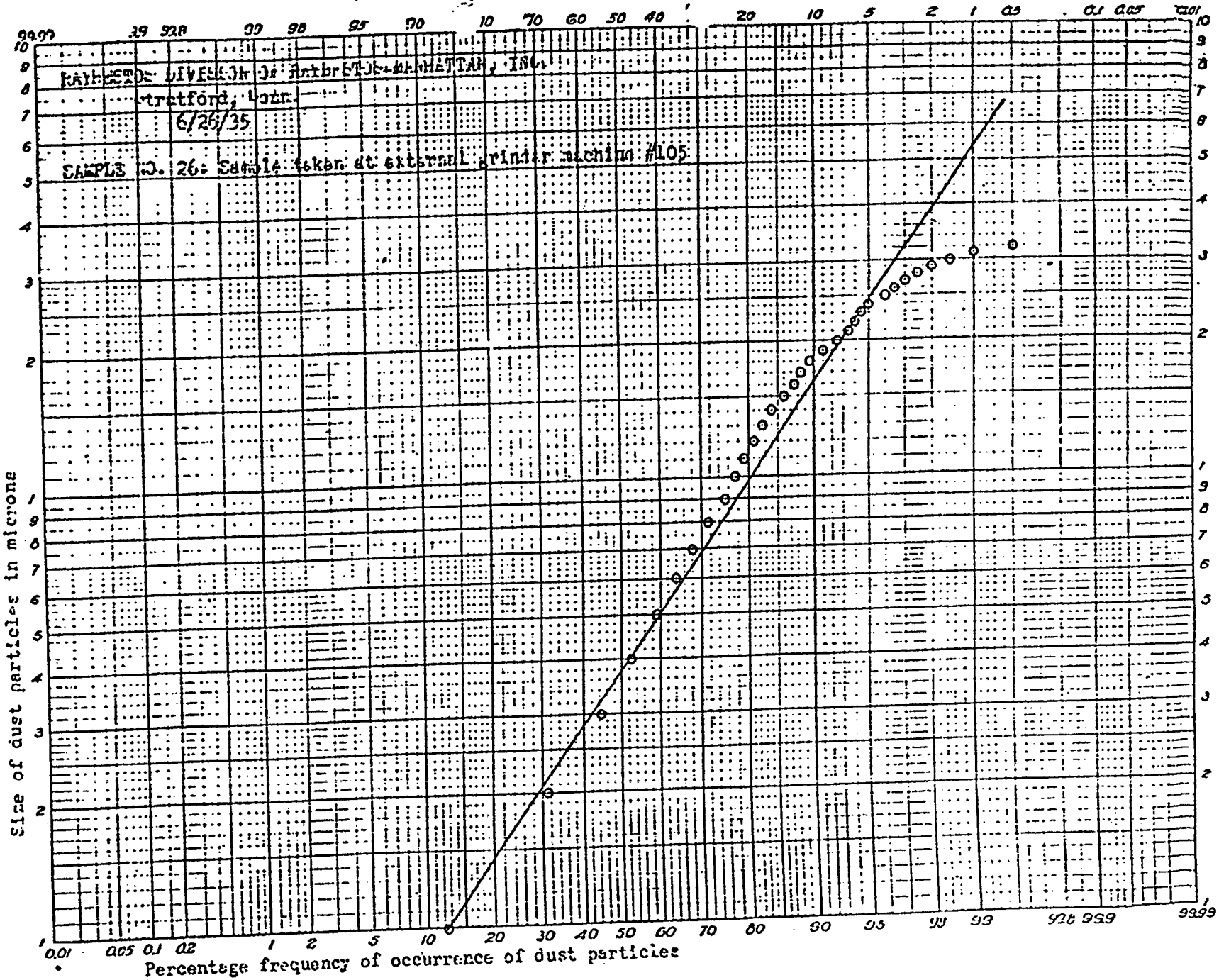
	1930	1935
Cincinati grinder	655,000	1,400,000
Filling beaters	529,000	1,400,000

Air velocity readings - taken with anemometer

Fibre room - pulverizer -	590	feet per minute
fibre opener	1450	" " "
Blanchard grinder #4 - -	590	" " " (right side)
	1514	" " " (left side)
Drill press machine #70 - -	571	" " "
Internal grinder machine #102		
large opening -	1111	" " "
small openings	434	" " "
External grinder machine #105	200	" " "
Sander machine #92	743	" " "


99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
Stratford, Conn.
6/25/35
Size of dust particles in microns
0.01 0.05 0.1 0.2 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.5 99.9 99.99
Percentage frequency of occurrence of dust particles


Size of dust particles in microns
Percentage frequency of occurrence of dust particles
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Stratford, Conn.
6/26/35
SAMPLE NO. 13: Filling beaters with fine rubber on board and asbestos fibre


Stratford, Conn.
6/26/35
SAMPLE NO. 26: Sample taken at external grinder machine #105
Size of dust particles in microns
Percentage frequency of occurrence of dust particles

CONCLUSIONS AND RECOMMENDATIONS - Stratford Plant

Sample #6 taken at the fibre opener shows a high dust count. This is accounted for by the method of handling the fibre and not the opener itself. The fibre is dumped from bags onto the floor and then shoveled into the opener. The fibre is carried to a hopper above and then falls through a pipe into a truck which is located about six feet from the opener. The operator stands between the opener and the truck and shovels the fibre into the opener at the same time that it is falling into the truck. The dust concentration at this point could be decreased by the proper handling of the fibre.

Samples #2, 3 and 4 show that there is lead present in the air at these points. While these samples do not show a dangerous amount, it would be well if the workmen engaged at these places were examined periodically for signs of lead poisoning. Notice was taken at the time of this survey of the method of handling litharge. This material is handled carelessly as it can be found lying on the floor in the room where it is weighed and around the mixers.

Sample #13 shows a low count. Three men were engaged in filling the beaters. Practically all of the material put into the beaters was waste asbestos board. Very little raw asbestos was added. No doubt the count at this position would be higher if more raw asbestos fibre were used out of the bags. It is recommended that the bags of asbestos fibre be stored in a room isolated from the remainder of the plant. This would eliminate dust generated in the piling and unpiling of these bags in the room and exposing more people to the dust than is necessary.

Samples #15, 24, 28, 30, 31 and 32 all show that lead was present in the air sampled. Sample #30 is the only one that approaches a dangerous amount.

This sample also shows a high dust count. The high dust count at the two Blanchard grinders #3 and 4 is due to the method of handling the brake lining during the grinding operation. This lining is the P.G. molded type and a number of strips are placed together for grinding of the edges. After the edges are ground on one side, the operator blows off the clinging dust with an air hose and reverses the strips to grind the opposite edges. This type of grinding should be done on the grinding machines designed for this particular work. It was observed that a great amount of the dust present in the air is caused by the handling of the material after grinding. Dust clings to the individual pieces, and when the stacks are moved about they are not put down carefully. This results in dust clouds arising.

Samples #25 and 26 show high counts. Large size brake lining was used at the time these samples were taken. It was observed that the exhaust hood on machine #105 did not catch all of the dust from this type lining. When smaller sizes of lining are ground on this machine the hood seems to catch most of the dust generated. The hood should be changed to take care of all sizes of lining ground on this machine.

HEALTH HAZARDS

Asbestos dust gives rise to a pneumoconiosis or fibrosis of the lungs which has been discussed in the previous report made on the asbestos industry. Developments in our knowledge of asbestosis are continually taking place and a summary of any new facts discovered will be added to the general composite report of the asbestos plants survey which is to be brought out later.

Mica belongs to the class of materials in which silica occurs in a combined form known as silicates. Little or nothing is available in the literature with regard to the effects of this dust on the lungs, though it seems likely that it belongs with the more mildly injurious dusts. Our present knowledge of the effects of the silicates is meagre, but work is being carried on in various quarters in an attempt to determine their classification more accurately with regard to health. Experimental investigation of mica dust was made recently by A. Policard of the University of Lyons, Franco.(1) His conclusions from observations on white rats were that these dusts are noxious to the lung tissue, resulting after a time in changes in the cells and in phagocytosis and producing a mildly chronic fibrosis similar to that seen in silicosis. Mica particles grouped in plaques were found in the alveolar tissues. With his conclusions regarding the theory that sericite is the chief factor in the causation of silicosis, authorities in this country cannot agree, although the matter is constantly receiving attention.

Toxicity of Lead in Rubber Mixing (Litharge - red or yellow oxide of Lead)

Compounding and mixing are the most hazardous processes in rubber making. If these processes are properly isolated from the rest, compara-

(1)Policard, A., The Action of Mica Dust on Pulmonary Tissue, Journal of Industrial Hygiene, Baltimore, Vol. XVI, No. 3, May, 1934, pp. 160-164.

tively few workers need remain exposed.

Lead poisoning is the commonest of the industrial intoxications. The toxicity of lead depends upon a number of factors such as : the form of lead taken into the body - vapor, dust or solid; the solubility of the lead compound in human tissues; the mode of entry of lead into the body - inhalation, ingestion or skin absorption; the extent of exposure; individual susceptibility which is heightened by numerous conditions particularly by previous attacks of poisoning.

Among the most readily toxic of the inorganic lead compounds are the oxides, the carbonate, the sulphate and the chromate.

Lead is a cumulative poison and, with a few exceptions, industrial lead poisoning is usually a chronic condition caused by the inhalation or ingestion of small amounts of soluble lead over long periods of time. This process of poisoning may go on slowly for a long period without manifesting any of the characteristic acute symptoms. Lead inhaled, however, is far more rapidly and surely toxic than lead ingested, since it reaches the blood stream more directly and comparatively little is eliminated unabsorbed.

There is little agreement in the estimates made by various authorities on the minimum amount of lead which can cause poisoning if taken into the body. For practical guidance, however, it can be assumed that from 1 to 2 milligrams taken in daily over a period of months or years may cause poisoning. A number of factors also enter into the estimation of the amount of air breathed by a man at active work during the working day. Ten cubic meters of air in a ten hour day is an estimate which very probably errs on the safe side for the average workman. On the basis of these calculations, the lead content of the air of workrooms where men are continuously exposed should be kept as low as

0.1 of a milligram per cubic meter of air or else strict measures for protection should be installed to prevent poisoning.

The symptoms of chronic lead poisoning are many and may manifest themselves through the gastro-intestinal tract as in the familiar "lead colic" or the neuro-muscular system or both. Among the symptoms most commonly noted are colic, metallic taste in the mouth, obstinate constipation and loss of appetite, muscular weakness, particularly of the hands and wrists, neuritis and joint pains, loss of weight, headache, dizziness, nausea or vomiting, gastric distress or fatigue are among the minor symptoms that may or may not be present.

The principal diagnostic signs for the detection of lead poisoning in its early stages or of lead absorption, which is essentially pre-clinical poisoning before the onset of symptoms, are ashen pallor of the skin, tremor, lead line on the gums, stippling or basophilic degeneration of the red blood cells, hematoporphyrin in the urine and mild secondary anemia. Other abnormalities in the blood which are characteristic of lead poisoning are polychromatophilia, changed relative proportions of lymphocytes and polymorphonuclear leukocytes, increased mononuclear cells and increased reticulocytes.

Repeated physical examinations should be made of workers exposed to lead at fairly short intervals of from two to six months, depending upon the severity of exposure. It is important to prevent the occurrence of lead poisoning, since, even though it is not often fatal under modern conditions, it frequently results in premature development of chronic degenerative conditions in the circulatory system.

The physiochemistry of lead poisoning and the treatment to be pursued have been the subject of intensive experimentation and study by Aub[2] and his

(2)Aub, J.C., et al, Lead Poisoning, Williams and Wilkins, Balt. 1926, pp. 265.

associates at the Harvard School of Public Health and by Kehoe[3] and his colleagues of the University of Cincinnati.

Toxicity of Various Solvents and Plastics

Benzol is by far the most hazerdous of the solvents commonly used in industry. It has been established that the maximum allowable concentration for prolonged exposure is 100 parts per million. Because of its recognized and very serious danger to the health of operatives, its use as a solvent in spray coating operations has been largely supplanted by less toxic substances or by its less harmful homologues toluol and xylol. These substances are not necessarily less dangerous to life if breathed in, but, because of a lower volatility and a marked odor, they are less likely to escape unnoticed into the atmosphere. Moreover, they do not damage the blood forming organs causing chronic permanent injury to health to the same extent as does benzol. Solvent naphtha derived from benzol is a mixture of toluol and xylol and in the same class with these substances with regard to health hazard, while petroleum naphtha is classed with benzine, gasoline, the chlorinated hydrocarbons and with the alcohols, acetates and ketones, and with which severe poisoning is rare. Whether or not these substances have any action on the blood is still controversial. Usually poisoning by them is of the acute anesthetic type. The effects due to exposure to heavy fumes are headache, nausea, dizziness, blurred vision, mental confusion and loss of consciousness. These effects generally disappear fairly quickly in fresh air. Chronic effects from prolonged exposure are less definite but similar, with muscular weakness, tremors, and various nervous disturbances.

Of the alcohols, all highly soluble, methyl alcohol or methanol is one of the most toxic to human beings when inhaled, inasmuch as it is not oxidized in the body to the same extent as ethyl alcohol, which is otherwise more toxic.

(3) Kehoe, R.A., Thamman, F., Cholak, J., On the Normal Absorption and Excretion of Lead, I-IV, Journal of Industrial Hygiene, Sept. 1933.

Some degree of tolerance can be developed to the anesthetic effect of the alcohols, particularly ethyl alcohol, probably due to acceleration of the normal rate of oxidation.

While methyl, butyl and amyl alcohol are increasingly toxic judged by their respective [illegible]ctly poisonous actions, this property is offset, as far as their indu[illegible] aspect is concerned, by a decreasing volatility and solubility.

As is the case with benzol, the toxicity of methanol has been blamed on its impurities, but there is ample evidence of a sound nature that methanol itself is the chief toxic factor. The effects of the vapor, accumulating as it readily does in the body, are directly poisonous to the nervous system, and have a special affinity for the retina. Large doses cause prolonged coma, blindness and death. The minimal toxic dosage is not well established. Henderson and Haggard[4] quote Loewy as putting it at 200 parts per million for experimental animals if inspired over a long period. It has been recommended that the concentration should be kept below 1 part per 10,000 parts of the air, or 100 parts per million.[5] Methyl alcohol, in addition to its toxicity, has an irritating effect on the skin.

Bakelite - Formaldehyde fumes

Practically nothing is known regarding the possible effects of bakelite dust on the respiratory system. The phenols in its composition might be potentially harmful if exposure to them in the form of concentrated vapors was sufficient. Cases of poisoning due to inhalation of formaldehyde vapors, except by accident, however, are rare due to its extremely irritating effect on the eyes and nose which usually causes workers to remove themselves from the

(4)Henderson, Yandell, and Haggard, H.W. (Yale University), Noxious Gases; Chemical Catalogue Co. Inc., N.Y.C., 1927, p. 157.

(5)International Labour Office, Occupation and Health Brochure No. 55, Geneva, 1926.

fumes before injury occurs. Concentrations of formaldehyde in excess of 20 - 200 parts per million may cause symptoms.(6)

In one case studied by a factory medical inspector in Holland marked nervous disorder with strong somnolence was attributed to such fumes.(7)

Skin affections due to bakelite are of frequent occurrence and are popularly known as "bakelite itch". The face and forearms are most commonly affected in workers handling these resins. Skin lesions are especially prevalent under conditions favoring perspiration. They may be avoided, therefore, by provisions for good ventilation and by frequent washing of the exposed skin in alkaline solutions. Unusually sensitive persons should be removed from this type of work.

Linseed Oil

In addition to the danger of spontaneous combustion, linseed oil when heated gives off irritating fumes of acrolein. No chronic ill-effects have been noted from this substance though it is irritating to the mucous membranes of the eyes, nose, and throat. The addition of resins to the mixture gives rise to volatile ethereal oils which have caused headaches, nausea and even stupor. Although Dr. Barnes(8) in a study of linseed dermatitis did not find the pure oil as irritating as linseed cake, dermatitis or infections, especially of the hands are common in workmen who come in contact with either of these substances.(9) Workers showing hypersensitivity to the oil may have to be removed from the work.

(6)Sayers, R.R. and Dallavalle, J.M., Prevention of Occupational Diseases, Mechanical Engineering, April, 1935, p. 232.
(7)International Labour Office, Geneva, 1928, Occupation and Health, Brochure #115, Bakelite.
(8)Barnes, M.H., M.D., Linseed Dermatitis, Journal of Industrial Hygiene, Vol. XIII, No. 2, February, 1931, pp. 49-55.
(9)U.S. Public Health Service, Treasury Dept., Wash. D.C., Public Health Bulletin No. 215, Skin Diseases in American Industry, 1934, pp. 41-45.

Skin Diseases

In addition to the toxic properties of the substances handled, occupational skin disease due to rubber compounds, to accelerators and anti-oxidents is very common in rubber workers and in those exposed to the above solvents and oils, especially those derived from coal tar products. There is attached our booklet entitled "Prevention of Oil Pimples" which describes some of the protective measures with which these skin troubles may be decreased.

One of the most frequent causes of dermatitis in the rubber industry is hexamethylenetetramine used as an accelerator and paraphenylendiamine or similar coal tar compounds. A one per cent solution of "hexy" is said to be sufficient to cause dermatitis and in hot weather skin trouble is almost inevitable if this substance is carelessly handled.

It is not, perhaps, sufficiently well understood that continued exposure to certain of those skin irritants may develop a sevsitivity in workers who did not at first appear to be susceptible. Once dermatitis from "hexy", for instance, has occurred, the individual is sensitized to the substance and, much as with poison ivy, is unable to tolerate even slight exposure thereafter without skin outbreaks. Heat usually quickens the reaction.

Protective ointment containing alkali has been recommended.

Dark, oily-skinned persons are usually more resistant to the irritating effects.

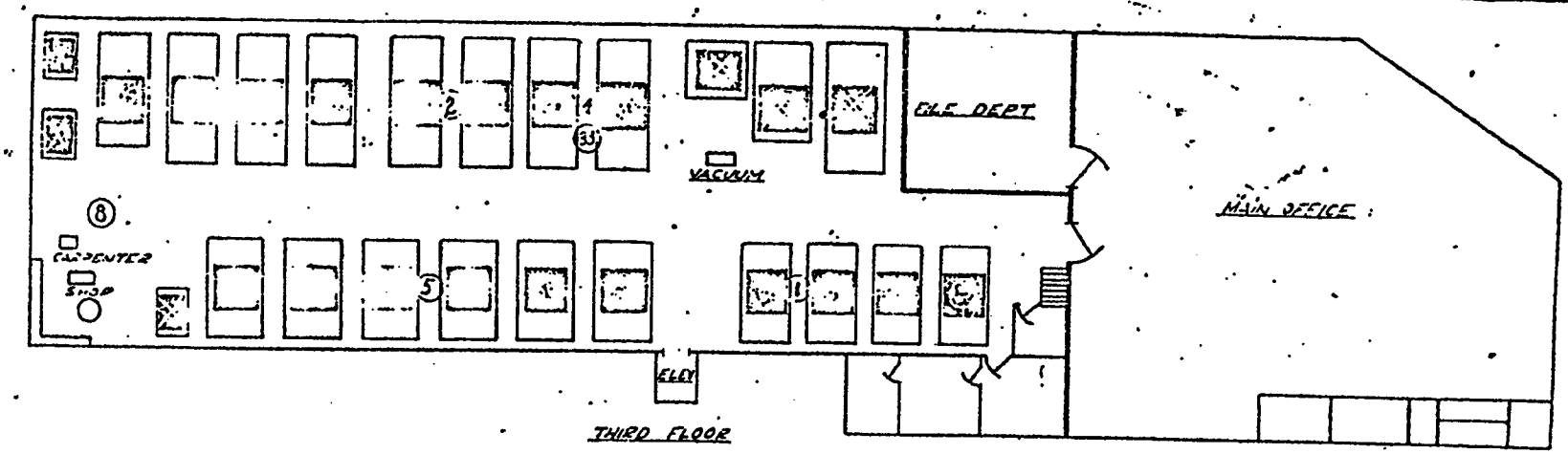
Those having frequent outbreaks of dermatitis or those found sensitive to these substances through patch tests should be transferred to other occupations.

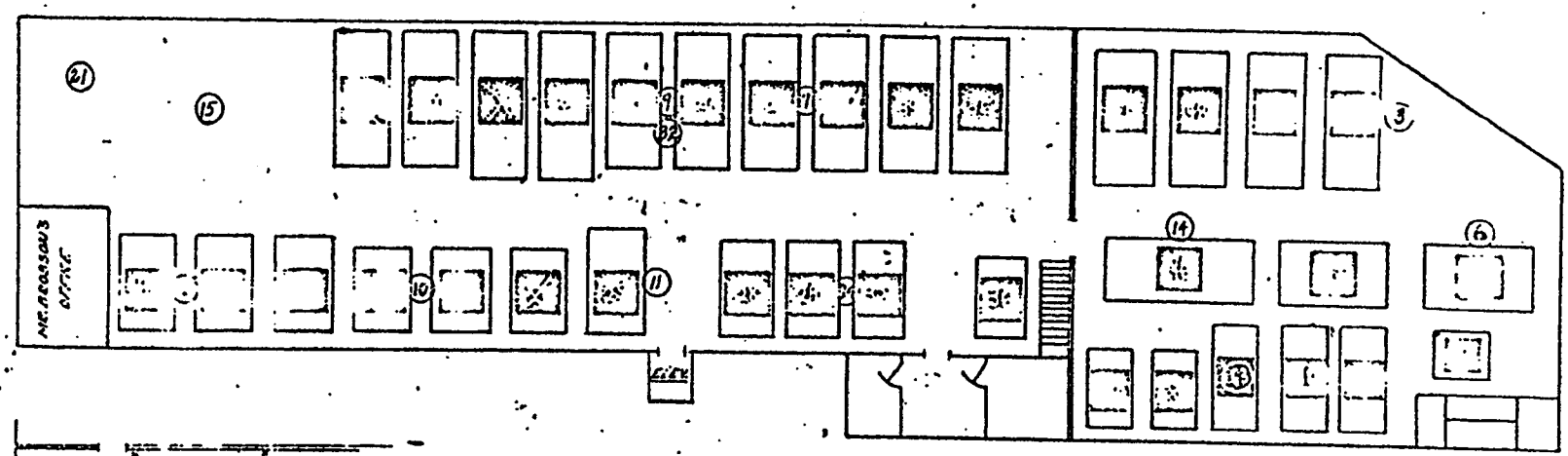
Protective work clothing with provisions for changing it and good facilities for washing, together with the enforcement of rules regarding personal cleanliness, helps to prevent both skin troubles and cases of poisoning.(10)

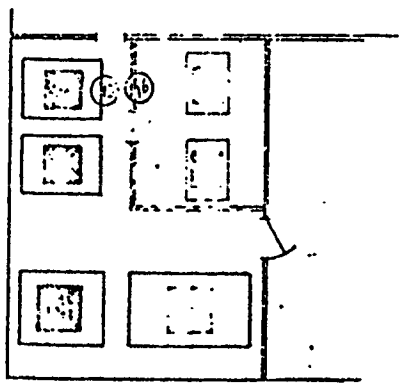
Chrome

Chrome compounds and the health hazards associated with them are discussed in the accompanying booklet "Protection of Workers Exposed to Chromium and Its Compounds".

(10) U.S. Public Health Service, Public Health Bulletin #215, Skin Hazards in American Industry, Government Printing Office, Wash. D.C., 1934, pp. 1-10.







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THE RIVERSIDE

1/00

Box 11

DMC-346
A.F
4/19/79

U.S. ASBESTOS & RUBBER DIVISION OF [illegible]

Charlotte, N.C.

• • •

A second survey of dust conditions in the Charlotte plant of the U.S. Asbestos & Rubber Division of Raybestos-Manhattan, Inc. was made on April 16, 17, 18, 22, and 23, 1953. This is supplementary to the survey conducted in February, 1950 and the methods of sampling and analysis are the same as in the first survey.

The first survey included only those departments involving textile operations, whereas this survey includes all departments of the plant.

The processes in the Preparation Department, Carding Department, Brake Band Weave Room, and twisting, spinning, spooling, and braid cloth weaving departments are the same as at the time of the first survey. The exhaust equipment has not been changed.

The following tables show results of dust counts and comparative data of the two surveys.

U.S. ASBESTOS & RUBBER DIVISION OF RAYBESTOS-MANHATTAN, INC.

Manheim, Pa.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air Sampled	Millions of Particles less than 10 microns in greatest diameter per cu. ft. Air Sampled	Type of Dust	Remarks
PREPARATION DEPARTMENT, DEPT. #1							
1	Beside discharge pipe from vertical opener discharging fibre onto screen	4/16/35	20.0	6.2	5.15	Asbestos cotton	Stock 22/ 116 special
2	At loom #39 - wet warp	"	27.9	20.9	17.4	"	Only loom in Prep. Dept.
3	Between chasers #1 and #2	"	15.0	21.8	18.1	Asbestos	Shebani fibre #2, one man
4	Beside truck under discharge pipe from hopper on second floor	"	9.5	33.7	28.0	Asbestos cotton	One man, clothes covered with fibre
5	Floor mixing of asbestos and cotton between chasers and vertical opener	"	15.0	30.4	25.2	"	Three men
6	At discharge end of small fibre opener	"	20.5	10.2	8.5	Asbestos	Conveyor belt; one man, fibre from crusher
7	General air in preparation room	"	22.0	14.2	11.8	Asbestos cotton	Center of room
8	At hopper of mixing picker	"	15.0	21.8	18.1	"	One man, forking mixture into hopper from floor

Relative humidity in Preparation Dept. (1935) 20% -- (1930) 37%
The average of these counts is 19.9 million particles per cu. ft. air sampled.
The average count in this department in 1930 was 14.13 million particles per cu. ft. air.
The analysis of rafter dust from this department showed 36% SiO_2.
Relative humidity outside (1935) 50% -- (1930) 67%.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air Sampled	Millions of Particles less than 10 microns in greatest diameter per cu. ft. Air Sampled	Type of Dust	Remarks
CARD ROOMS							
9	At take-off end of breaker card #1, Dept. 2, 2nd floor	4/16/35	41.0	9.0	7.7	Asbestos cotton	
10	Taken between cards #9 and #16, Dept. 2, 2nd floor	"	20.5	13.7	11.7	"	129 six - cards enclosed and exhausted
11	Between storage bins and cards #31 and #32 at operator's positions	"	31.1	18.8	16.0	"	Cards partially exhausted but not enclosed #32 - 130 stock #31 - 116 special
22	Same location as #11 just after stock from mixing picker had been blown into storage bins	4/17/35	36.5	16.2	13.8	"	Bin door opens on this floor
12	Between cards #1 and 2 and #7 and 8 operator's station, Dept. 3, second floor, 3 cards running 224 stock; 1 card running 124 stock	4/16/35	22.5	16.7	14.2	"	Cards partially enclosed and exhausted; operator wore gauze strip with cotton pad under nose.
13	Between cards #7 and #8 on saddle side; saddles extend out from enclosure	"	10.0	36.8	31.4	"	Dept. #3, second floor
14	Between cards #18 and 19 and #25 and 26 in aisle where operator works	"	20.0	28.4	24.2	"	Cards partially enclosed and exhausted; 1 cards running 224 stock 1 card running 60/40 stock
19	Between cards #20 and 21 and #27 and 28 in aisle where operator works; cards partially enclosed and exhausted	4/17/35	30.0	8.8	7.5	"	2 cards running 60/40 stock; 1 card running 231 stock; 1 card running 224 stock

Relative humidity 28%.
The average of these counts is 18.55 million particles per cu. ft. air sampled.
The average count in these departments in 1930 was 7.78 million particles per cu. ft. air sampled.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air sampled	Millions of Particles less than 10 microns in greatest diameter per cu. ft. Air Sampled	Type of Dust	Remarks
SPINNING DEPT. #4, 2nd floor							
15	Between speeders twisting wire and yarn, 2 men	4/16/35	20.0	20.0	17.0	Asbestos cotton	Machines #464 463, 462, 459 229 stock - 224 stock
16	Between mules #417 and 402 where operators work	"	27.5	29.6	25.2	"	
17	Between mules #404 and 405 where operators work	"	20.0	12.4	10.5	"	
18	Between mules #406 and 407 where operator works	"	20.0	17.6	15.0	"	

Relative humidity 28%.
The average of these counts is 19.9 million particles per cu. ft. air sampled.
The average count in this department in 1930 was 2.72 million particles per cu. ft. air sampled

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air Sampled	Millions of Particles less than 10 microns in greatest diameter per cu. ft. Air Sampled	Type of Dust	Remarks
WEAVE ROOM (BRAKE BAND) DEPT. #12							
20	Between looms #3 and #23 dry weaving	4/17/35	30.0	14.9	12.7	Asbestos cotton	Ring stock and brake lining 224 stock one man
23	At operator's position of loom #17	"	23.3	14.8	12.6	"	Pontiac brake lining 224 stock
24	In aisle between looms #33 and #19, wet weaving	"	32.5	8.85	7.5	"	#33 - 224 stock #19 - 310 stock
25	In aisle between looms #14 and #26, and #7 and #12	"	23.0	7.3	6.2	"	#14 and #26 - truck lining - wet #7 and 12 dry - 224 stock
26	Inspection of brake lining and ring stock	"	30.0	6.15	5.2	"	Material goes thru revolving brushes - exhaust system

Relative humidity (1935) 47% - (1930) 76%
The average of these counts is 10.4 million particles per cu. ft. air sampled.
The average count in this department in 1930 was 6.9% million particles per cu. ft. air.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air Sampled	Millions of Particles less than 10 microns in greatest diameter per cu. ft. Air Sampled	Type of Dust	Remarks
SPOOLING, TWISTING & WEAVING							
27	Between looms #1 and 2 and #3 and 4; broad looms, #1 not running	4/17/35	49.0	8.8	7.55	Asbestos cotton	Air-water spray for humidifying, Dept. 10.
28	At looms #22 and 24, cloth	"	26.0	16.3	14.0	Asbestos cotton	#24 warp wet with a hose; #22 dry.
29	At loom #10 - wet weaving, 890 cloth, 3 ply for clutch facing	"	22.0	10.3	8.8	"	210 - 224 mix, warp passes through 634 emulsion
30	Between twisters #657 and 658	"	24.0	13.7	11.8	"	2 women, dept. 7.
31	Between twisters	"	26.6	18.0	15.4	"	2 women, dept. 7.
32	Between spoolers #3 and 4, dept. 6	"	20.8	25.0	21.4	"	6 women, dust on machines blown off with cardboard used as fans.

Relative humidity (1935) 41% - - - (1930) 50%
The average of these counts is 15.35 million particles per cu. ft. air sampled.
The average count in this dept. in 1930 was 2.35 million particles per cu. ft. air sampled.

CONCLUSIONS AND RECOMMENDATIONS

TEXTILE DEPARTMENTS

The dust counts in the Preparation Department are high. All counts, but one, show more than ten million particles per cubic foot. The raw fibre is handled carelessly and piled on the floor at various places. The average dust counts are higher than those of the survey made in 1933. No improvements have been made since the first survey was made. The relative humidity is lower than at the time of the previous survey.

It is recommended that a mechanical method of handling the fibre be installed. Exhaust equipment, properly designed and applied, be installed at the chasers, pickers, and shaker screens and it should be properly maintained. The cow hoon should be removed from this department. A humidifying system should be used, if practicable. A vacuum sweeping system for sweeping and cleaning machines should be installed throughout the plant.

The average counts in the broke bond weave room are higher than those of the 1933 survey. No exhaust equipment is in use on the looms. The relative humidity is lower than at the time of the first survey.

It is recommended that wet warp weaving be done whenever possible. The humidity should be kept as high as possible without causing discomfort to the workmen.

The average dust counts in the spooling, twisting, and weaving departments are much higher than those of the first survey. The relative humidity is lower than at the time of the first survey.

It is recommended that the broad looms be exhausted and the humidity be kept higher.

The average dust counts in the spinning department are much higher than those of the first survey. This may be attributed to pollution of the air from the carding machines located in the same room and to the low humidity. A check of the records will show the grade of fibre used at the time of the two surveys and the rate of production.

It is recommended that the spinning department be isolated from the carding department. A humidifying system should be installed.

The average dust counts in the carding departments are higher than those of the first survey. A check of the records would show the grade of fibre used at the time of the two surveys and the rate of production. The exhaust equipment does not seem to be effective in removing the dust generated.

It is recommended that exhaust equipment, similar to that in operation at the Charleston plant, be installed on the carding machines. Fibre storage bins opening into the card room should be exhausted.

BRAKE LINING AND CLUTCH FACING

PROCESS

Two types of brake lining are made. One type is made from woven narrow bands of asbestos. The bands are saturated in an emulsion or a rubber solution according to specifications. They are cured in heated presses or on heated mandrels. If they are cured on heated mandrels, they are cut to length before being cured. The mandrels also shape them into arcs. They are ground to the thickness desired and rivet holes are drilled or punched into them. They are inspected and packed for shipment.

The second type of brake lining is the extruded type. This type is produced from a mixture of asbestos fibre, litharge, sulphur, zinc oxide, whiting, mica, and rubber dissolved in gasoline. This wet mixture is put into an hydraulic press and is extruded through a die into long narrow strips. The strips are cured in heated presses. They are ground to the thickness and width desired and formed on heated mandrels. Holes for rivets are drilled or punched into them. The ends are chamfered. The lining is then inspected and packed for shipment.

Clutch facing is made from asbestos cloth and narrow bands of woven asbestos. The wide cloth is cut into squares on a band saw. Solid rings are cut from these squares after they have been saturated in an emulsion and dried. The rings are cured in heated presses. They are then ground to the thickness desired. Holes are drilled into them on gang drill presses. The inside and outside diameters are ground on Gardner grinders. The clutch facing is then inspected before shipping.

The narrow bands of woven asbestos are put through a coiling machine to be formed into spirals. These are then put through a rubber solution and wound onto a mandrel. The rings are cut and the ends fastened together with brass wire. They are cured in heated presses and ground to the dimensions required. They are then inspected before shipping.

RUBBER GASKETS AND PACKING

Asbestos cloth is impregnated with a solution of rubber and gasoline. The cloth is then cut into strips. The strips are folded by hand roughly to form the gasket or packing. The rough forms are then placed in forming molds and pressed and cured in steam heated presses. The edges are trimmed and the product is then inspected.

Rubber used in the various products is compounded in building #2. The raw rubber is mixed with zinc oxide, lithopone and barytes in a rubber compounding mill. The compounded rubber is dissolved in gasoline in tumbler barrels.

The emulsions used in the various products are made in building #35. The materials used are litharge, lamphlack, mica, Gilsonite, linseed oil, kerosene, and water. These materials are weighed and put into an electric mixer. After the emulsion is mixed, it is put into pails and carried to the different departments where it is used.

ANALYSES OF BLOOD SPECIMENS

Name	Age	Occupation	Years of Exposure	Hemoglobin %	Punctate Basophiles	Remarks
Lee F. Blanch		Emulsion preparation	2	90	Frequent	Poor teeth
Harry L. Bullock		Grinding brake lining	5 (approx.)	86	Negative	
Samuel Wright		Mixing for extruded brake lining	1½	65	"	Stomach trouble
Charles Matthews		Cutting brake bands	4½	40	Occasional	Formerly mixing for extruded brake lining, changed because of sickness, had lead poisoning 2 years ago, treated by doctor
LeRay Geib	26	Ball grinder	1½	94	Negative	Complains of nervous disorders and stomach trouble, claims to have high blood pressure
Robert Guider	22	Extruder	3	60	"	
Louise Winger	20	Label and stamp segments	1½	70	"	
Mark Mohr	26	Segment grinder	2½	85	"	
E. F. Walter	40	Supt. of molded brake lining dept.	4½	55	"	
Olive Bauer	22	Label and stamp segments	1 1/3	70	"	
Annette Shanks	23	Label, stamp and chip segments	1 1/3	80	"	
Malcolm Shaeffer	23	Grinder	1	65	"	
E. Spencler	20	Mandrels	2	95	"	
John Miller	29	Rubber mixer	1½	97	"	
Homer Miller	32	Segment grinder	6 mos.	90	"	Worked 10 years previously as silk weaver
Paul H. Hollinger	25	Supervisor of molded brake lining	1	100	"	

CONCLUSIONS AND RECOMMENDATIONS

MOTOR FACTORY, BRAKE LINING AND FACTORY DEPARTMENTS

Several dust counts in these departments are high and in almost all cases show that there is lead present in the air. Samples #34, #3, #3 and #5 show large quantities of lead present. Chemical analyses of safter dust samples from these departments also show presence of lead. These analyses show that there is a definite health hazard present due to the use of lead. There is another health hazard present due to the use of benzol in the treating of brake bands.

Blood specimens were taken from sixteen employees and the results of these tests are shown in tabular form. Only two specimens showed punctate basophiles (stippled cells), but several other specimens showed low hemoglobin percentage.

It is recommended that a vacuum sweeping system be installed to do away with dry sweeping.

All machines in these departments should be equipped with efficient exhaust systems to carry away harmful dusts.

Employees engaged in handling lead should be supplied with positive pressure or cartridge type respirators and cautioned to handle the lead carefully. These operations should be isolated from the remainder of the departments. Female help work in the same room in which litharge is mixed for extruded brake lining. Empty litharge drums should be removed from the department.

The use of benzol should be eliminated, if practicable, or such operations should be isolated so that the least number of employees would be exposed to the fumes, or the benzol could be handled in a closed system.

The employees exposed to benzol fumes should be supplied with positive pressure respirators. All employees in these departments should be watched carefully and examined periodically for signs of lead or benzol poisoning.

Sample No.	Station	Date of Sampling	Cu. Ft. Air Sampled	Millions of Particles per Cu. Ft. Air Sampled	Millions of Particles, Less than 10 microns in greatest diameter per Cu. Ft. Air Sampled	Milligrams of Lead per Cu. Ft.	Milligrams of Lead per Cu. Meter	Lead Losses in Milligrams per Liter, day	Type of Dust	Remarks
CLOTH FACING AND SHOE LINING										
29	General air r locomotive of brake lining, dept. 29.	6/14/38	31.0	0.45	0.0	0.00167	0.0016	0.111	Asbestos lithorge rubber	6 a.m. - 2 pm
34	At outside grinder, dept. 29, brake lining	"	28.0	4.6	4.15	0.00021	0.750	2.99	"	Exhaust system
30	General air, moving and moving area on brake lining, dept. 29	"	30.5	14.3	12.6	0.00129	0.0441	0.111	"	Exhaust controls - 2 pm
35	At inside grinder, brake lining, dept. 29	"	23.0	10.5	14.0	0.0151	0.373	2.73	"	Exhaust system
37	At grinders 29276 and 29277, external brake lining, dept. 29	"	27.0	4.1	3.7	0.00021	0.0005	0.745	"	Exhaust system
33	Weighing materials for external brake lining batches, dept. 29	"	23.1	13.7	12.3	0.0249	0.000	5.00	Lithorge dust sulphur zinc oxide mixing asbestos	Wear safety appliance respirator more only while handling lithorge and zinc, rubber dissolved in gasoline.
39	At hand saw cutting asbestos cloth for cloth facings, cloth and fabric being treated	"	32.5	21.0	20.2	—	—	—	Asbestos cotton	4 pm until cutter rolls 2 pm room respirator, dept. 29
40	General air - taken over heated press for curing brake lining, dept. 29	"	29.0	10.3	9.35	0.00004	0.000	0.79	Asbestos rubber	
41	At fastener grinder 29, outside grinder, dept. 29	"	28.0	7.3	6.6	0.00198	0.000	0.07	Asbestos lithorge rubber	1 pm - exhaust system
42	General air - taken at heated presses curing cloth facing	"	29.0	5.2	4.7	0.000	0.000	0.000	"	5 pm - dept. 29
43	At inside grinder 29, cloth facing, dept. 29	"	28.5	12.4	11.2	0.00013	0.075	0.45	"	1 pm - exhaust system
45	Same as sample 41.	6/22/38	31.5	10.5	9.1	0.000074	0.0212	0.127	"	
46	Fleasment grinder 29, dept. 29 at operator's position	"	25.0	10.0	9.0	0.00073	0.0290	0.290	"	Exhaust system - 1 pm cloth facing
47	Drill 29, dept. 29, drilling holes in cloth facing	"	25.0	9.0	8.9	0.00132	0.0176	0.176	"	1 pm - exhaust system
48	Fastener grinder 29, dept. 29, grinding cloth facing, exhaust system	"	23.0	10.0	14.2	0.0010	0.027	0.27	"	Large particles thrown off - operator wears goggles
44	General air - cloth facing inspection dept. 29	"	23.0	9.5	4.8	0.00044	0.004	0.34	"	6 pm - 4 pm
49	Drying asbestos cloth bldg. 29	"	25.0	4.3	3.9	—	—	—	Asbestos cotton	1 pm - wool room to rubber mill room
50	General air, rubber gaining dept. bldg. 29	6/23/38	27.0	21.0	20.7	0.000	0.000	0.000	Soapstone	1 pm - gasoline as solvent
51	At rubber mill, bldg. 29	"	25.0	23.0	22.5	0.000	0.000	0.000	Zinc oxide lithorge soapstone	1 pm - on respirator
52	General air - between inspection of cloth and sewing cloth for gaskets, bldg. 29	"	22.0	3.3	2.8	—	—	—	Asbestos cotton	
53	Gasket dept. fitting gaskets over valve bldg. 29	"	23.0	7.0	6.9	—	—	—	Soapstone	6 pm
54	General air, gasket dept. bldg. 29, cutting gaskets from rubber bonded asbestos cloth	"	23.0	20.3	6.0	—	—	—	Asbestos rubber soapstone	10 girls
55	Mixing machine, bldg. 29, 2 pm, no exhaust, no respirators	"	20.0	20.4	20.7	0.0097	0.242	3.42	Lithorge soapstone zinc chloride	Lithorge hand scooped! linseed oil, kerosene, water

Chemical analysis of settled dust samples
Shoe closet for overseas brake lining
department 29 - - - 0.5% lead
Shop rubber mill - bldg. 29 - - .1% "
Janitors department - - 9.1% "

HEALTH HAZARDS OF ASBESTOS AND OTHER DUSTS

Asbestos dust gives rise to a pneumoconiosis or fibrosis of the lungs which has been discussed in the previous report made on the asbestos industry. Developments in our knowledge of asbestosis are continually taking place and a summary of new facts discovered will be added to the general composite report of the asbestos plant survey which is to be brought out later.

Silica dust. Very little is known of the effect of silica dust on the lungs, but such evidence as there is would tend to place it in a class with the less harmful silicate dusts such as talc and clay. If inhaled in sufficiently high concentrations, these dusts would have to be considered potentially harmful, however, until the contrary is proved, although they apparently do not have the specific injurious effect of the dusts high in uncombined silica.

With the exception of litharge, or lead, an extremely toxic dust, the other dusts generated in the compounding of rubber and brake linings such as zinc oxide, sulphur, and lithopone are probably relatively harmless in the quantities present and in any event proper protection against the lead or litharge dust which is essential would protect against these also.

TOXICITY OF LEAD

Lead poisoning is probably the most common of the industrial poisonings. Practically all forms of lead are toxic, the degree of toxicity depending upon their solubility in human tissues. The oxides and basic lead carbonate are among the most soluble and therefore the most readily toxic forms.

Lead inhaled is more rapidly and more surely toxic than lead ingested. When lead enters the digestive tract some or most of it may be eliminated unchanged from the body and it is only when it is absorbed in greater quantities

than are eliminated that poisoning occurs. When lead is taken into the lungs, it reaches the blood stream rapidly and directly and comparatively little is eliminated. While lead is circulating in the body poisoning may occur. Lead absorbed in excess of lead eliminated is accumulated in various organs and is finally deposited in the bones in insoluble form in a manner similar to the deposition of calcium. It is somewhat controversial at the present time whether or not under ordinary circumstances changes in bodily metabolism can later render the lead thus stored in the bones soluble again and set it free into the circulation causing poisoning without further exposure. It has been demonstrated by Aub and his associates,[1] however, that this stored lead can be released by medication with weak acids and low calcium intake. Aub's studies on the subject eight or ten years ago revolutionized the treatment of lead poisoning. Extensive studies on lead poisoning have also been made recently by Kehoe and his associates[2] who have made valuable contributions to the knowledge of the subject.

Lead absorption does not necessarily mean lead poisoning, but there is probability of lead poisoning wherever lead is being absorbed into the body. Individuals vary considerably in their ability to take in and eliminate lead. It is generally considered that negroes, women, and children are more highly susceptible and that those who have had attacks of poisoning are more liable to future attacks than those who have not.

With a few notable exceptions, industrial lead poisoning is of the chronic type due to prolonged exposure to minute quantities of lead taken in daily. Owing to the above-mentioned differences in the toxicity of lead compounds, in the methods of entrance into the body, and in individual susceptibility

(1)Aub, J.C., Fairhall, L.T., and others, Lead Poisoning, Medicine Monographs, Vol. VII, The Williams & Wilkins Co., 1926, Baltimore, Md.
(2)Kehoe, R.A. Thamann, Fred, and Cholak, Jacob, Lead Absorption and Excretion in Certain Lead Trades, Journal of Industrial Hygiene, Sept. 1933, Vol. XV, No. 5, pp. 306-319, Balto. Md., another article pp. 320-340.

ity, there is little agreement in the numerous attempts that have been made to estimate the minimum amount of lead which can cause chronic poisoning if taken in over long periods of time. The various estimates range from one-tenth of a milligram to ten milligrams daily. Probably one to two milligrams daily represents a fairly safe limit.

In a study made by the United States Public Health Service[3] in a storage battery plant, for instance, it was concluded that for the conditions of exposure in that plant, 1.5 milligrams per 10 cubic meters of air appeared to be a safe limit.

It is also impossible to determine exactly the amount of air taken into the lungs daily, owing to individual differences and to differences in degree of activity. For practical purposes only, therefore, it is roughly estimated that a man at moderately heavy work inhales about 10 cubic meters of air in a ten-hour day. Where possible, it is recommended that the working atmosphere should be kept below one-tenth of a milligram per cubic meter of air or the workers should be protected by suitable respirators and other precautions. Removing lead at its source of origin is by far the best method for prevention of poisoning.

Evidence of lead absorption is shown by an ashen pallor of the skin, a lead line on the gums, stippling of the red blood cells, and a secondary anemia or other indication of damage to the blood-forming organs. Upon evidence of lead absorption workers should be removed from exposure until all signs have disappeared.

Lead exposed workers are under very careful and experienced medical control, it is possible to catch every case of poisoning in the absorption

(3) U.S. Public Health Service, Treasury Dept., Public Health Bulletin No. 205, Lead Poisoning in a Storage Battery Plant, Gov. Print. Off. Wash. D.C., 1933.

stage or in the early stages of intoxication and, by taking appropriate measures, to prevent the occurrence of any acute or sub-acute attacks of poisoning. It is not easy, however, to diagnose lead in its early stages without laboratory studies of the blood, and there will generally be cases which will present symptoms unexpectedly and in an unusual manner.

The symptoms of lead poisoning are numerous and it manifests itself in a great variety of ways. The most common characteristic symptoms noted are colic, constipation, weakness, especially of the extensor muscles of the hands and feet, muscular pains, nausea and vomiting, loss of appetite, bad taste in the mouth, nervousness and irritability. The prominent objective signs of lead poisoning are pallor or jaundice, tremor, reflex changes, changes in the blood picture, excessive amount of lead in the excreta.

Lead intoxication brings in its train a great many sequelae, including paralysis, optic atrophy, encephalitis, and premature old age. It causes early degenerative changes such as arterio-sclerosis and nephritis. The mortality from chronic lead poisoning is not high, but this is absolutely no indication of the extent to which cases are occurring since cases treated early have a fairly good prognosis and since many deaths are recorded as due to the final sequelae such as arterio-sclerosis rather than to the original cause.

Among the measures for control of lead poisoning recommended by the industrial physician of a large rubber manufacturing plant in Akron, Ohio are (1) monthly medical examinations of exposed workers, (2) separate lockers for work and street clothing, (3) provision of two sets of work clothing and arrangements for laundering weekly, (4) two respirators, one of them to be cleaned and sterilized each day, (5) provision of clean towels, soap and nail brushes, hot

running water, and time allowance for thorough washing, (6) wet sprinkling and sweeping or vacuum cleaning of the floor daily, (7) exclusion of all other workers except those engaged in operating lead processes from the room, and (8) rules strictly enforced against eating in the workrooms.

TOXICITY OF BENZOL, ITS HOMOLOGUES, TOLUOL AND XYLOL, AND OF PETROLEUM DISTILLATES

Benzol is by far the most hazardous of the solvents commonly used in industry. It was at one time quite widely employed in many processes and especially in paints and lacquers used for coating by air gun, but because of its recognized danger to the health of operatives, its use has been largely supplanted by less toxic substances. The higher homologues of benzol such as toluol and xylol have been substituted in some cases with and in some cases without success from the health standpoint. These substances are more poisonous than benzol in high concentrations such as would result in acute accidents, and, experimentally, animals die in a shorter time and with lesser concentrations than is the case with benzol. However, their lower volatility gives toluol and xylol an advantage over benzol for industrial practice with respect to health of the workers and the effects of chronic poisoning; by toluol not containing any benzol seem to be less serious and not so lasting.

The Benzol Committee of the National Safety Council[4] found that benzol would cause signs of poisoning at concentrations of only 100 parts per million in the atmosphere. Slight effects are possible with even far lower concentrations. It should be borne in mind that benzol can also be absorbed into the system through the skin and that it is extremely dangerous to spill it on the skin or clothing.

The symptoms of chronic benzol poisoning [illegible]

(4) National Safety Council, Final Report of the Committee on Benzol, Chemical and Rubber Section, Chicago, 1925, pp. 117-118.

over a period of time to low concentrations of benzol vapor are well known and consist of headache, dizziness, weakness, loss of appetite and weight, sore gums, shortness of breath, and, sometimes, abdominal pain, nausea and vomiting. The signs, with due allowance for atypical cases, generally consist of a marked reduction in the number of white blood cells, a changed relationship between the percent of polymorphonuclear cells and the lymphocytes, and later on pallor, due to aplastic anemia, oxygen want or internal asphyxiation, prolonged coagulation time, bleeding from the mucous membranes, purpura, and sometimes tremor and visual disturbances.

Besides the serious systemic effects, benzol, in common with many other solvents, may cause a dermatitis of the skin.

Individual susceptibility to poisoning by benzol appears marked. The fact that cases of poisoning are not being reported from workers in a given process is no guarantee of safety unless physical examinations with blood counts are carried out on employment and regularly during exposure. The symptoms are vague, the worker frequently is not aware of his exposure, and the family physician is usually not familiar with the manifestations of chronic benzol poisoning.

The National Safety Council committee has recommended that a 25% reduction in the white cell blood count should be considered as evidence of poisoning. The color index of the blood is not a reliable criterion, since destruction of red blood cells usually occurs fully late in the picture after serious or fatal damage has been done to the blood forming organs. Other conditions may be present which could cause a picture somewhat similar to that of benzol poisoning, in which case detailed study and observation are indicated. (5)

(5)Hazard, Percy P., M.D., The Present Status of Benzene (Benzol) Poisoning, Journal of the American Medical Association, July 27, 1929, pp. 280-283.

The National Safety Council committee found that 32% of the exposed workers who were examined in various factories had leukopenia (decreased white blood cells) in mild or pronounced degree even when benzol concentration in the air was low and exhaust ventilation was good.

Preventive measures in handling so dangerous a substance logically consist of completely enclosing processes or containers and in providing carefully designed downward-draft ventilation, the results of which should be checked by air sampling. The method of choice, however, is to substitute some other less harmful substance where possible.

TOXICITY OF GASOLINE AND KEROSENE

In the presence of heavy fumes from these petroleum solvents, an acute anesthetic poisoning occurs with headache, blurring of vision, mental confusion, dizziness, nausea, and loss of consciousness. Permissible maximum concentrations[6] in the air breathed are estimated to be from 1000 to 2000 parts per million for short exposures and 1000 parts per million or less for prolonged exposure.

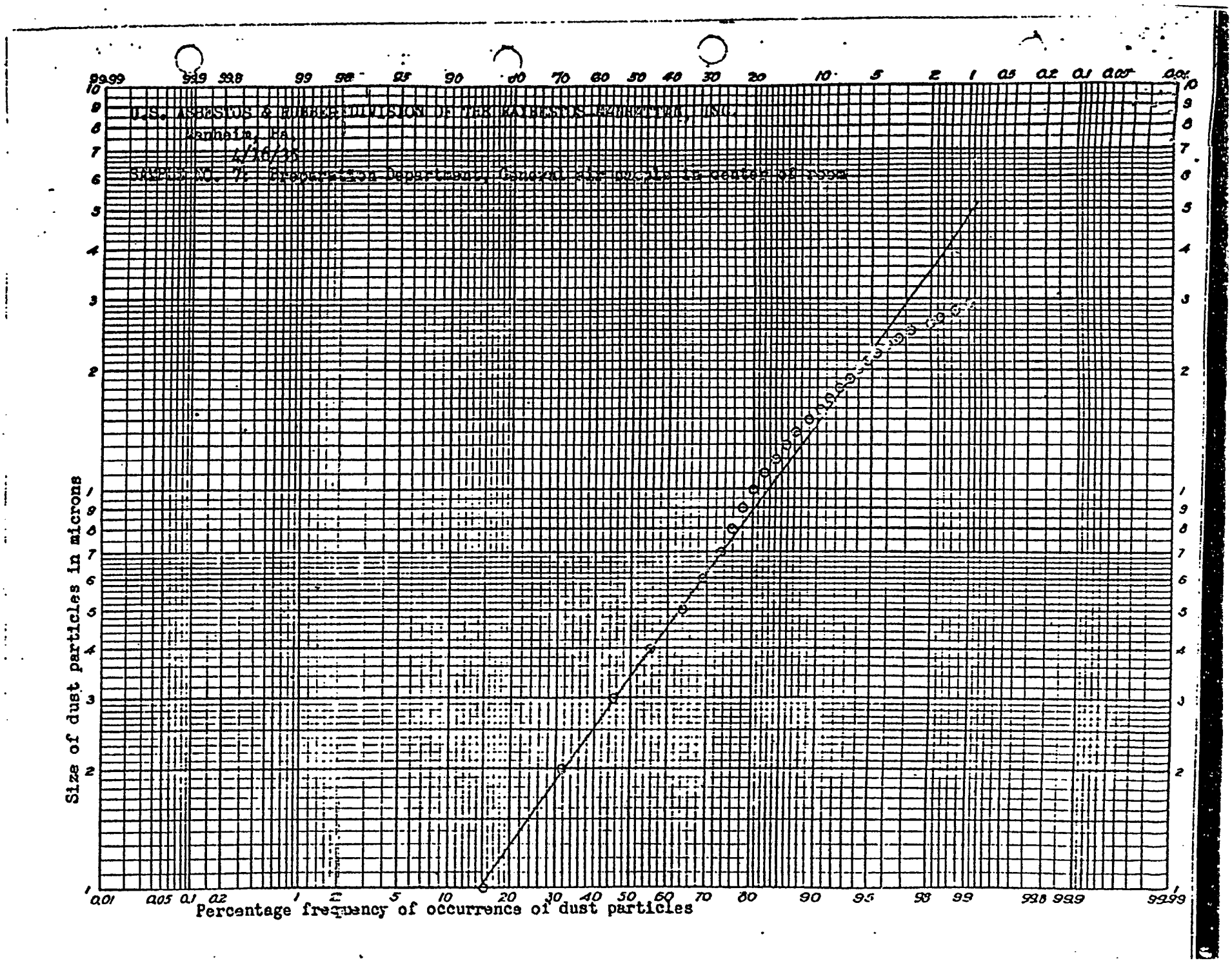
These substances are fat-solvent and skin trouble is frequently caused in those who come into continuous contact with them. Gloves are apt to aggravate the difficulty since without free evaporation, burns are caused by the gasoline getting inside the gloves. A booklet describing precautions to be taken against oil dermatitis is enclosed.

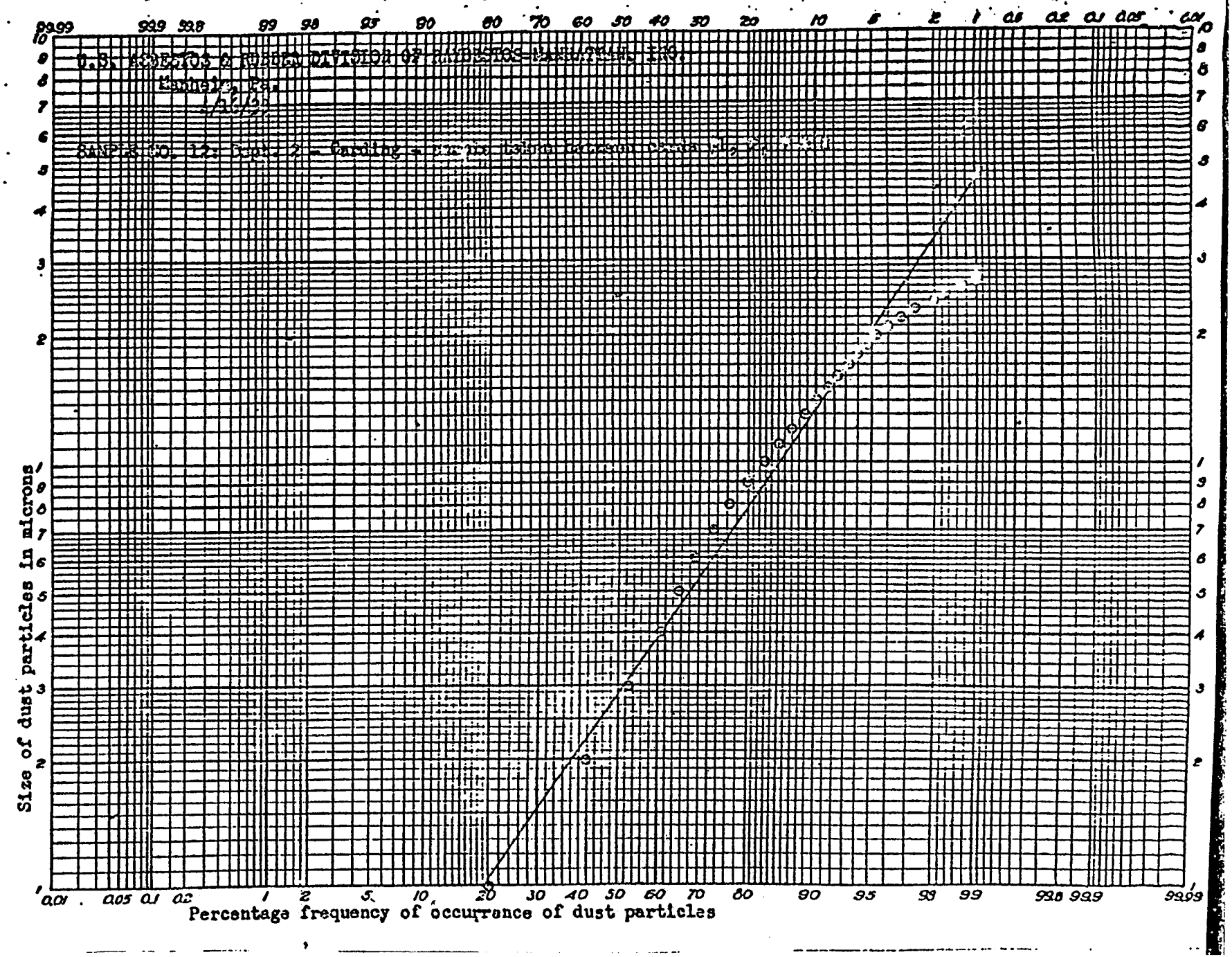
TOXICITY OF LINSEED OIL

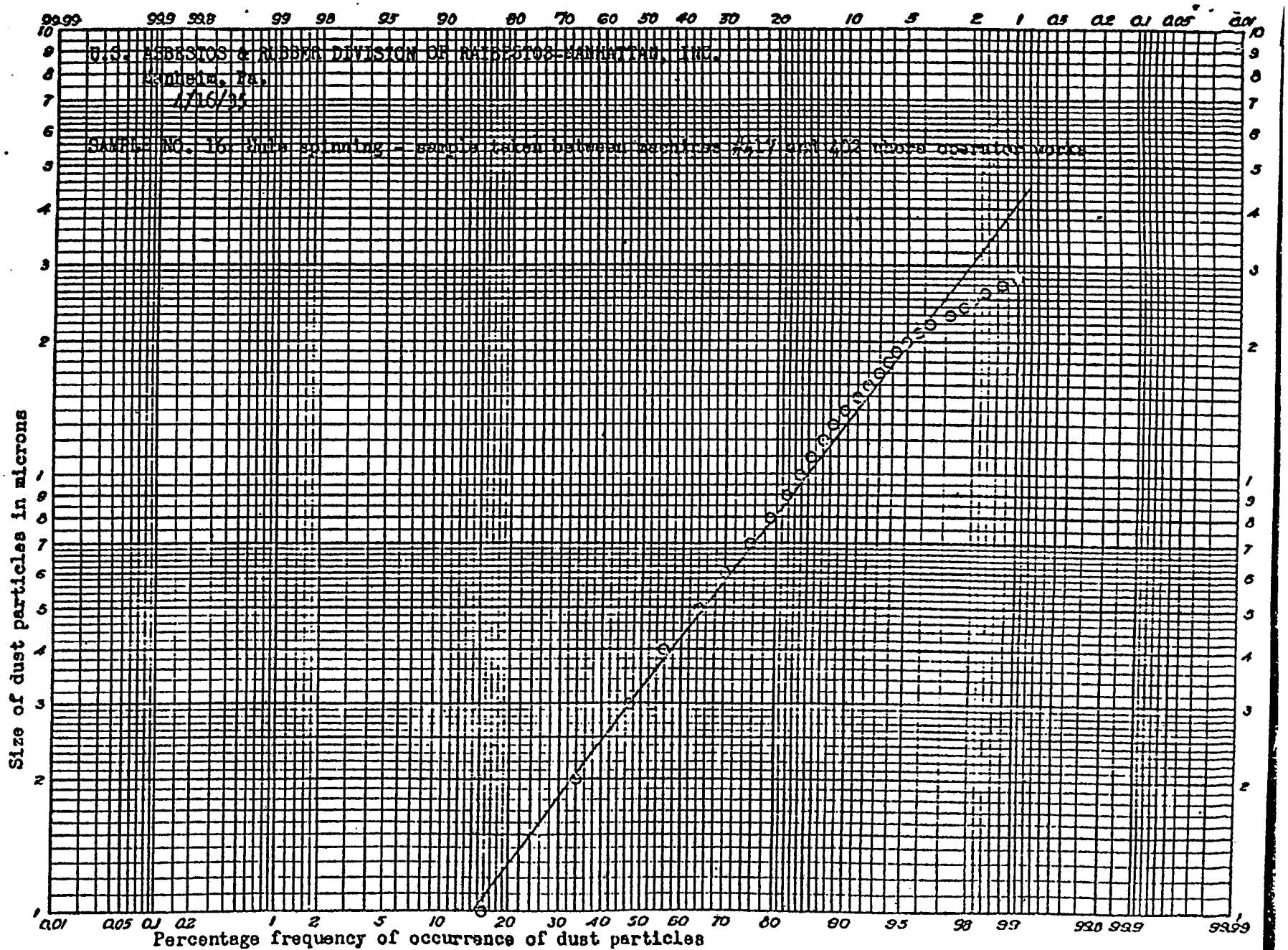
In addition to the danger of spontaneous combustion, linseed oil, when heated gives off irritating fumes of acrolein which may be acutely toxic in concentrations of more than 20 parts per million of air, while for prolonged

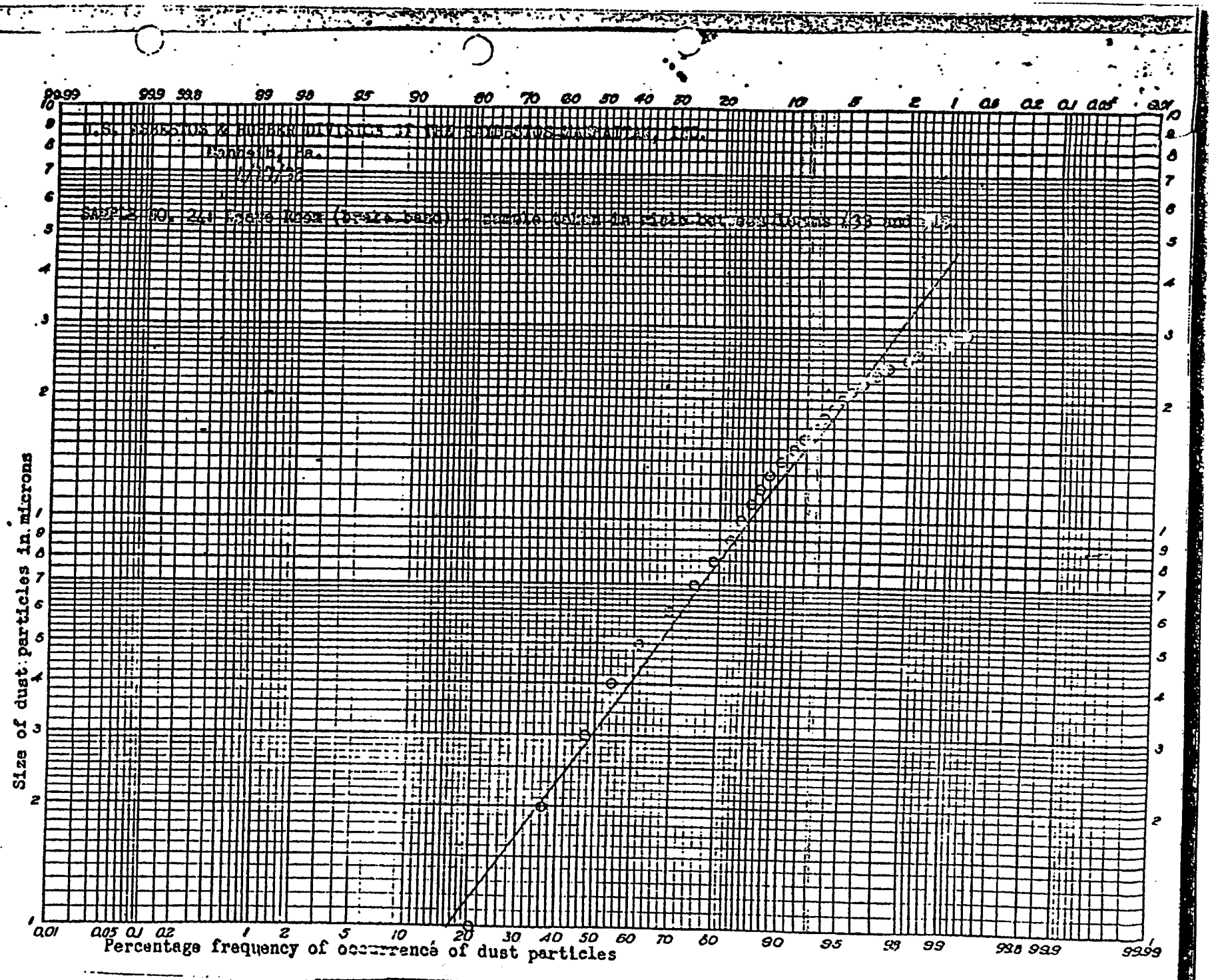
(6)U.S. Bureau of Mines

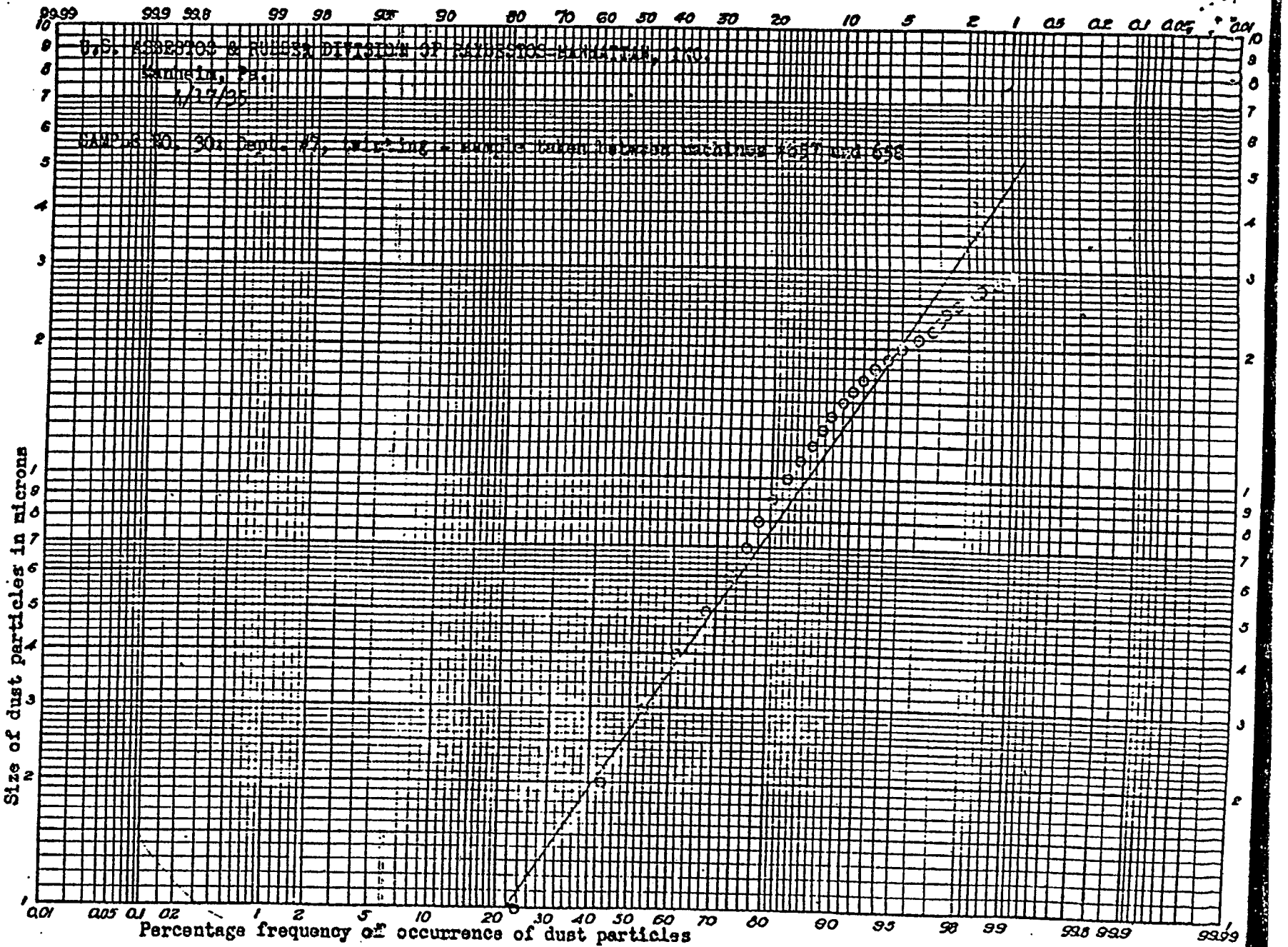
exposures 3 parts per million is considered the maximum permissible by the United States Bureau of Mines. No chronic ill-effects have been noted from this substance as used in industry, though it is irritating to the eyes, nose and throat. In addition dermatitis or infections of the skin are common among workers handling these oils. Those showing hypersensitivity are best removed from contact with them.

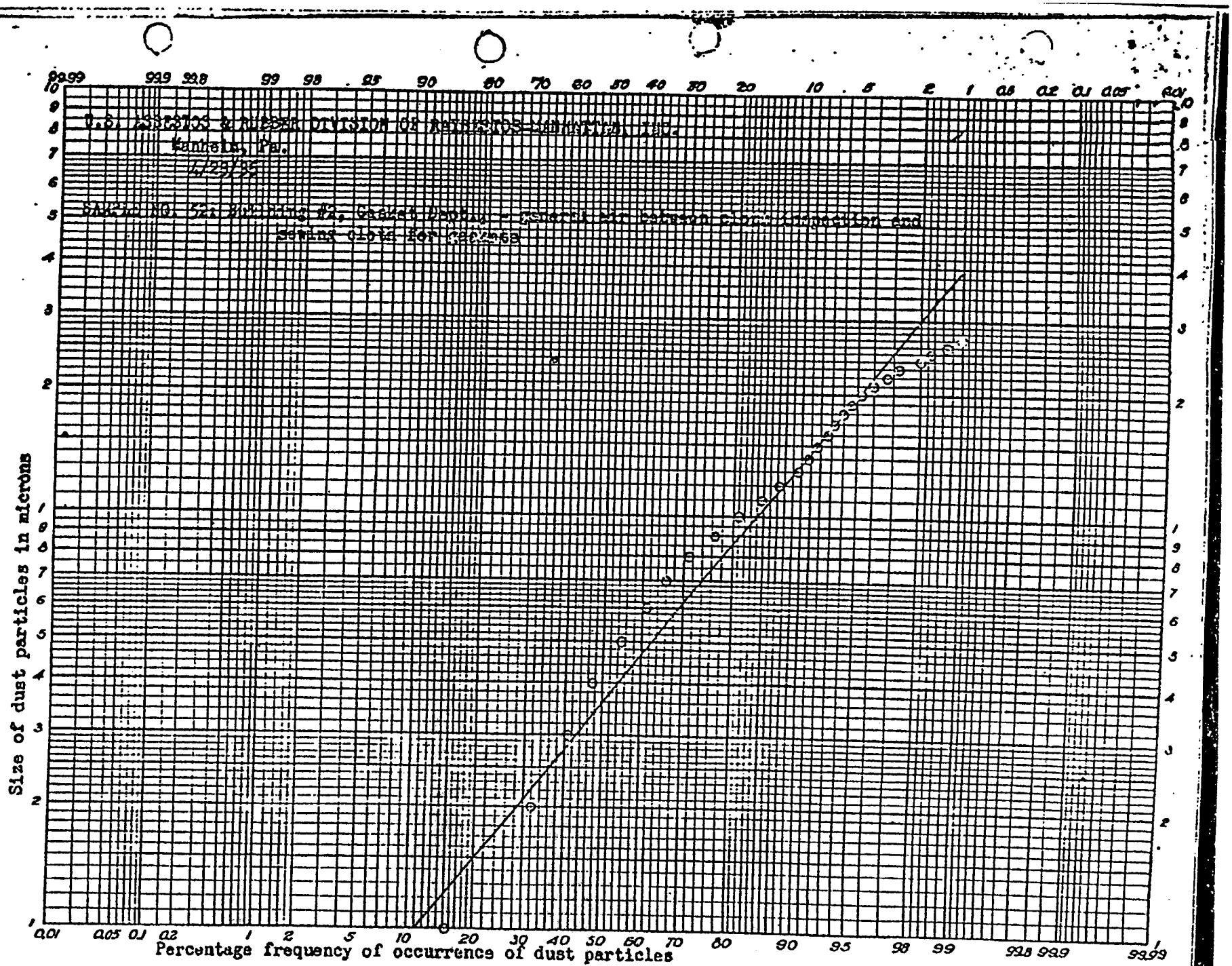

U.S. ASBESTOS & RUBBER DIVISION OF THE KENTUCKY, INC.
Sample No. 7: Inspection Department, Cause: air cycle in center of room
Size of dust particles in microns
Percentage frequency of occurrence of dust particles

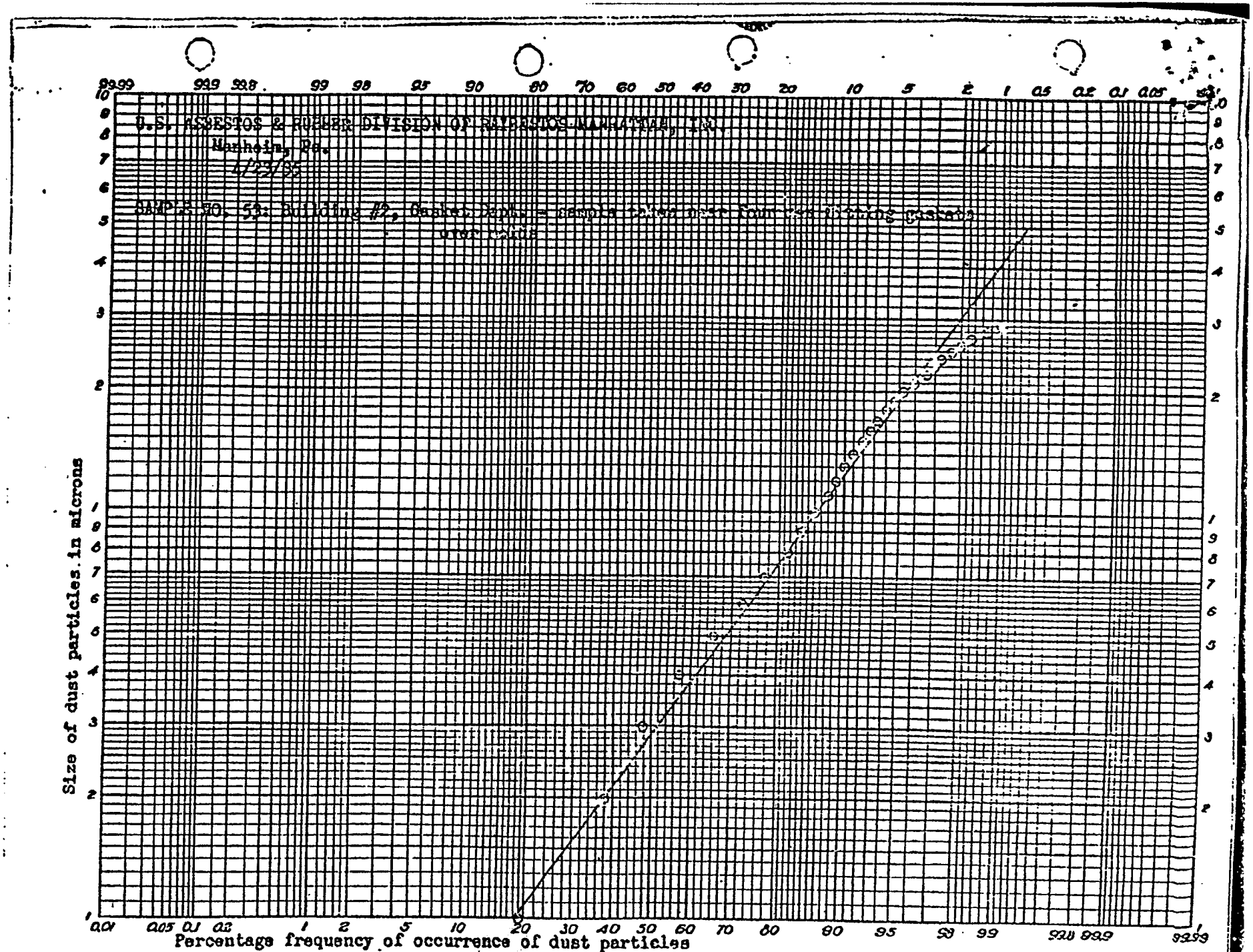

Size of dust particles in microns
Percentage frequency of occurrence of dust particles


U.S. ASBESTOS & RUBBER DIVISION OF RAYBESTOS-MANHATTAN, INC.
Kenilworth, Pa.
1/16/35
SAMPLE NO. 16: Cloth spinning - sample taken between carding machines #21 & #22 room operation worker
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
10 9 8 7 6 5 4 3 2 1
0.01 0.05 0.1 0.2 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Size of dust particles in microns
Percentage frequency of occurrence of dust particles


99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.8 0.2 0.1 0.05 0.01
Size of dust particles in microns
0.01 0.05 0.1 0.2 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Percentage frequency of occurrence of dust particles


U.S. ASBESTOS & RUBBER DIVISION OF RAYBESTOS-MANHATTAN, INC.
Bethlehem, Pa.
1/27/36
CAMP & 30. 30: Dept. #7, twisting - sample taken between machines #587 and 658
Size of dust particles in microns
Percentage frequency of occurrence of dust particles


Size of dust particles in microns
Percentage frequency of occurrence of dust particles


U.S. ASBESTOS & RUBBER DIVISION OF RAYBESTOS-MANHATTAN, INC.
Manheim, Pa.
4/23/85
SAMP. # 30, 55. Building #2, Gasket Depth = sample taken over four layers of asbestos gasket over cards
Size of dust particles in microns
Percentage frequency of occurrence of dust particles