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Met Life Docs — Part 1

MEMORANDUM

August 24, 1950

MR. FRED ULMER, MANAGER
GROUP DIVISION

I am attaching a list of the Groups whose plants were surveyed within the past two years together with a list of surveys pending which we expect to complete some time during the year. Of this group, arrangements have been made to contact Republic Steel Corporation, Corning Glass, and Jones and Laughlin. It will not be necessary to contact General Electric as they are now conducting their own surveys and will not use our service.

The following organizations should be notified:

Johns Manville Products Corporation
Armstrong Cork Corporation
Otis Elevator Corporation
Grade Foundries
Bucyrus Erie
Rochester Gas and Electric
Mutual Chemical Corporation
Universal Foundry
Four Wheel Drive
Harnishfeger Foundry
Rundle Manufacturing Company
Eagle Manufacturing Company
Ladish Company
Evening Bulletin
Columbian Rope Company
Hickok Manufacturing Company
Universal Rundle Corporation

The remaining companies have either used our services very sparingly or the type of service given did not include field surveys.

W. J. McConnell, M.D.
Assistant Medical Director
Director, Industrial Health Bureau

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INDUSTRIAL HYGIENE SURVEYS
May 1948 - August 1950

Republic Steel Corporation:

Truscon Steel Company - Youngstown, Ohio
Union Drawn Steel Company - Hartford, Conn.
Union Drawn Steel Company - East Hartford, Conn.
Truscon Steel Company - Cleveland, Ohio
Cleveland Plant - Cleveland, Ohio
River Terminal Railway - Cleveland, Ohio
U. S. Nut and Bolt Division - Cleveland, Ohio
Steel and Tubes Division - Cleveland, Ohio
Dillworth-Porter Steel Division - Pittsburgh, Pa.
Union Drawn Steel - Massillon, Ohio
Union Drawn Steel Division - Beaver Falls, Pa.
Central Alloy District Canton Plant - Canton, Ohio
Vance Iron and Steel Company - Chattanooga, Tenn.
Steel and Tubes Plant - Elyria, Ohio
Miles Steel Products - Miles, Ohio
South Chicago Plant - Chicago, Illinois
Union Drawn Steel Plant - Gary, Indiana
Moline Plant - Moline, Illinois
Detroit Plant - Detroit, Mich.
Buffalo Plant - Buffalo, N.Y.
Canton Plant - Canton, Ohio
Stark Plant - Canton, Ohio
South Plant - Canton, Ohio
Massillon Plant - Massillon, Ohio
Massillon #1 and #2 - Massillon, Ohio
Berger Mfg. Co. #1 and 2 - Canton, Ohio
Culvert Mfg. Co. #1 and 2 - Canton, Ohio
Brooklyn Plant - Brooklyn, N.Y.
Sayerton #1 and #2 Coal Mines - Birmingham, Alabama
Virginia Coal Mine - Birmingham, Alabama
Sayre Coal Mine - Birmingham, Alabama
Spaulding Ore Mines - Birmingham, Alabama
Spaulding Stripping Operations - Birmingham, Alabama
Edwards Ore Mine - Birmingham, Alabama
Alabama City Plant - Alabama City, Ala.
Thomas Plant - Birmingham, Alabama
Pikeville Coal Mine - Pikeville, Kentucky
Youngstown Plant - Open Hearth Department - Youngstown, Ohio
Chatsangay Plant - Lyon Mountain, N.Y.
Old Bed and Harmony Mines - Mineville, N.Y.
Troy Plant - Troy, N.Y.
Panokee Ore Mine - Ironwood, Michigan
Tobin Ore Mine - Crystal Falls, Michigan
Susquehanna Ore Mine - Hibbing, Minnesota
St. Paul Ore Mine - Hibbing, Minnesota
Stevenson Ore Mine - Hibbing, Minnesota

General Electric Company

Pittsfield Plant - Pittsfield, Mass.
Lynn Plant - Lynn, Mass.
Elmira Foundries - Elmira, N.Y.

Armstrong Cork Company:

Lancaster Plant - Lancaster, Pa.
Beaver Falls Plant - Beaver Falls, Pa.
Jackson Plant - Jackson, Miss.
Pittsburg Plant - Pittsburgh, Pa.

Johns Manville Products Corporation :

Waukegan Plant - Waukegan, Illinois
Manville Plant and Research Division - Manville, N.J.
Nashua Plant - Nashua, New Hampshire
North Billerica Plant - North Billerica, Mass.

Otis Elevator Corporations:

Yonkers Plant - Yonkers, N.Y.
Harrison Plant - Harrison, N.J.

Jones and Laughlin Steel Corporation:

Benson Mine - Star Lake, N.Y.

Grede Foundries:

Milwaukee Steel Division - Milwaukee, Wisconsin
Smith Steel Division - Milwaukee, Wisconsin
Spring City Division Waukesha, Wisconsin
Liberty Foundry Division - Wauwatosa, Wisc.

Bucyrus Erie Company:

South Milwaukee Plant - South Milwaukee, Wisconsin
Evansville Plant - Evansville, Indiana
Erie Plant - Erie, Pa.

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Ford Instrument Company - Long Island City, N.Y.
Rochester Gas and Electric Company - Rochester, N.Y.
Mutual Chemical Company - Baltimore, Maryland
Diamond Alkali Company - Painesville, Ohio
McCrory Stores - New York City
Flintkote Company - New Orleans, La.
Allied Industrial Products - Van Wert, Ohio
Corning Glass Works - Charleroi, Pa.
Corning, N.Y.
Universal Foundry - Oshkosh, Wisc.
Four Wheel Drive Company - Appleton, Wisc.
Harnishfeger Foundry - Milwaukee, Wisc.
Rundle Manufacturing Company - Milwaukee, Wisc.
Eagle Manufacturing Company, Appleton, Wisc.
Ladish Company - Milwaukee, Wisc.
Eastern Tool and Manufacturing Company - Belleville, N.J.
Evening Bulletin - Philadelphia, Pa.
Congoleum Nairn Company - Kearney, N.J.
Columbian Rope Company - Auburn, N.Y.
Eagle Pencil Company - New York, N.Y.
Hickok Manufacturing Company - Rochester, N.Y.
Bausch and Lomb Optical Company - Rochester, N.Y.
Universal Rundle Corp. - Milwaukee, Wisc.
Four Wheel Drive - Clintonville, Wisc.
Greyhound Bus Company - San Francisco, Calif.
Tydol Oil Company - San Francisco, Calif.
American Can Company - San Francisco, Calif.
North American Aviation Company - Burbank, Calif.

In addition to the firms listed above the Waukegan Illinois Plant of the Johns-Manville Products Corp. sends in dust samples periodically and they are analyzed by our Laboratory.

We have also been conducting a survey of the atmospheric conditions in the City of Cleveland for Republic Steel Corporation and in the City of Rochester for Rochester Gas and Electric Company.

SURVEYS PENDING
August 24, 1950

Otis Elevator Company
Hamilton Works, Ontario, Canada

Johns Manville Corporation
Asbestos and Munro Mines, Canada

National Lead Company
Titanium Alloy Mfg. Div.
Niagara Falls, N.Y.

Metropolitan Life Insurance Company
Niagara Falls District Office
Niagara Falls, Canada

Armstrong Cork Company
Dunkirk Plant
Dunkirk, Indiana

INDUSTRIAL HYGIENE SURVEYS COMPLETED DURING 1948

<u>Company</u>	<u>Location</u>	<u>Date</u>
Armstrong Cork Company		
Manowell Department	Beaver Falls, Pa.	February 6, 1948
Closure Plant	Lancaster, Pa.	April 5-7, 1948
Floor Division	Lancaster, Pa.	March 17-April 7, 1948
Beaver Falls Plant	Beaver Falls, Pa.	August 3-6, 1948
Pittsburgh Plant	Pittsburgh, Pa.	August 9-11, 1948
Diamond Alkali Company	Painesville, Ohio	January 12-22, 1948
The Evening Bulletin	Philadelphia, Pa.	March 15-16, 1948
General Electric Company	Schenectady, N. Y.	April 19-23, 1948
River Works (which includes the Everetts Steel Foundry and the Everett Aircraft Turbine Company)	Lynn, Mass.	June 23-July 16, 1948
West Lynn Plant	West Lynn, Mass.	July 19-23, 1948
Pittsfield Plant	Pittsfield, Mass.	July 26-Aug. 5, 1948
Elmira Plant	Elmira, New York	Week of Sept. 27, 1948
McCrory Stores Corporation (We are conducting special tests for this concern)	New York, N. Y.	July 1948
Otis Elevator Company	Harrison, N. J.	Aug. 30-Sept. 7, 1948
Republic Steel Corporation		Dec. 10, 1947 to February 19, 1948
Study of Sodium Fluoride with representatives of the U. S. Public Health Service. (In connection with this study, Mr. Fehnel visited the Cleveland, Warren, Youngstown, and Canton, Ohio plants. He also made several trips to Washington, D. C.)		

<u>Company</u>	<u>Location</u>	<u>Date</u>
Republic Steel Corporation (Continued)		
Union Drawn Steel Co.	Hartford, Conn.	June 16, 1948
Union Drawn Steel Corp.	E. Hartford, Conn.	June 17, 1948
Brooklyn Plant	Brooklyn, N. Y.	February 3, 1948
Ideal Foundry & Machinery Co.	Newton Falls, O.	Feb. 4-5, 1948
Niles Steel Products Div.	Niles, Ohio	February 3, 1948
Warren & Niles Plant	Warren-Niles, Ohio	Jan. 20-Feb. 6, 1948
Truscon Steel Company	Youngstown, Ohio	April 26-May 3, 1948
Truscon Steel Company Dept. E and E Annex	Youngstown, Ohio	April 28-29, 1948
Corrigan-McKinney Company	Cleveland, Ohio	July 13-18, 1948
Truscon Steel Company	Cleveland, Ohio	July 27-28, 1948
Upton Nut & Bolt Company	Cleveland, Ohio	July 23-26, 1948
Steel & Tubes Division	Cleveland, Ohio	July 22, 1948
Union Drawn Steel Division	Beaver Falls, Pa.	August 2, 1948
River Terminal Railway	Cleveland, Ohio	August 20, 1948
Dillworth-Porter Division	Pittsburgh, Pa.	August 11, 1948
Rochester Gas & Electric Company	Rochester, N. Y.	Jan. 26-Feb. 6, 1948
(Study of atmospheric conditions in the City of Rochester, N. Y.)		May 24-June 12, 1948
Teleregister Company	East Orange, N. J.	February 18, 1948
Diamond Alkali Company	Painesville, Ohio	July 30, 1948

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<u>Company</u>	<u>Location</u>	<u>Date</u>
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	January 9, 1948
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	April 9, 1948
Prudential Insurance Company (Discussed feasibility of noise elimination in I.B.M. Machines)	Newark, N. J.	August 10, 1948
Metropolitan Home Office Services (Conducted noise determinations in the Home Office Buildings)	August 10, 11, 12 and 13. and Sept. 9th.	

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<u>Company</u>	<u>Location</u>	<u>Date</u>
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	January 9, 1948
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	April 9, 1948
Prudential Insurance Company (Discussed feasibility of noise elimination in I.B.W. Machines)	Newark, N. J.	August 10, 1948
Metropolitan Home Office Services (Conducted noise determinations in the Home Office Buildings)	August 10, 11, 12 and 13. and Sept. 9th.	

INDUSTRIAL HYGIENE SURVEYS COMPLETED DURING 1948

<u>Company</u>	<u>Location</u>	<u>Date</u>
✓ Armstrong Cork Company		
✓ Manowell Department	Beaver Falls, Pa.	February 6, 1948
✓ Closure Plant	Lancaster, Pa.	April 5-7, 1948
✓ Floor Division	Lancaster, Pa.	March 17-April 7, 1948
✓ Beaver Falls Plant	Beaver Falls, Pa.	August 1-6, 1948
✓ Pittsburgh Plant	Pittsburgh, Pa.	August 9-11, 1948
✓ Diamond Alkali Company	Painesville, Ohio	January 12-22, 1948
The Evening Bulletin	Philadelphia, Pa.	March 15-16, 1948
✓ General Electric Company	Schenectady, N. Y.	April 19-23, 1948
✓ River Works (which includes the Everetts Steel Foundry and the Everett Aircraft Turbine Company)	Lynn, Mass.	June 23-July 16, 1948
✓ West Lynn Plant	West Lynn, Mass.	July 19-23, 1948
✓ Pittsfield Plant	Pittsfield, Mass.	July 26-Aug. 5, 1948
✓ Elmira Plant	Elmira, New York	Week of Sept. 27, 1948
McGrory Stores Corporation (We are conducting special tests for this concern)	New York, N. Y.	July 1948
Otis Elevator Company	Harrison, N. J.	Aug. 30-Sept. 7, 1948
Republic Steel Corporation Study of Sodium Fluoride with representatives of the U. S. Public Health Service. (In connection with this study, Mr. Fehnel visited the Cleveland, Warren, Youngstown, and Canton, Ohio plants. He also made several trips to Washington, D. C.)		Dec. 10, 1947 to February 19, 1948

<u>Company</u>	<u>Location</u>	<u>Date</u>
Republic Steel Corporation (Continued)		
✓ Union Drawn Steel Co.	Hartford, Conn.	June 16, 1948
✓ Union Drawn Steel Corp.	E. Hartford, Conn.	June 17, 1948
✓ Brooklyn Plant	Brooklyn, N. Y.	February 3, 1948
✓ Ideal Foundry & Machinery Co.	Newton Falls, O.	Feb. 4-5, 1948
✓ Niles Steel Products Div.	Niles, Ohio	February 3, 1948
✓ Warren & Niles Plant	Warren-Niles, Ohio	Jan. 20-Feb. 6, 1948
✓ Truscon Steel Company	Youngstown, Ohio	April 26-May 3, 1948
✓ Truscon Steel Company Dept. E and E Annex	Youngstown, Ohio	April 28-29, 1948
✓ Corrigan-McKinney Company	Cleveland, Ohio	July 13-18, 1948
✓ Truscon Steel Company	Cleveland, Ohio	July 27-28, 1948
✓ Upson Nut & Bolt Company	Cleveland, Ohio	July 23-26, 1948
✓ Steel & Tubes Division	Cleveland, Ohio	July 22, 1948
✓ Union Drawn Steel Division	Beaver Falls, Pa.	August 2, 1948
✓ River Terminal Railway	Cleveland, Ohio	August 20, 1948
✓ Dillworth-Porter Division	Pittsburgh, Pa.	August 11, 1948
✓ Rochester Gas & Electric Company	Rochester, N. Y.	Jan. 26-Feb. 6, 1948
(Study of atmospheric conditions in the City of Rochester, N. Y.)		May 24-June 12, 1948
✓ Teleregister Company	East Orange, N. J.	February 18, 1948
Diamond Alkali Company	Painesville, Ohio	July 30, 1948

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<u>Company</u>	<u>Location</u>	<u>Date</u>
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	January 9, 1948
Prudential Insurance Company (Determination of solvent vapors at Multigraph Units)	Newark, N. J.	April 9, 1948
Prudential Insurance Company (Discussed feasibility of noise elimination in I.B.M. Machines)	Newark, N. J.	August 10, 1948
Metropolitan Home Office Services (Conducted noise determinations in the Home Office Buildings)	August 10, 11, 12 and 13. and Sept. 9th.	

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Sept 28, 1948

PLANTS SCHEDULED FOR SURVEY

REPUBLIC STEEL CORPORATION

Vance Iron & Steel Company, Chattanooga, Tenn.
Gulfsteel Company, Alabama City, Ala.
Thomas Plant, Birmingham, Ala.
Birmingham Coal Mines, Birmingham, Ala.

Steel & Tubes Division - Elyria, Ohio
Niles Steel Products - Elyria, Ohio
Steel & Tubes Division, Ferndale, Ohio

Pennsylvania Coal Mines
Indianola, Pa.
Russelton, Pa.
Crescent #2 Mine
Clyde Mines #1 and #3
Brownsville Junction Coal Mines

Chicago District
South Chicago Plant
Grand Crossing Plant
Moline Plant
Gary Plant

Northern Iron Mines
Troy Plant, Troy, N. Y.
Port Henry Plant - N. Y.

L. C. & W. Railroad
Port Henry, N. Y.
Minesville, N. Y.
Lyon Mountain, N. Y.

Youngstown, Ohio Area
Youngstown Plant
Lake Erie Limestone Corporation
Truscon Steel Company, Youngstown, Ohio

Los Angeles, California
Union Drawn Steel

ARMSTRONG CORK COMPANY

Jackson, Mississippi Plant
South Braintree, Mass. Plant.
Camden, New Jersey Plant
Kankakee, Illinois Plant

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FLINTKOTE COMPANY

New Orleans, Louisiana Plant.

ALLIS CHALMERS MANUFACTURING COMPANY

Milwaukee, Wisconsin.

JOHNS MANVILLE CORPORATION

Manville, N. J. - Special Tests.

ROCHESTER GAS & ELECTRIC COMPANY

We are conducting a series of tests to determine atmospheric conditions in the city of Rochester, New York

WESTON BISCUIT COMPANY

Passaic, New Jersey

GENERAL ELECTRIC COMPANY

Mr. Petrick is at the present time conducting special tests at the Elmira, N. Y. plant of the General Electric Company

MUTUAL CHEMICAL COMPANY OF AMERICA

Special consultant service.

MC CROXY STORES CORPORATION

We are conducting a series of special tests.

FOUR WHEEL DRIVE AUTO COMPANY

Clintonville, Wisconsin

UNIVERSAL FOUNDRY COMPANY

Oshkosh, Wisconsin

*Atlas Elevator
Yonkers N.Y.*

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LIST OF FIRMS FOR WHICH INDUSTRIAL HYGIENE SURVEYS HAVE BEEN MADE

Allied Industrial Products
 American Gun Co.
 American Hard Rubber Co.
 American Malleable Castings Co.
 American Metals Co.
 Armstrong Cork Co.
 Asbestos Corp.
 Asbestos Manufacturing Co.
 Atlantic Refining Corp.
 Bakelite Corporation
 Bausch and Lomb Optical Co.
 Bell Mine
 J. C. Brill Company
 Brown Company
 Bucyrus Erie Company
 Carpenter Steel Company
 J. I. Case Company
 Glaxo Pharmaceutical Products, Inc.
 Gleawater Manufacturing Co.
 Columbian Rope Co.
 Congoleum-Baird Corp.
 Corning Glass Works
 Diamond Alkali Co.
 Eagle Manufacturing Co.
 Eagle Pencil Co.
 Eastern Tool and Mfg. Co.
 Thomas A. Edison, Inc.
 Electro-Metallurgical Co.
 The Evening Bulletin
 The Flintkote Co.
 Florence Pipe Foundry and Machine Co.
 Four Wheel Drive Co.
 French and Necht Co.
 General Aircraft Corp.
 General Electric Co.
 General American Transportation Co.
 Orede Foundry, Inc.
 A. P. Green Fire Brick Co.
 Harbison-Feger Foundry
 Harbison-Walker Refractories Co.
 Hickok Manufacturing Co.
 Independent Iron Co.
 Interlake Iron Works
 Irtigueis China Co.
 Johns-Manville Corp.
 Johnson Company
 Jones and Laughlin Steel Corp.
 Kennedy Valve Co.
 Walter Lids and Co., Inc.

Laclede Christy Clay Products Co.
 Laidlaw Company
 Lancaster Brick Co.
 Lancaster Shoe Co.
 Libbey-Owens-Ford Glass Co.
 Louisville Cement Co.
 Mathieson Chemical Corp.
 McCrory Stores
 Mesta Machine Co.
 Missouri Portland Cement Co.
 Monsanto Chemical Co.
 National Chemical Company of America
 National Bisulfit Co.
 National Lead Co.
 Ninest Chemical Co.
 Nineteen Hundred Corp.
 Olean Tile Co.
 Otis Elevator Co.
 Penn Steel Castings Co.
 Phoenix Glass Co.
 RCA Victor Co., Ltd.
 Raybestos Manhattan, Inc.
 Republic Steel Corp.
 Rochester Gas and Electric Co.
 George D. Roper Corp.
 Will Ross, Inc.
 The Ruberoid Co.
 Rundle Manufacturing Co.
 Seullin Steel Co.
 F. A. Smith Co.
 Standard Bleachery and Printing Co.
 Thomas and Betts Co.
 Union Carbide Co.
 Universal Foundry Co.
 Universal Hundle Co.
 Vulcan Belting Co.

Surveys of Atmospheric Conditions:
 City of Rochester, N.Y.
 (Rochester Gas and Electric Co.)

City of Cleveland, Ohio
 (Republic Steel Corporation)

INDUSTRIAL HYGIENE SURVEYS
May 1948 - April 1950

<u>Company</u>	<u>Location</u>
Republic Steel Corporation Truscon Steel Company	Youngstown, Ohio
Rochester Gas and Electric Company	Rochester, N.Y.
Mutual Chemical Company	Baltimore, Maryland
Republic Steel Corporation Union Drawn Steel Company	Hartford, Conn.
Republic Steel Corporation Union Drawn Steel Company	East Hartford, Conn.
Diamond Alkali Company	Painesville, Ohio
Republic Steel Corporation Truscon Steel Company	Cleveland, Ohio
Republic Steel Corporation	Cleveland
Republic Steel Corporation River Terminal Railway	Cleveland, Ohio
Republic Steel Corporation Upton Nut and Bolt Division	Cleveland, Ohio
Republic Steel Corporation Steel and Tubes Division	Cleveland, Ohio
Republic Steel Corporation Dillworth-Porter Steel Division	Pittsburgh, Pa.
Republic Steel Corporation Union Drawn Steel	Massillon, Ohio
General Electric Company	Pittsfield, Mass.
General Electric Company	Lynn, Mass.
Armstrong Cork Company	Pittsburgh, Pa.
Republic Steel Corporation Dillworth-Porter Steel Division	Pittsburgh, Pa.
Armstrong Cork Company	Beaver Falls, Pa.
Republic Steel Corporation Union Drawn Steel Division	Beaver Falls, Pa.

<u>Company</u>	<u>Location</u>
McCrorry Stores	New York City
General Electric Company	Elmira, New York
Johns Manville Products Corporation	Waukegan, Illinois ✓
Republic Steel Company Central Alloy District Canton Plant	Canton, Ohio
Flintkote Company	New Orleans, La.
Armstrong Cork Company	Jackson, Miss.
Johns Manville Company	Manville, N.J. ✓
Republic Steel Corporation Plants and Mines	Birmingham, Ala.
Republic Steel Corporation Vance Iron and Steel Company	Chattanooga, Tenn.
Republic Steel Corporation Steel and Tubes Plant	Elyria, Ohio
Republic Steel Corporation Niles Steel Products	Niles, Ohio
Republic Steel Corporation South Chicago Plant	Chicago, Illinois
Allied Industrial Products	Van Wert, Ohio
Corning Glass Works	Charleroi, Pa.
Republic Steel Corporation Union Drawn Steel Plant	Gary, Indiana
Universal Foundry	Oshkosh, Wisc.
Four Wheel Drive Company	Appleton, Wisconsin
Grede Foundries	Milwaukee, Wisconsin
Grede Foundries	Waukesha, Wisconsin
Harnishfeger Foundry	Milwaukee, Wisc.
Rundle Manufacturing Company	Milwaukee, Wisc.
Eagle Manufacturing Company	Appleton, Wisc.

<u>Company</u>	<u>Location</u>
Ladish Company	Milwaukee, Wisc.
Bucyrus Erie Company	Milwaukee, Wisc.
J. I. Case Company	Racine, Wisc.
Republic Steel Corporation Moline Plant	Moline, Ill.
Bucyrus Erie Company	Evansville, Indiana
Bucyrus Erie Company	Erie, Pa.
Republic Steel Corporation	Detroit, Mich.
Republic Steel Corporation Buffalo Plant	Buffalo, N. Y.
Eastern Tool and Manufacturing Company	Belleville, N.J.
Republic Steel Corporation Canton Plant	Canton, Ohio
Republic Steel Corporation Stark Plant	Canton, Ohio
Republic Steel Corporation South Plant	Canton, Ohio
Republic Steel Corporation Massillon Plant	Massillon, Ohio
Republic Steel Corporation Massillon #1 and #2	Massillon, Ohio
Republic Steel Corporation Berger Mfg. Co. #1 and 2	Canton, Ohio
Republic Steel Corporation Culvert Mfg. Co. #1 and 2	Canton, Ohio
Republic Steel Corporation Truscon Steel Company	Cleveland, Ohio
Grede Foundries, Inc. Smith Steel Division	Milwaukee, Wisc.
Grede Foundries, Inc. Liberty Foundry Division	Wauwatosa, Wisc.
Jones and Laughlin Steel Corp. Benson Mine	Star Lake, N.Y.

<u>Company</u>	<u>Location</u>
Otis Elevator Corp.	Yonkers, New York
Johns Manville, Corp.	Nashua, N.H.
Johns Manville Corp.	North Billerica, Mass.
Evening Bulletin	Philadelphia, Pa.
Congoleum Narin	Kearney, N.J.
Columbian Rope Company	Auburn, N.Y.
Otis Elevator Company	Harrison, N.J.
Johns Manville Corp. Manville Plant	Manville, N.J.
Johns Manville Corp. Research Division	Manville, N.J.
Eagle Pencil Company	New York, N.Y.
Hickok Manufacturing Company	Rochester, N.Y.
Bausch and Lomb Optical Company	Rochester, N.Y.
Republic Steel Corporation	Brooklyn, N.Y.
Republic Steel Corporation Sayreton #1 Coal Mine	Birmingham, Ala.
Sayreton #2 Coal Mine	Birmingham, Ala.
Virginia Coal Mine	Birmingham, Ala.
Sayre Coal Mine	Birmingham, Ala.
Spaulding Ore Mines	Birmingham, Ala.
Edwards Ore Mines	Birmingham, Ala.
Spaulding Stripping Operations	Birmingham, Ala.
Alabama City Plant	Alabama City, Ala.
Thomas Plant	Birmingham, Ala.
Pikesville Coal Mine	Pikesville, Ky.
Armstrong Cork Company Floor Covering Closure Plants	Lancaster, Pa.

<u>Company</u>	<u>Location</u>
Republic Steel Corporation Youngstown Plant - Open Hearth Dept.	Youngstown, Ohio
Otis Elevator Company	Harrison, N.J.
Universal Foundry	Oshkosh, Wisc.
Universal Rundle Corp.	Milwaukee, Wisc.
Four Wheel Drive	Clintonville, Wisc.

In addition to the firms listed above, the Waukegan, Illinois Plant of the Johns Manville Products Corp. sends in dust samples periodically and they are analyzed by our Laboratory.

We also have been conducting a survey of the atmospheric conditions in the City of Cleveland for the Republic Steel Corporation, and in the City of Rochester for the Rochester Gas and Electric Corporation.

SURVEYS PENDING
May 1, 1950

Otis Elevator Company
Hamilton Works, Ontario, Canada

Corning Glass Works
Corning, N.Y.

Armstrong Cork Company
Closure Plant - Metal Cap

Johns Manville Corp.

National Lead Company
Titanium Alloy Mfg. Div.
Niagara Falls, N.Y.

Mathieson Chemical Corp.

Metropolitan Life Insurance Co.
Niagara Falls District Office
Niagara Falls, Canada

American Can Company

Tydol Oil Company

Rochester Gas and Electric Company
Rochester 4, N.Y.
W. E. Hughes, Manager
Employee Relations Department

Mutual Chemical Company
1348 Block St.
Baltimore 31, Md.
C. F. Tarr
Vice President

Diamond Alkali Company
P. O. Box 430
Painesville, Ohio
Dr. J. M. York
Medical Director

General Electric Company
1 River Road
Schenectady 5, N.Y.
Dr. B. L. Vosburgh
Medical Director

Armstrong Cork Company
Lancaster, Pa.
Mr. A. S. Keen
Safety Director

Flintkote Company
31 Rockefeller Plaza
New York 20, N.Y.
Mr. H. P. Haulmer
Insurance Manager

Corning Glass Works
Corning, N.Y.
Dr. John W. Brown
Medical Director

Universal Foundry
Oshkosh, Wisc.
Mr. Carl W. Mueller
Vice-President

Four Wheel Drive Company
Clintonville, Wisc.
Mr. Robert Olin
Works Manager

Grede Foundries
1324 South 1st St.
Milwaukee, Wisc.
Mr. James J. Ewens
Vice President

Harnishfeger Foundry
4400 West National Avenue
Milwaukee 14, Wisc.
Mr. H. O. Menck
Vice President

Rundle Manufacturing Corporation
3305 West Forest Home Avenue
Milwaukee, Wisc.
Mr. R. J. Habermann, Personnel Manager
Enameled Cast Iron Plant

Eagle Manufacturing Company
Appleton, Wisc.
Mr. Desens, President

Ladish Company
5481 S. Packard Avenue
Cudahy, Wisc.
Mr. George Bitters, Jr.
Personnel Manager

Bucyrus Erie Company
South Milwaukee, Wisc.
Mr. C. K. Charlton
Vice President in Charge of Manufacturing

J. I. Case Company
Racine, Wisc.
Mr. W. E. Anderson, Treasurer

Eastern Tool and Manufacturing Company
129-147 Bloomfield Avenue
Bloomfield, N.J.
Miss C. J. Wheelwright

Jones and Laughlin Steel Corporation
3rd Avenue and Ross St.
Pittsburgh 30, Pa.
Mr. F. W. Kelsey
Supervisor of Safety and Welfare

Otis Elevator Company
260 Eleventh Avenue
New York, N.Y.
Mr. William J. Niederauer
Safety Director

Philadelphia Evening Bulletin
Filbert and Juniper Streets
Philadelphia 5, Pa.
Dr. Fred Richardson
Medical Director

Congoleum Nairn Company
Kearny, N.J.
Mr. W. A. Magnus
Insurance Manager

Hikok Manufacturing Company
Rochester, N.Y.
Mr. James Weldon
Director of Industrial Relations

Bausch and Lomb Optical Company
Rochester, N.Y.
Mr. Smith, Safety Supervisor

American Can Company
100 Park Ave.
New York 17, N.Y.
Mr. L. V. Taylor, Supervisor
Health and Safety

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- ## Allied Industrial Products

- 0187

Republic Steel Corporation
Rochester Gas and Electric Company
Mutual Chemical Company
Diamond Alkali Company
General Electric Company
Armstrong Cork Company
Flintkote Company
Allied Industrial Products
Corning Glass Works
Universal Foundry
Four Wheel Drive Company
Grede Foundries
Harnishfeger Foundry
Rundle Manufacturing Company
Eagle Manufacturing Company
Ladish Company
Bucyrus Erie Company
J. I. Case Company
Eastern Tool and Manufacturing Company
Jones and Laughlin Steel Corporation
Otis Elevator Company
Philadelphia Evening Bulletin
Congoleum Mairn Company
Hickok Manufacturing Company
Bausch and Lomb Optical Company
American Can Company

MEMORANDUM

February 27, 1935

MR. LINCOLN
VICE PRESIDENT AND GENERAL COUNSEL.

Yesterday I suggested that Dr. Lanza and I would like to go over our current activities and certain recent developments in the field of dust in industry, in a conversation with you, so that all angles of the situation could be considered in connection with our routine activities and special appropriations.

Dr. Lanza has endeavored to summarize his views in the attached memorandum, and it occurs to me, if you have time, that it will be helpful to look this over prior to our conference. We could then no doubt get the benefit of your reactions in a very few minutes, and can perhaps present certain angles of the situation more compactly in this memorandum than could be done in conversation.

I suggested a reply to General Cuming's letter concerning the silicosis research with the Public Health Service that indicated the belief that our participation in this particular activity should be terminated, unless the participation of other agencies might later seem to justify our continuation on a modified basis. The field is really of great importance, and a little stake in the research aspect of it, jointly with the leading Government agency in the field, may actually be quite advantageous and logical in view of the significance of the dust problem to our extensive Group and Industrial interests and in view of the routine services now carried out by the Industrial Health Section primarily for Group policyholders, and largely in this dust field, as indicated by Dr. Lanza's memorandum.

for abeyance - Cuming?

BA

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Third Vice-President.

DR. ARMSTRONG
THIRD VICE PRESIDENT

With reference to our recent conversation, I will endeavor to summarize the present status of the dust question in industry and our relation to it.

Viewed broadly, the problem of dust in industry is the problem of tuberculosis in industry. Conversely, it may be stated that the problem of tuberculosis in this country today is an industrial one. It is true that the death rate from tuberculosis in general has been steadily falling for a number of years. It is also true that the vital statistics in this country and abroad show definitely an inordinate amount of tuberculosis in what might be summarized as the dusty trades.

The specific action of silica dust is well known as is the fact that those exposed to silica dust have an extremely high tuberculosis death rate. In the last few years, there has been an extraordinary number of damage suits brought by employees against employers on the basis of exposure to silica dust so that at the present time it is estimated that these damage suits are well in excess of \$100,000,000. Now there is a very marked tendency of employees who are exposed to dust other than silica dust to bring damage suits against their employers, alleging pulmonary injury and this state of affairs has progressed to a point where whole industries are in a turmoil, handicapped on the one hand by lack of definite knowledge of the action of these dusts on the lungs and on the other by the inadequacy of the law to protect them.

The Metropolitan has had a co-operative agreement with the Public Health Service (formerly with the Bureau of Mines) to carry on dust studies. As the budget was originally set up for the Picher Clinic, the mine operators (Group policyholders) contributed \$16,000 a year, the Government \$8,000 a year, and the Metropolitan \$8,000 a year. Later when the Picher Clinic was turned over to the operators, our relationship with the Public Health Service continued. Both we and the Public Health Service contribute \$8,000 a year for co-operative dust studies.

We have also contributed \$5,000 a year for several years to the Saranac Laboratory for the Study of Tuberculosis for studies on the pathological effects of dusts. Last year, this office was instrumental in getting both the Association of Stock Casualty Companies and the Association of Mutual Casualty Companies each to contribute \$5,000 a year.

The object of these studies, particularly at Saranac, has been to increase our knowledge of the action of silica dust in the body, its relationship to tuberculosis, and the determining of methods of prevention and control of the silica dust hazard. With respect to the Public Health Service, we have been more concerned with formulating accurate and speedy methods of determining whether any given dust is harmful and as a matter of fact, such a technique has been

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Developed by Dr. Sayers and his associates. All kinds of dust have been tested by this method, including limestone, kaolinite, calcite, tripoli, gypsum, soapstone, carborundum, anthracite coal, bituminous coal, precipitator ash, talc, foundry dust, fullers earth, feldspar, asbestos, and others too numerous to mention, but all representing dusts to be found in various plants of our Group policyholders.

Our Industrial Hygiene Section is being continually consulted on the technical aspects of wording of proposed laws, regulations, and codes dealing with the dust problem. For several years, this Section has been engaged in field studies designed to determine the scope, severity, and the hazard from silica dust and other dusts in industrial plants. Most of these studies have been restricted to the plants of Group policyholders in accordance with our declared policy. Where studies have been made on an industry wide basis, they have included plants not covered by Group insurance. I might mention, for instance, the study of the foundries in Wisconsin and the preliminary asbestos study. The Industrial Hygiene Section is now engaged in completing the final study on asbestos and will then take up the ceramic industry in New York State. This latter study will include some of our important Group policyholders such as the General Electric Company, the Carborundum Company, the Corning Glass Company, and others.

So important has this subject become and so great is the interest taken in it that in January of this year, a conference was held at the Mellon Institute in Pittsburgh, to which were invited representatives of eighty-five industries and manufacturing plants, for the purpose of considering what might be done in the way of concerted action dealing with research into the medical aspects of the dust problem, engineering methods for the control of dust hazards, and legal procedures with reference to laws, codes, and regulations. About two hundred representatives of various industries were present at this meeting and a Temporary Committee was formed, consisting of one representative each from the following industries:

- (1) Asbestos, Cork and non-metallic;
- (2) Chemical, Abrasives, Alloy and non-ferrous metals;
- (3) Foundries;
- (4) Glass Sand, Ground Sand and Glass Manufacturers;
- (5) Iron, Steel and Iron Ore
- (6) Limestone, Cement and Gypsum
- (7) Refractories, Ceramics and Clays

The Chairman of this Committee is Mr. Roger A. Hitchins, President of the American Refractories Institute, and the organization work was largely done by Mr. A. W. Sherwood, Vice President of the Owens-Illinois Glass Company, and heading up the glass sand, and ground sand and glass manufacturers.

Last week, Mr. Sherwood and Mr. Hitchins spent an afternoon with me, outlining their plans and endeavoring to formulate their procedure. It was made perfectly plain to me, both by these two gentlemen and others that the industries they

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represent are looking to the Metropolitan for advice and leadership in this endeavor to set up a co-ordinating agency to deal with dust problems. Mr. Hitchins told me that he had received a letter from Mr. Gentholtz, Counsel for the Republic Steel Company, stating that his Company would not be interested in this Pittsburgh plan unless I were associated with it; also that he had received a letter to similar effect from Mr. E. O. Jones on behalf of the National Foundry Association. I told Mr. Hitchins and Mr. Sherwood that I would be glad to be of any possible help in the way of advice and consultation but that I could not interest myself in this undertaking in any more active way.

Naturally, it is our large Group policyholders who have the most vital interest in this whole dust problem, such as the General Electric Company, the Westinghouse Electric Company, Jones and Laughlin, Pickens-Mather, General Motors, Cleveland Cliffs Iron Company, Union Carbide and Carbon Corporation, the gypsum and cement companies. Since this meeting, I have been consulted by representatives of both the Republic Steel Company and the American Car and Foundry Company, both incidentally, very active prospects for Group insurance.

Appended to this memorandum is a list of the various persons who participated in the Mellon Institute meeting. I mention all this to show how wide-spread and active is the interest of these large manufacturing companies, many of whom are numbered among our Group policyholders.

In a paper presented before the National Tuberculosis Association two years ago, Lanza and Vane estimated on a conservative basis that there were over half a million industrial workers exposed to silica dust and that the problem of family infection due to incident tuberculosis in many instances is a serious one.

I do not know whether this effort to set up a co-ordinating agency to deal with dust problems in industry will be successful or not. I am inclined to think that there are possibly too many divergent interests represented in the group that was brought together at Pittsburgh to get concerted action from them. But there is no question in my mind that many of the largest industries in the country are looking to the Metropolitan as the one place where they can get accurate and impersonal guidance in dealing with the problem that at present is a serious menace to them from an economic standpoint. This is true also of the casualty insurance companies with whose representatives both Dr. McConnell and I have had many conferences in the past two years.

As you well know, we have been extremely careful to keep away from all litigative and legislative matters and there is a pretty general realization now in industry that we cannot be approached on these two phases of the subject. The effect of this has been, I think, to strengthen our position; there is a general feeling that we have no ax to grind and that our motives are in accord with our general policy of being willing to help as far as practicable, in any undertaking that has to do with the conservation of human life.

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With respect to our relationship with the Public Health Service, I can quite understand that it may not be expedient to continue further our present relationship. I do think that we should have some interest in research work in the general field of dust diseases.

February 27, 1935

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1/15/25

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Rockefeller Building,
Cleveland, Ohio.

Yanson, C. R., Secretary,
Code Authority, Sandstone Industry,
1125 Builders Exchange Building,
Cleveland, Ohio.

Yant, William P.,
Bureau of Mines,
4800 Forbes Street,
Pittsburgh, Pa.

Yoder, Ray,
Standard Steel Works Company,
Burnham, Wifflin Co., Pa.

MEMORANDUM

February 27, 1935

MR. LINCOLN
VICE PRESIDENT AND GENERAL COUNSEL.

Yesterday I suggested that Dr. Lanza and I would like to go over our current activities and certain recent developments in the field of dust in industry, in a conversation with you, so that all angles of the situation could be considered in connection with our routine activities and special appropriations.

Dr. Lanza has endeavored to summarize his views in the attached memorandum, and it occurs to me, if you have time, that it will be helpful to look this over prior to our conference. We could then no doubt get the benefit of your reactions in a very few minutes, and can perhaps present certain angles of the situation more compactly in this memorandum than could be done in conversation.

I suggested a reply to General Cumming's letter concerning the silicosis research with the Public Health Service that indicated the belief that our participation in this particular activity should be terminated, unless the participation of other agencies might later seem to justify our continuation on a modified basis. The field is really of great importance, and a little stake in the research aspect of it, jointly with the leading Government agency in the field, may actually be quite advantageous and logical in view of the significance of the dust problem to our extensive Group and Industrial interests and in view of the routine services now carried out by the Industrial Health Section primarily for Group policyholders, and largely in this dust field, as indicated by Dr. Lanza's memorandum.

in abeyance?

BA

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

LEAD POISONING IN INDUSTRY

W. J. McConnell, M.D.

* * *

Presented at
Fall Meeting
of the

Home Office
Life Underwriters'
Association

- - -
November 16, 1938

LEAD POISONING IN INDUSTRY

W. J. McConnell, M.D.*

Among the diseases resulting from conditions of employment, lead intoxication still ranks predominant, principally because, apart from iron and steel, lead is most widely used in the industries, being encountered in more than 200 industries. Practically all forms of lead are toxic, the degree of toxicity depending upon their solubility in human tissues. The oxides and basic lead carbonate and acetate are among the most soluble and, therefore, the most readily toxic forms.

The most important sources of poisoning in industry are the fumes and dust which are inhaled by workers habitually exposed to a contaminated atmosphere. According to Legge and Goadby (1912) absorption through the respiratory tract is a hundred times more important than by the gastrointestinal tract. Lead inhaled is more rapidly and more surely toxic than lead ingested. Minot's studies in cats showed the danger and rapidity of absorption from the respiratory tract. She found from analyses of all the organs that as much lead may be absorbed in one day from a single injection into the respiratory tract as from gastrointestinal exposure lasting for months. When lead is ingested some or most of it may be eliminated unchanged from the body and the greater part of that portion which is absorbed is taken up by the liver and re-excreted into the intestinal tract by way of the bile.

The influence of lead upon the human body depends largely upon the length of the exposure to the poison and its quantity, the rate of absorption
*Presented before Home Office Life Underwriters' Association, November 16, 1938
Hotel Pennsylvania, N.Y.C.

into the system, the state of health at the time, and individual susceptibility. Anything that lowers resistance in the worker increases his chance of lead intoxication. Alcoholism, pulmonary tuberculosis, and syphilis are conditions recognized as favorable to lead absorption. Mouth breathing, wide atrophic nasal passageways, absence of nasal hairs, removed turbinates, and other defects encountered in individuals are important physical factors. There also is the question of age and sex, experience having shown that young adults are more liable to become affected and that women are more readily adversely influenced by lead than males. These factors must be given consideration when endeavoring to establish threshold dosages. Lead absorption does not necessarily mean lead poisoning. The distinction is based on the presence or absence of one or more of the toxic episodes.

Since industrial poisoning is usually chronic in type our chief interest lies in those workers who receive daily into the system minute quantities of lead, where elimination almost equals absorption, and where, therefore, intoxication is slowly induced. The quantities of lead sufficient to cause chronic poisoning have been variously estimated to be from one-tenth of a milligram to two milligrams daily entering the body over a period of years. Much information of a quantitative nature with respect to lead absorption, storage and elimination has been presented during recent years by the very careful studies of Aub and his co-workers in Harvard University and by Kehoe and his associates of the University of Cincinnati and P. Schmidt of Halle. Fairhall's perfection of the titrimetric chromate method for the detection and quantitative estimation of small amounts of lead in biological material provided the first precise method for detecting quantities of lead as little as 0.1 mg.

Other methods have since been developed which are very promising. The colorimetric diphenylthiocarbazone (dithizone) method of Fisher, although extremely sensitive, unfortunately is not specific for lead. Other metals give almost identical colors even after the addition of cyanide. Unless zinc and tin, which are normally excreted and present in the excreta in larger amounts than lead, are properly evaluated, they may be accounted as lead. However, most of these difficulties have been overcome by slightly modifying the methods. The use of the spectrograph for analytical determinations is rapidly finding popularity and may eventually prove to be the method of choice. A German investigator, F. Timm, proposes a darkfield method by which he claims it is possible to detect fine amounts of heavy metal in the organism; that it is also possible to learn how the metal penetrated, where it is deposited and how its mobilization by medicaments takes place.

Lead absorbed in excess of lead eliminated is carried by the blood stream to various organs and tissues in the body where it may be temporarily retained, but eventually re-enters the circulation and finally is either excreted or deposited, as confirmed by the Harvard investigators, in the calcareous portion of the bones in insoluble form in a manner similar to the deposition of calcium. It is during the course of absorption into the body or liberation from the tissues under unfavorable physiological conditions that symptoms of poisoning occur. The damage produced by lead, as suggested by Straub, is the result of the summation of the injuries inflicted by its recurrent presence in the blood in infinitesimal quantities. It is, however, 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, nevertheless, that at least a portion of this stored lead can be released by medication with weak acids and low calcium intake.

As is true of many of the industrial poisonings, the symptoms of lead poisoning were noted long before they were attributed to the action of lead. Although lead as the cause of the symptoms was perhaps first recognized by Hippocrates, the great work of Tanquerel des Planches, containing material collected from 1200 cases of lead poisoning is so complete that later studies have added little to our knowledge of the symptoms and signs of lead intoxication. There is still a wide difference of opinion as to what constitutes a case of chronic lead poisoning. So far there does not appear to be a common basis for diagnosis. Some years ago Dr. Alice Hamilton illustrated this fact in giving the views of two physicians, one of whom considered "anemia and lead line" as a mild case, while with the other nothing less than "a severe attack of colic, constipation, nausea, and vomiting, requiring medical care for two weeks," would be termed a mild case. Appelbach enumerates constipation, pallor and anemia, colic, stippling, blue line, and tremor as the cardinal symptoms of lead poisoning. Legge gives the earliest symptoms as changes in the vascular system, wasting of the subcutaneous fat, pallor and drawn expression of the face. Linenthal believes that a history of exposure to lead justifies the diagnosis of lead poisoning in patients presenting obscure symptoms which cannot otherwise be explained. He regards seriously pallor of the skin, muscular weakness, or constipation alternating with diarrhea, abdominal pains, general nervousness, and persistent headaches, when occurring in persons exposed to lead, for they may be the precursors of the more serious changes.

Although it is true perhaps that the term "lead absorption" is sometimes used when the evidence more nearly admits a diagnosis of true intoxication, the distinction is often difficult. The detection of evidence of absorption, however, is important because it permits removal of the exposed individual before symptoms develop, and at a time when it is possible to avert further trouble. In addition it points to the necessity for adequate hygienic control of lead processes.

Although lead found in the feces is suggestive of lead absorption, it may merely mean that lead has passed unchanged through the alimentary tract. Lead in the urine is of greater clinical significance for it is an indication of absorption, as is also the lead line on the gums, and the presence of increased stippling in the blood. Evidence of the past few years indicates that stippling together with polychromasia and reticulation are but different manifestations of one phenomenon - the presence of basophilic substances. It is suggested that greater diagnostic dependence be placed upon examination for the totality of erythrocytes containing basophilic material. According to McCord blood of normal human adults rarely contains more than 1% of basophilic erythrocytes. With workers, absorbing lead without clinical manifestations and in early lead poisoning, the percentage commonly ranges from 1.5% to 4.0% with occasional findings up to 20.0%. Associated with these blood changes is an invariable secondary anemia. The reduction in the number of red cells is not extremely great, and it is rare to find less than three million per cubic millimeter. There also may be a slight decrease in the hemoglobin.

One of the most constant of the early signs of lead intoxication is the ashen-lead color of the face and pallor of the lips. This may not be due to anemia, but to the action of lead on the skin capillaries. Lead colic

is the most common and dramatic of the acute manifestations of poisoning and is usually preceded by several days of constipation. It is characterized by its tendency to be most severe following the partaking of food and drink. Pressure seems usually to furnish some relief. Vomiting quite frequently occurs at the onset of the pain. Lead palsy is much less common than colic, although it may develop during the first month of work, but usually only after many years' exposure. The commonest form is the well known wrist drop. Encephalopathy is the most dangerous manifestation of plumbism, and is always of serious prognostic significance. The onset is invariably sudden, and usually begins with epileptiform convulsions. Optic atrophy has been described especially in association with encephalopathy, but it is rare. Other minor manifestations which may be observed are, transitory pains in muscles and joints, indefinite weakness and lassitude, loss of weight, lack of appetite, metallic or sweetish taste in mouth on arising in the morning and constipation. A fine tremor in the muscles of the hand, tongue, or face, particularly in the eyelids and around the eyes has been observed in early as well as in more advanced cases. The extent to which arteriosclerosis and chronic nephritis are significant sequelae is still controversial. An increase in the systolic blood pressure has not been generally affirmed.

Many other clinical and pathological conditions have been associated with plumbism, but for the most part they have been observed in isolated cases. False conclusions may be drawn from attributing to lead all symptoms occurring in persons exposed to lead. Colic has been confused with acute appendicitis, chronic gastric or duodenal ulcer, and carcinoma of the stomach and, unfortunately, has led in some instances to surgical interference. Lead workers can suffer from

pernicious anemia or secondary anemia and other illnesses which may simulate lead intoxication, and, on the other hand, lead workers may affect symptoms of lead intoxication, - a litigation hysteria rarely alleviated until compensation has been awarded or legal proceedings are completed.

The confusion regarding the diagnosis of plumbism has led to endeavors on the part of some investigators to standardize the diagnosis based particularly on the degree of disability indicated by certain groups of signs and symptoms. Newman, McConnell, Spencer, and Phillips devised such a standard for use in a study conducted among a group of pottery workers for the purpose of aiding in arriving at an orderly analysis of their records. Cases were classified as first, positive for lead poisoning; second, presumptive; third, suggestive; and fourth, negative for lead poisoning after obtaining complete occupational and medical histories and the consideration of all such information as was gained from careful physical examination and laboratory studies. Badham and others have suggested standards intended to express the stage or severity of initial attacks of lead intoxication. The weakness of such standards, however, lies in their inability to give proper emphasis to the varying degrees of intensity of symptoms and signs exhibited early in the course of absorption or intoxication. Their use as a guide in making up a statistical analysis of observations from a group study is perhaps their most important value. I concur in the opinion expressed by Aub and his associates that in the last analysis the diagnosis of plumbism must depend on keen judgment and that no fast rules can be adopted.

The prevalence of lead poisoning in American industries is anybody's guess. Morbidity statistics do not exist and unfortunately also there is but

scanty statistical information on the mortality from plumbism. Death certificates do not always mention the underlying cause and it may be that a number of deaths basically due to lead are reported as nephritis and other degenerative diseases. The total number of deaths from lead poisoning in the United States Registration Area from 1925 to 1929 inclusive, as recorded by Hoffman, amounted to a total of 686 or a rate of 1.3 per 1,000,000. The highest number of deaths for any one year was 144 in 1926, the lowest being 129 in 1928. The number of deaths dropped in 1930 to 101 and slightly increased in 1931 to 111. The industrial experience of the Metropolitan Life Insurance Company from 1928 down to the end of 1936 is as follows:

Deaths from Chronic Lead Poisoning 1928-1936
Weekly Premium-Paying Business - Industrial Department
Metropolitan Life Insurance Co.
Rate per 1,000,000

<u>Year</u>	<u>Exposed to Risk</u> <u>(Ages one and over)</u>	<u>Deaths</u>	<u>Rate</u>
1928	18,029,661	25	1.4
1929	18,285,097	22	1.2
1930	18,103,385	13	0.7
1931	17,534,087	18	1.0
1932	16,711,241	21	1.3
1933	16,050,723	18	1.1
1934	16,186,361	16	1.0
1935	16,552,064	23	1.4
1936	16,890,375	28	1.7

Compensation awarded for disability from lead poisoning suggests a source of information regarding at least the severer types of cases. However, in New York State during the last few years the number has never exceeded 100 cases per year. Individual studies of groups of workers in certain industrial occupations indicate, despite the fact that massive exposure to injurious amounts of lead is infrequent and the number of cases of typical lead poisoning is steadily diminishing, that much remains to be accomplished in preventive control. In a recent study of lead poisoning in a storage battery plant,

conducted by the U. S. Public Health Service, the incidence of plumbism sufficiently severe to receive compensation was extremely high - the annual rate for all workers being 15.9 per 100. The total number of compensation cases observed was 158.

The employment of leadless glazes and the enormous development of spray painting of motor cars with leadless cellulose paints have reduced the lead exposure in the pottery and enameling and automobile industries. The substitution of machine methods for hand labor has abolished the disease among file makers. The fact that painters need no longer mix their paints from the dry material, but receive it already mixed in oil reduces this source of exposure.

On the other hand, the increase in radio manufacturing, ship breaking, and more general application of fruit spraying have increased lead exposure.

Dust and fume suppression by means of exhaust ventilation applied at the point of origin of the dust or fume ranks first among the available measures for control. Good general ventilation should supplement, but not interfere, with local ventilation.

Other preventive measures include the enclosure of processes where practicable; the substitution of less soluble compounds for the soluble ones; wet processes for dry; segregation of dust and fume producing processes; mechanical means, such as covered conveyors, hoppers, hoists, cranes, and automatic packing machinery substituted for hand carriage; possible alternation of employment for workers engaged in a leaded process; the use of individual respiratory equipment such as hose masks, positive pressure respirators and suitable cartridge

type respirators for emergency temporary exposures. Cleanliness of work places is obvious, as also is bodily cleanliness and general hygiene. Facilities which contribute toward the welfare and health of the worker should be provided. The workman should be told something of the nature of the danger and instructed in methods of protecting himself and fellow workers.

In minimizing the risk of lead intoxication, medical supervision is an important measure that requires no emphasis. All workmen exposed to a lead hazard should be examined at monthly intervals for signs of absorption and the physician should have power to suspend workmen from employment in the dangerous atmosphere or replace them in a safe location.

While it is not my purpose to discuss curative treatment, a preventive program would be incomplete indeed if mention were not made of the desirability of mobilizing all lead in those cases which show signs of beginning lead intoxication by means of a diet high in calcium content. Whether later treatment should be left to nature to excrete the abnormal amounts of lead in the leaded individual's tissues or whether active deleading therapy is preferable, still appears to be a matter of individual opinion.

INDUSTRIAL HYGIENE SURVEYS
May 1948 - April 1950

<u>Company</u>	<u>Location</u>
Republic Steel Corporation Truscon Steel Company	Youngstown, Ohio
Rochester Gas and Electric Company	Rochester, N.Y.
Mutual Chemical Company	Baltimore, Maryland
Republic Steel Corporation Union Drawn Steel Company	Hartford, Conn.
Republic Steel Corporation Union Drawn Steel Company	East Hartford, Conn.
Diamond Alkali Company	Painesville, Ohio
Republic Steel Corporation Truscon Steel Company	Cleveland, Ohio
Republic Steel Corporation	Cleveland
Republic Steel Corporation River Terminal Railway	Cleveland, Ohio
Republic Steel Corporation Upson Nut and Bolt Division	Cleveland, Ohio
Republic Steel Corporation Steel and Tubes Division	Cleveland, Ohio
Republic Steel Corporation Dillworth-Porter Steel Division	Pittsburgh, Pa.
Republic Steel Corporation Union Drawn Steel	Massillon, Ohio
General Electric Company	Pittsfield, Mass.
General Electric Company	Lynn, Mass.
Armstrong Cork Company	Pittsburgh, Pa.
Republic Steel Corporation Dillworth-Porter Steel Division	Pittsburgh, Pa.
Armstrong Cork Company	Beaver Falls, Pa.
Republic Steel Corporation Union Drawn Steel Division	Beaver Falls, Pa.

<u>Company</u>	<u>Location</u>
McGrory Stores	New York City
General Electric Company	Elmira, New York
Johns Manville Products Corporation	Waukegan, Illinois ✓
Republic Steel Company Central Alloy District Canton Plant	Canton, Ohio
Flintkote Company	New Orleans, La.
Armstrong Cork Company	Jackson, Miss.
Johns Manville Company	Manville, N.J. ✓
Republic Steel Corporation Plants and Mines	Birmingham, Ala.
Republic Steel Corporation Vance Iron and Steel Company	Chattanooga, Tenn.
Republic Steel Corporation Steel and Tubes Plant	Elyria, Ohio
Republic Steel Corporation Niles Steel Products	Niles, Ohio
Republic Steel Corporation South Chicago Plant	Chicago, Illinois
Allied Industrial Products	Van Wert, Ohio
Corning Glass Works	Charleroi, Pa.
Republic Steel Corporation Union Drawn Steel Plant	Gary, Indiana
Universal Foundry	Oshkosh, Wisc.
Four Wheel Drive Company	Appleton, Wisconsin
Grede Foundries	Milwaukee, Wisconsin
Grede Foundries	Waukesha, Wisconsin
Harnishfeger Foundry	Milwaukee, Wisc.
Pundle Manufacturing Company	Milwaukee, Wisc.
Eagle Manufacturing Company	Appleton, Wisc.

<u>Company</u>	<u>Location</u>
Ladish Company	Milwaukee, Wisc.
Bucyrus Erie Company	Milwaukee, Wisc.
J. I. Case Company	Racine, Wisc.
Republic Steel Corporation Moline Plant	Moline, Ill.
Bucyrus Erie Company	Evansville, Indiana
Bucyrus Erie Company	Erie, Pa.
Republic Steel Corporation	Detroit, Mich.
Republic Steel Corporation Buffalo Plant	Buffalo, N. Y.
Eastern Tool and Manufacturing Company	Belleville, N.J.
Republic Steel Corporation Canton Plant	Canton, Ohio
Republic Steel Corporation Stark Plant	Canton, Ohio
Republic Steel Corporation South Plant	Canton, Ohio
Republic Steel Corporation Massillon Plant	Massillon, Ohio
Republic Steel Corporation Massillon #1 and #2	Massillon, Ohio
Republic Steel Corporation Berger Mfg. Co. #1 and 2	Canton, Ohio
Republic Steel Corporation Culvert Mfg. Co. #1 and 2	Canton, Ohio
Republic Steel Corporation Truscon Steel Company	Cleveland, Ohio
Grede Foundries, Inc. Smith Steel Division	Milwaukee, Wisc.
Grede Foundries, Inc. Liberty Foundry Division	Wauwatosa, Wisc.
Jones and Laughlin Steel Corp. Benson Mine	Star Lake, N.Y.

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<u>Company</u>	<u>Location</u>
Otis Elevator Corp.	Yonkers, New York
Johns Manville, Corp.	Nashua, N.H.
Johns Manville Corp.	North Billerica, Mass.
Evening Bulletin	Philadelphia, Pa.
Congoleum Narin	Kearney, N.J.
Columbian Rope Company	Auburn, N.Y.
Otis Elevator Company	Harrison, N.J.
Johns Manville Corp. Manville Plant	Manville, N.J.
Johns Manville Corp. Research Division	Manville, N.J. ✓
Eagle Pencil Company	New York, N.Y.
Hickok Manufacturing Company	Rochester, N.Y.
Bausch and Lomb Optical Company	Rochester, N.Y.
Republic Steel Corporation	Brooklyn, N.Y.
Republic Steel Corporation Sayreton #1 Coal Mine	Birmingham, Ala.
Sayreton #2 Coal Mine	Birmingham, Ala.
Virginia Coal Mine	Birmingham, Ala.
Sayre Coal Mine	Birmingham, Ala.
Spaulding Ore Mines	Birmingham, Ala.
Edwards Ore Mines	Birmingham, Ala.
Spaulding Stripping Operations	Birmingham, Ala.
Alabama City Plant	Alabama City, Ala.
Thomas Plant	Birmingham, Ala.
Pikesville Coal Mine	Pikesville, Ky.
Armstrong Cork Company Floor Covering Closure Plants	Lancaster, Pa.

<u>Company</u>	<u>Location</u>
Republic Steel Corporation Youngstown Plant - Open Hearth Dept.	Youngstown, Ohio
Otis Elevator Company	Harrison, N.J.
Universal Foundry	Oshkosh, Wisc.
Universal Rundle Corp.	Milwaukee, Wisc.
Four Wheel Drive	Clintonville, Wisc.

In addition to the firms listed above, the Waukegan, Illinois Plant of the Johns Manville Products Corp. sends in dust samples periodically and they are analyzed by our Laboratory.

We also have been conducting a survey of the atmospheric conditions in the City of Cleveland for the Republic Steel Corporation, and in the City of Rochester for the Rochester Gas and Electric Corporation.

SURVEYS PENDING
May 1, 1950

Otis Elevator Company
Hamilton Works, Ontario, Canada

Corning Glass Works
Corning, N.Y.

Armstrong Cork Company
Closure Plant - Metal Cap

Johns Manville Corp.

National Lead Company
Titanium Alloy Mfg. Div.
Niagara Falls, N.Y.

Mathieson Chemical Corp.

Metropolitan Life Insurance Co.
Niagara Falls District Office
Niagara Falls, Canada

American Can Company

Tydol Oil Company

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OFFICE OF
INDUSTRIAL HYGIENE
AND SANITATION

TREASURY DEPARTMENT

BUREAU OF
THE PUBLIC HEALTH SERVICE

WASHINGTON, D. C.

January 27, 1933.

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

Dear Dr. Lanza:

I have had no word from Don Cummings but I have heard from Mr. Harbaugh and the operators feel very keenly that the report should not be published at this time. In justice to them, I would say that the bad picture is somewhat over-emphasized by Don due to the fact that he has not lived or been in close contact with mining camps. It would, therefore, seem much worse to him than to the mining men. I should think, *asthaya* that he would find it inadvisable to publish the report if he expects to continue as a consultant to industry. His present employers are also in close contact with the Picher group and I believe they have mining interests in that field.

I think the report contains much information of interest and I sympathize with Don in his disappointment.

Cordially yours,

(R.R. Sayers)
Surgeon in Charge.

RRS/LLG

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M E M O R A N D U M

THE PRESIDENT:

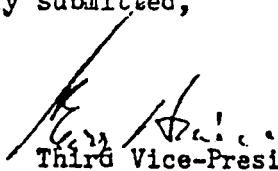
The attached memoranda relate to a project for studying and eliminating the prevalence of Tuberculosis among miners in zinc mines in the Joplin zinc field. You approved, in principle, the project on my memorandum to you of October 8.

We have further discussed the matter with the United States Bureau of Mines and have received from them, after this discussion, a draft of co-operative agreement between the Department of Commerce and the Metropolitan, which is the customary basis upon which the Department enters into projects of this character.

Dr. Wright's and Dr. Lanza's memorandum of January 18 attached, comprehensively covers this subject. The agreement and that memorandum requests an appropriation from the Metropolitan for this purpose of \$8,000 a year for three years. The direct and collateral results to be obtained from this undertaking, in my judgment, not only warrant the expenditure, but make it desirable. It also should prove financially profitable.

I, therefore, respectfully request your authorization to proceed in the matter and to execute the agreement, after submission to our General Counsel.

Respectfully submitted,


Third Vice-President.

January 20, 1927.

MIN RAILWAY

HS.

TO: Mr. Bremer, Chief Vice-President

FROM: Mr. J. A. J. Jones

DATE: January 18, 1927.

SUBJECT: Cooperation with U. S. Bureau of Mines.

This memorandum is supplementary to that of September 22, 1926 regarding health conditions in the Joplin lead and zinc mining districts. The President indicated to you his willingness to consider a definite proposal for the maintenance, in cooperation with the Bureau of Mines, of a clinic in this region.

On December 10, 1926, Dr. R. K. Sayers, Chief Surgeon of the U.S. Bureau of Mines, visited this office and the question of cooperative activities in the Joplin district was thoroughly discussed between Dr. Sayers, Mr. Bremer, Dr. Lanza and Dr. Wright. It was agreed that on his return to Washington, Dr. Sayers would have prepared a contract outlining terms on which cooperative work between the Metropolitan Life Insurance Company and the U.S. Bureau of Mines might be undertaken.

The occupational disease present with unusual intensity in the Joplin district is "Silicosis" or "Miners' Phthisis". It has been intensively studied in the past few years. The first investigation of silicosis in the United States was carried out by Dr. Lanza, then Chief Surgeon of the Bureau of Mines, in the Joplin district in 1915. Later Dr. Frederick Hoffman's book on "Mortality from Tuberculosis in the Dusty Trades", served to draw further attention to the general question of the dust hazard among industrial workers and its relationship to tuberculosis. Investigations, mostly of a preliminary nature, were carried on by the U.S. Bureau of Mines, the U.S. Public Health Service, Professor Winslow and a small group of assistants (U.S. Public Health Service) at Yale; and Dr. Pancoast, Dr. Laidlaw and the Phipps Institute group in Philadelphia.

This investigative work has made increasingly apparent the importance of silica-laden dust as an industrial health hazard. Such dust not only produces true silicosis, which is itself disabling - but also, for reasons which are not yet entirely clear, greatly predisposes its victims to tuberculosis. The fact that deaths of miners are reported as due to tuberculosis has served to mask the importance of the underlying factors of silicosis as a predisposing cause of tuberculosis. Silicosis is found among hard rock (metal) miners, occasionally among coal miners, and also among pottery makers, cutlery makers, quarrymen, subway construction workers in New York City, and among the multitudinous occupations which involve grinding through the use of a sandstone or other grinding wheels. In the light of our experience in the Joplin district with both Life and Health claims, the importance of silicosis from an insurance standpoint is apparent. We insure all but one of the larger mining groups operating in this field, and insure other properties of this exception elsewhere. We have numerous Industrial and Ordinary policyholders who must incidentally bear the effects of this industrial situation.

Group Life. In September 1920 the first Group Life coverage was placed on miners in this territory. All told, 24 life contracts have been written, for the most part in 1925. Two Groups have cancelled. At the end of 1926 there had been \$1,000,000 of Group Life written with \$1,000,000 of reserves.

deficit was incurred on all but six small contracts, a total deficit of \$117,650, to which may be added \$508 paid in dividends to ten groups. The Actuarial Commission has estimated that the loss would have amounted to \$1,000 had the Groups been written upon the current rates (non-participating).

11 of the Groups are now paying a premium varying from standard plus \$1.00 to standard plus \$10. Should the previous experience continue, assuming no change in rates on Groups now in force, the estimated loss for 1927 is \$1,000.

The men insured are young: 37% of the 11 years exposed were at age 20 or less; 37% at age 40 or less, 27% at age 50 or less. The claim rate, ages 21 to 25, is 330% of the expected; at ages 26 to 35, 330% of the expected; at ages 36 to 40, 330% of the expected; and for all ages, 210% of the expected. It is almost axiomatic that these young miners die within ten years of their going underground.

Of the one hundred death or permanent total disability claims incurred, 52 (23 death, 29 P.T.D.) have been for tuberculosis (23) or other respiratory diseases. Fourteen have been for accidents, 9 of occupational origin, or a total of 61% all claims incurred attributable to working conditions.

Group Health. The experience under Group Health policies is scarcely less disastrous. Since August, 1924 there have been placed 21 Group Health contracts (2 have been cancelled) with a mean number of life years exposed (December 31, 1926 or date of cancellation) of 2,252; lives in force 1,455. The actual deficit at the end of 1926 was \$11,011 on an earned premium of \$35,591. Six Group Health contracts only showed a surplus. Dividends amounting to \$907 were paid to six Groups, including 4 of those showing profit.

The Actuaries estimate that upon the basis of the 1926 minimum rate the loss would have amounted to \$13,157. Almost all of the Groups are now upon a rate of from \$1.00 to \$1.75 per \$10 of weekly benefit, but even upon this basis the estimated loss for 1927, with present experience, amounts to \$2,164.

We have in a few years incurred a total loss of almost \$2,000. The rates have been, generally, advanced. There is in sight an annual deficit of over \$1,000 on less than 2,500 lives, with the only real hope of betterment lying in improvement of the health situation and in the institution and operation of proper mechanism for the control of death and permanent total disability claims.

The mining companies in the "Joplin Field" are eager to remedy the situation. They have organized the 14-State Lead and Zinc Producers' Association which has accomplished excellent results in the way of safety and underground sanitation. This Association employs a competent and well trained safety engineer who is in charge of the safe activities for the district and who has about 20 inspectors under him who visit the mines constantly and whose efforts are directed toward safety and dust control. With this phase of the industrial health situation coming under control, through the initiative and enterprise of the companies themselves, the cooperative project herein outlined becomes worth while.

One of the duties of the Bureau of Mines (Department of Commerce) is to investigate health conditions in the mining industry. For the past two years the Bureau of Mines has maintained a medical office in Picher under the direction of Dr. Sayers, with a physician, x-ray equipment and a clerk; the intent of the Bureau's work is investigative rather than remedial. Its activities consist of making physical examina-

tions of miners, including X-rays of the chest and in giving the miners advice based upon the results of the examination. Examination is voluntary on the part of the miners and due to the tact and energy of Dr. Morrinether, physician in charge, one or two of our Groups have brought practically 100% of their employees to be examined. Lack of means and of personnel have prevented the accumulated experience of this office, in the form of health records and X-ray plates, from being compiled.

The Federal Bureau of Mines would welcome the cooperation of the Metropolitan in an effort to control the critical situation in the Joplin field. It is proposed that the Metropolitan Life Insurance Company and the U.S. Bureau of Mines enter into a contract (technically renewable annually) to carry on a health project among miners centering around Picher, Oklahoma, for a term of three years. The purpose of this project is to improve health conditions in the Joplin district, by giving direct health service to the miners; and to study the various aspects of silicosis and tuberculosis so that we may crystallize our experience in definite form and make a contribution of undoubted value to the knowledge of tuberculosis and allied respiratory diseases, among industrial workers.

There would be a clinic which would make physical examinations of miners, including X-ray examinations. It is estimated that eventually between 12,000 and 15,000 men would be examined twice a year. Advice and help to the miners would be coordinated with the Metropolitan nursing service. Three definite results would be forthcoming:

1. Men with tuberculosis would be excluded from underground work and one of the prime sources of infection thus abated.
2. Men with dust affected lungs would be excluded from underground work and the chief contributing cause to tuberculosis thus eliminated.
3. New men would not be hired unless they have sound lungs, and the periodic examination would prevent them from becoming seriously affected. All of this would be supported by the continued improvement of underground working conditions.

The accumulated clinical experience and the results of investigative work would be available to the Metropolitan, and form the basis of reports to be issued by the Bureau of Mines in which the role of the Metropolitan would receive its due credit.

Physical examinations would be voluntary, but after about half the mining population is examined, and when it may seem desirable, effort will be made to enact laws providing for these examinations.

At present the office of the Bureau of Mines in Picher is in a small building which is also used by the two Metropolitan nurses. The Bureau will put this building in good shape and increase it to sufficient size so that it will be ample to carry on the work without further alteration, keeping in mind possible future expansion. Dr. Sayers proposes to add another physician to his staff and to hire the most competent X-ray technician that he can find. His minimum expenditure will approximate \$8,000 a year, but it is his purpose to supplement this with additional funds. The single item of X-ray films will involve ultimately an expenditure of \$10,000 to \$15,000. The Metropolitan would contribute an equal sum budgeted as follows:

Physician	\$8,000
Technical Assistant	1,500
Stenographer	1,200
Supplies	2,000
Total	\$12,700

It is probable that the mining companies in the Tri-State Zinc and Lead Association would also give financial support. The Association does not wish to participate in the management of the project; they prefer to be in the position of being able to state to their employees that the Metropolitan Life Insurance Company and the officials of the U.S. Government jointly advise them and their employers to do thus and so.

The State of Kansas has already requested that the Bureau of Mines prepare mining laws and regulations for that state. Dr. Sayers stated that the same sort of request will be forthcoming from the State of Oklahoma. This gives fairly definite assurance that at the termination of our activities they could be continued under official auspices.

Dr. Sayers and Dr. Lanza could visit Joplin early in February to determine what assistance might be expected from the mining companies. If such assistance is not available, the cooperative project could and should, we believe, nevertheless, go ahead. With the help of the Actuarial Division and the Statistical Divisions, records would be devised so as to make possible the collection of information considered desirable to meet insurance needs.

Our past losses under Group Life and Health contracts have been great, those under Ordinary and Industrial policies not determined but presumably great also. The prospective loss is large unless there be instituted sound measures to remedy responsible conditions. A most favorable plan of cooperation with the U.S. Bureau of Mines is presented, the cost to be \$8,000 annually for three years. This would be the most complete and far-reaching project in industrial hygiene ever undertaken in this country.

.....*Wade Wright*.....
Wade Wright, M.D.
Assistant Medical Director

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

- : MEMORANDUM : -

TO: Dr. Wright
FROM: Dr. Lanza
DATE: September 29, 1926

SUBJECT: Health and housing conditions in Joplin, Mo.

On September 1st I visited Joplin, calling first on Mr. McKee, Metropolitan Manager. In company with Mr. McKee I visited the Golden Rod Mine at Picher, interviewing Mr. Herbert Wallower, Mr. Mills and Dr. Ralston, who is their full time physician. I called also on Mr. Cadden of the Vinegar Hill Zinc Company and Mr. Sinclair of the Federal Mining and Smelting Company; Mr. Charles T. Orr of the Athletic Mining and Smelting Company; Mr. Richard Jenkins of the local branch of the American Zinc Institute and Mr. R. B. Ageton of the Tri-State Zinc and Lead Ore Producers Association; as well as Dr. Munnery of the U. S. Public Health Service, who is running the local clinic for chest diseases among miners for the U. S. Bureau of Mines.

There is attached hereto a detailed report on Joplin mines by Mr. Bassford. It will be noted that for all the groups the group life premiums amounted to \$85,757 and the claims to \$97,806 - a loss ratio of 116.8. The experience under group health was also unfavorable, the premiums amounting to \$19,287, and the claims to \$21,680, a loss ratio of 112.4.

Before detailing my observations on health conditions in the Joplin district I would like to call attention to the fact that during the year 1915, while still in the U. S. Public Health service, I made an extended investigation in the pulmonary diseases among the Joplin miners which investigation lasted for a year. The results of this investigation were published in Bulletin #152 of the U. S. Bureau of Mines, and Technical Paper #105 of the U. S. Bureau of Mines, and in Public Health Bulletin #85 of the U. S. Public Health Service. As I lived in Joplin for a year and maintained a clinic for pulmonary diseases the greater part of that time (in Webb City) and spent a considerable amount of time underground, I had occasion to become thoroughly familiar both with the working and living conditions of the Joplin miners and to familiarize myself with their health and social problems.

Since the time that I investigated the Joplin mines, the scene of mining activities has shifted from Jasper County, Missouri to Ottawa County, Oklahoma and the lower portion of Cherokee County, Kansas. Joplin is still the center although the actual mining is done mostly at Baxter Springs, Kansas; and Miami, Picher, Commerce and Cardin, Oklahoma. Some of the miners still maintain their homes in Webb City and Cartersville in Jasper County, Missouri, being enabled to travel to and from their work daily on account of good roads.

Joplin, Mo. (Cont'd.)

The cause of the inordinate amount of pulmonary disease in the Joplin district is the fact that mining is done in very hard rock which contains over 90% free silica. The dust of this rock resulting from mining operations affects the lungs of the miners and eventually leads to tuberculosis.

In 1921 Mr. Howard Young, General Superintendent of Mines for the American Zinc, Lead and Smelting Company, called my attention to the fact that the new mines being opened in Cherokee County and Ottawa County were very wet and that there was at that time no dust problem and consequently no pulmonary disease problem connected with them. But Mr. Young pointed out that these mines would gradually become dry and that when they became dry there would be repeated the history of the Joplin district, namely a scandalous incidence of pulmonary disease among the miners. These observations have already begun to be verified.

I am familiar with the hard rock mining districts of the United States and Australia and, through reading and personal acquaintance, with conditions in South Africa and England. Nowhere else in this country nor in the other countries mentioned are there any mining districts with the health conditions that prevail in Joplin.

Returning to Joplin after an absence of 10 years I find that underground conditions have improved. The smaller mining companies are gradually being amalgamated by the larger concerns. New superintendents and managers have been brought in from other mining districts. Safety is being well looked after and water drills and other measures are being used to combat dust in the underground workings. Underground conditions therefore are considerably improved over what they used to be, and are tending to become better all the time.

A corresponding improvement in living and social conditions, however, has not occurred. I had thought that it would be impossible to get anything worse than the living conditions of the Joplin miners in the old Joplin district. My visit to the recent operations in Ottawa County compels me to admit that they are even worse than the old conditions. It is the more remarkable because the Joplin miners, to a man, are Americans, the descendants of the hill people who have worked their way westward from the Tennessee and Kentucky mountains to the Ozarks. While often ignorant, they are usually intelligent, highly individualistic and independent. All in all, they are a fine class of people. They live for the most part in one or two room shacks made out of boards or powder tins beaten flat. With the exception of a few homes in the center of Picher, there are no sewage facilities and they are supplied with water by a water wagon which makes daily trips, filling a water barrel that is to be seen outside the front entrance of each home.

The miners are well paid; practically all the work is contract work and the average wage would be around \$8 a day. Ignorance and a failure

Joplin, Mo. (Cont'd.)

to appreciate more decent standards of living are to a certain extent responsible for their living conditions, although many who live thus own motor cars. One excuse that is given for the nature of the housing conditions is that much of the lands, especially in Ottawa County, are Indian lands which are leased for mining purposes, but which cannot be sold. The temporary nature of the industry is also quoted as an excuse. These difficulties are more apparent than real and have not prevented the erection of decent homes for miners in other mining communities.

There is still a great deal of silicosis (dust disease of the lungs) and tuberculosis among the miners. Many cases are among men who have worked in the old Joplin district and contracted their disease there. While present underground conditions are better than they were there is nevertheless a considerable amount of the disease still being caused by dust in the working places.

Venereal disease is rampant to an extent which I am reliably informed does not exist in any other industrial community in this country. Both venereal disease and tuberculosis are bound up with the housing conditions. There are no reliable statistics on either tuberculosis or venereal disease in Ottawa County, but the local physicians assure me that venereal disease is not uncommon among the children and I was also informed that it prevails to such an extent among the adults as to influence, to a marked extent, the costs of compensation by prolonging the period of disability in accident cases. It is undoubtedly responsible for many sickness claims under our group policies.

There are five companies which represent more than one-half of the total production, all of which are group policyholders. These are the Commerce, the Golden Rod, the Federal, the Vinegar Hill, and the New Chicago. The one other large company, the Eagle Picher, is not insured with us (that is, the Eagle Picher mines are not covered by the Metropolitan). All these companies are very desirous of bringing about better conditions but all of them hesitate to take the initiative for fear that their efforts may be looked upon with suspicion by the miners and their motives questioned. This is a non-union country and the mine operators would like to see it remain so. They have been debating the possibility of inaugurating a joint, central employment office and of introducing in connection with this physical examinations and re-examinations of those employed. All the persons I interviewed expressed the hope that the Metropolitan might be able to assist them and, by taking the initiative in whatever line of activity seemed desirable, ensure the co-operation of the miners.

I expressed the opinion to the people whose names I mentioned above that if it were possible to examine men before hiring them so that men whose lungs were already damaged would be kept out of the ground, and if it were possible to re-examine them from time to time and at the same time every effort be made to make the underground working conditions as healthful as

possible, that gradually the diseased miners would be eliminated and there would be brought about a condition of affairs in which pulmonary diseases among the miners would be reduced to what may be termed a decent minimum. To this all gave unqualified assent but were more or less afraid to tackle the problem of physical examinations by themselves.

On my way back to New York I stopped off at Washington and spent the morning at the U. S. Bureau of Mines in conference with Dr. Sayers, the Chief Surgeon, and Mr. Harrington, one of the Chief Mining Engineers. The Bureau of Mines has had for sometime a medical officer stationed at Picher, who examines miners and advises them of their physical condition. This undertaking is primarily investigative and is satisfactory as far as it goes and Dr. Nunnery, (the officer in question) is doing good work and is well liked by the miners. The scope of his efforts, however, falls far short of what is necessary if continued and permanent improvement is to be secured.

Dr. Sayers and myself estimated that if Dr. Nunnery had another physician to work with him and a competent male clerk it would be possible to put the physical examination work on a sound basis and make it possible for the companies to refer men for examination to that office.

I strongly recommend that the Metropolitan give earnest consideration to the possibility of entering into a formal agreement with the U. S. Bureau of Mines, for a period of not less than 3 years, wherein the Bureau of Mines would furnish the services of one physician (Dr. Nunnery, already on the job) and carry the expenses of X-ray films and the like, which amounts to not less than \$2,000 a year; while the Metropolitan furnished the services of another physician at the cost of approximately \$3,600 a year, a male clerk at \$1,800 a year, and incidental expenses making a total of \$6,000 a year. The Bureau of Mines is willing to enter into a formal contract, and has, in its investigative work, carried out similar contracts with other corporations. The work would be under the joint supervision of the Chief Surgeon of the Bureau of Mines and the Metropolitan, and in this connection I would like to point out that I am a Consulting Surgeon of the Bureau of Mines. The combination of the Metropolitan with the Federal Government would put this work on a plane which would raise it above any suspicion on the part of either mining companies or miners and would be amply justified as far as the Metropolitan is concerned by the large interest which the Metropolitan has in that district.

The housing situation may possibly be reached through the Government which, as the leasing agent for the mining lands, may be in a position to control or influence housing. This, too, is a matter which requires educational work both among the employers and the miners.

I brought the matter of venereal diseases to the attention of the Assistant Surgeon General of the U. S. Public Health Service, who is in charge of the Division of Venereal Diseases, and he has promised to send one

Joplin, Mo.

of his officers to Ottawa County to see what can be done, both directly by the Public Health Service, and in co-operation with the State Department of Health of Oklahoma. I think it is entirely reasonable to assume that with the co-operation of the mine operators, the local government, the Federal Government and the Metropolitan Life Insurance Company working together on a concentrated program real improvement may be made in what is perhaps the most disgraceful industrial situation in this country. All of the people I interviewed in the Joplin district stated that what was primarily needed was someone to take the initiative and act as a uniting influence on the various agencies that were able to bring relief. This initiative, I think, could and should come from the Metropolitan.

W. H. H. H.
Assistant Medical Director.

the insurance investigation of eleven years ago this Company came, not only unscathed but with the commendation that would be the pride of any man in any vocation of life? Thirdly, because they built this great business to help men of my kind to come up from the ranks—at twenty years of age I was working for \$6 a week. They didn't grow from the top. They went from the bottom and grew up, and God alone knows the number of children they have kept out of orphan asylums, the number of women and men they have kept away from

the doors of charity organizations. To sum up I will just use a few words of poetry to explain to you what was the foundation, in my judgment, of the Metropolitan Life Insurance Company:

"They were manned by men with integrity,
With temperance no pleasure could seduce,
A meekness no trouble could arouse,
A patience neither insult nor loss could overwhelm,
An integrity no money could buy or interests change."

interested in a community health problem which definitely affected the mortality and morbidity of its Groups.

A memorandum which embodied the suggestion for a cooperative experiment reached the PRESIDENT. "Would the Metropolitan be willing to contribute an annual sum for a clinic in the Picher mining region to study silicosis, its effects and to formulate remedial measures?"

"Yes," was the reply, and the Metropolitan agreed to contribute an annual appropriation of \$8,000, provided the United States Bureau of Mines contributed \$8,000 and the local operators, \$16,000.

Company Works to Control "Miner's Con" in Joplin Zinc Mines

GO to any of the "hard-rock" mines of the world, in Canada, Australia or the United States, the South African Rand or the "big hill" in Butte, Mont., and watch thousands of miners going to the mines where gallows frames and mine houses, skeleton-like structures, stand over well-like shafts; watch them enter the cages which drop hundreds, sometimes thousands of feet underground, and follow them to the slopes and raises where they extract gold, lead, zinc or copper from the veins of ore that thread the earth.

Some of the miners walk slowly, hesitatingly, and once in a while they stop for a rest. These are the men whose lungs have been "dusted." They have "miner's con" or "silicosis" as the doctors call it, because of the silica in the dust. Some of these men, too, have tuberculosis as well.

The miners work in a dusty atmosphere, for it is hard to ventilate underground, and hard rock dust arises from blasting, shoveling and boulder popping. Much of this dust is controlled by water, which is used in drilling and in wetting down muck piles.

Inhaling the tiny particles of silica dust injures the lungs, which, irritated and inflamed, become fibroid. A scar-like tissue develops which has none of the normal elasticity of the lung. Breathing is impaired, and as the disease attacks both lungs, there is a gradual lowering of vital power. Shortness of breath, coughing, loss of weight and weakness cut into a man's capacity of work when "miner's con" or silicosis attacks him.

"Miner's con" is not infectious, nor is it contagious. It carries a great menace, however, because the injured lung, together with lowered vitality in the whole body, afford an ideal condition for the development of tuberculosis. It is well known that men with dusted lungs are unusually susceptible to tuberculosis. When this happens, not only is the miner threatened with early death, or at least a more hopeless future, but he is a source of

danger to others, his fellow workers, his family and the community. This infection is a factor of prime importance to the health and hygiene of the community.

The hazards in hard rock mines are so great that when a worker wants insurance he pays extra for it: page 391 of the Metropolitan rate book tells the story—"Joplin, Mo. lead and zinc mines, sheet ground miners; special class B; no disability, no double indemnity."

Several years ago the operators in this particular section, which centers around Picher, Okla., and extends up to Joplin, Mo., made a study of Group insurance. One clause appealed to them particularly, considering the conditions they faced in the mining industry in the Joplin sector. Group insurance could be bought without a medical examination, regardless of age. Many operators bought Group insurance, conscious of the fact that Group policies gave the miners a necessity which cost so much under ordinary circumstances they couldn't buy as much protection as they needed.

Another thing that appealed to the Joplin operators was the effective work the Metropolitan had done along lines of health and sanitation. Many of the operators bought Metropolitan Group insurance, and about a year ago the Metropolitan initiated a special health service, a cooperative experiment similar in aim to other investigations made by the Company in Framingham and in Thetford Mines.

ABOUT a year ago the Policyholders Service Bureau learned the United States Bureau of Mines would be interested in expanding the Bureau of Mines clinic in Picher and in making a more intensive study of health conditions, so the United States Bureau of Mines, the Metropolitan, and the operators in the tri-State region, combined forces and enlarged the existing clinic. As many of the operating mines in the lead and zinc field are covered by Group policies, the Company was vitally

THE clinic was financed for a period of three years. It offers free medical examination to all the miners in the district. Its general purpose is to examine miners and diagnose their cases, and to carry on educational work tending to eliminate silicosis and tuberculosis.

The building which houses the clinic was built by the mine owners, and Dr. F. V. MERIWETHER, of the United States Public Health Service, assisted by a staff of Government physicians, is conducting it. On some days they examine eighty men, and they expect to examine 14,000 before their work is through. Two clerks interrogate the miners and fill in the information on an examination card. The miners go to the X-ray room where their chests are X-rayed by one of the best machines purchasable, operated by a skilled technician. Late in the afternoon Dr. MERIWETHER holds a conference with the other physicians, the X-ray films taken the day before are put on view and are read in conjunction with the man's history of clinical findings, and a final diagnosis determined. Each physician has a special field of interest in the investigations and is gathering data for his particular branch of research.

Assistant Medical Director LANZA, who was largely responsible for bringing the Metropolitan, the operators and the United States Bureau of Mines together in establishing the Picher Clinic, says that the cooperation of the operators and miners augurs well for the investigation. "The miners and their families are practically all of American stock. They are intelligent, independent and industrious. They are efficient and individually take out more rock than any other miners in the country. Many of them prosper, and it is a common saying in southwestern Missouri that every miner is a prospective operator. The wages are good.

"It is to the interest of the miners, of the operators and the Metropolitan, incidentally, since the Company has Group insurance on most of the miners in the region, to have a high degree of sanitation and good health in the region.

"Lack of funds have prevented making investigations of silicosis comparable to

H.B.
 f
 W.W.
 Fine work.
 QSK
 3/31/27

* M E M O R A N D U M *

TO: Dr. Wright

FROM: Dr. Lane

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. V. 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. K

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
Beck Mining Company
Vinegar Hill Zinc Company
Black Eagle Mining Company
Anna Beaver Mining Company
L. & G. Mining Company
Golden Rod Mining and Smelting Corp.
Eagle-Picher Lead Company
Commerce Mining Company
Rialto Mining Company
Tulsa Lead and Zinc Company
Ramage 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 unanimous and gratifying. After a general discussion, the chairman, Mr. Davis of the Vinegar Hill Zinc Company, nominated a committee to confer with Dr. Sayers and myself to perfect plans. This committee consisted of Mr. G. M. Bendelari, representing the

TO: Dr. Wright

SUBJECT: Tri-State Lead and Zinc District.

Consolidated and the Eagle-Fischer 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-Fischer 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

TO; Dr. Wright

SUBJECT: Tri-State Lead and Zinc District.

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 \$3 per man per year. The committee itself thought it best to raise the per capita assessment from \$2 to \$3 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.

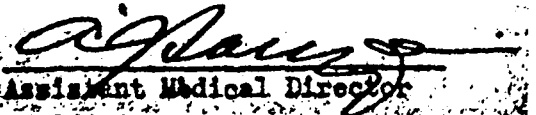
Comments

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 sanatorium facilities.

Dr. Merriwether 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 Ficher from time to time so as to keep in active touch with the work.

The two Metropolitan nurses in Ficher 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.


Assistant Medical Director

May 17, 1933

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

Dear Dr. Lanza:

Enclosed herewith please find a copy of the deposition of Dr. Clayton S. Smith and of my own evidence in the first of the series of legal cases resulting from the alleged silicosis developments at the New River power tunnel project. This case is that of Raymond W. Johnson (an employe) vs. Rinehart & Dennis Co., et al (the contractors).

I have indicated certain corrections in red pencil where mistakes are obvious, either on my part or that of the stenographer. This copy of my testimony was transcribed by a stenographer for the Rinehart & Dennis Co., and I think he made a pretty good job of it. You will notice my attempt at simplified language, also many grammatical slips, etc. - the case being heard before a locally selected lay jury. Hence, please be gently critical of the phraseology and so on, but lay on heavily where you think I am in error and I shall appreciate it. You will find these two manuscripts most valuable for the direct evidence of the West Virginia situation rather than for the opinions contained regarding silicosis.

In this Raymond Johnson case, some 85 lay witnesses had already been heard before I arrived, while the plaintiff, Mr. Johnson, and his physician, Dr. L. R. Harless, preceded me on the witness stand. I waited there until the two X-ray specialists from Charleston, Dr. Hughey and Dr. Lambert, had given their testimonies, which corroborated mine, and then departed for Columbus.

I am informed that the next week Dr. Pancoast and Dr. James A. Britton appeared for the defense. Dr. Pancoast limited his testimony to the X-ray films of Mr. Johnson alone and stated that in his opinion they were tuberculosis and not silicosis, while Dr. Britton considered all the evidences, X-ray and otherwise, and declared the case was purely one of tuberculosis and not silicosis; thus, we obviously disagreed.

I think the trial must have covered between four and five weeks. Finally it resulted in a disagreement on the part of the jury. Dr. Harless wrote me under date of May 10th that seven of the jurors were in favor of finding for the plaintiff, Johnson, and five were for the defendant. "There is very strong suspicion that those five were corrupted by an agent for the defense. One of the five has been summoned before the Court and was fined for contempt on the evidence that he discussed the case during the progress of the trial. I think a second one will perhaps receive a summons to appear

Dr. A. J. Lantz -- Page 2.

before the Court to answer contempt charges. Of course it is very difficult to obtain evidence sufficient to establish charges of bribery, but there is no doubt in my mind as to what happened. The case was cleanly won for the plaintiff by overwhelming evidence. The same case, or another one will come to trial soon, perhaps in this month."

Judge Eary, who presided (Circuit Court, Fayetteville, W. Va.), I considered very fair indeed.

I am sending similar copies to Sayers and Russell. You may keep this material for your files.

With all best regards,

Sincerely yours,

Emory R. Hayhurst.



Division of Industrial Safety

The Commonwealth of Massachusetts
Department of
Labor and Industries

State House, Boston

May 18, 1934.

Anthony J. Lanza, M.D.,
Metropolitan Life Insurance Company,
1 Madison Avenue,
New York City, New York.

agv

Dear Tony:

Thank you, first of all, for the copy of your "Comments on Asbestos", which I have read with very great interest. There seems still to be one or two things to be learned on this subject. Secondly, I am much obliged for your prompt reply to my letter about Mrs. Lee and her granitic difficulties. I am communicating this to her and you will no doubt hear from her before long.

I have just secured and had a photostat copy made of the discussion on Jones' sericite theory which appeared in the February, 1934 Bulletin of the Institution of Mining and Metallurgy, London. I suppose this is already old stuff to you, but in case it is not, I would be glad to lend it to you. David Beyer has it at the moment.

Edwin and I spent a couple of interesting hours with Dr. Gray in Hartford yesterday and came away more than ever impressed with the excellent job he is doing on a minimum of wherewithal.

Sincerely,

Manfred Bowditch
Occupational Hygienist

MB:CM

BENDIX PRODUCTS CORPORATION

SUBSIDIARY OF BENDIX AVIATION CORPORATION

GENERAL OFFICES AND PLANT

SOUTH BEND, INDIANA

November 17, 1932

ag

Doctor Lanza
Assistant Medical Director
Metropolitan Life Insurance Co.
New York, New York

Dear Doctor Lanza:

Recently I have had X-Rays taken of four individuals exposed to silicosis and have had some varying interpretations as to pathology given by various local X-Ray men. Consequently, if it is your wish I would be very glad to send the X-Rays along with a brief history of exposure and any complaints that the patients may have in addition to chest expansion.



Should there be any additional information that you wish let me know and I will try to include same.

Thanking you again for your courtesy while in New York City and in regard to the X-Ray pictures you sent me our local X-Ray men insist that it is a case of healed military tuberculosis in spite of the history you gave me on the case.

Yours very truly,

Robert M. ...

Director of Personnel
Bendix Products Corp.

KS:HM

November 21, 1932

Dr. K. Selby,
Director of Personnel,
Bendix Products Corp.,
South Bend, Ind.

Dear Dr. Selby:

I am very glad to hear from you, and would very much like to see your X-Ray pictures. If you will send them along with such clinical information and history material as you have available, I will return them and let you know how they look to us.

I am not surprised at what you tell me about your local X-ray man. It seems to me that X-ray experts are very prone to forget the fact that after all they are only looking at shadows and the amount of information which you can get from looking at a shadow is very limited.

With best regards

Sincerely yours,

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

On Friday, December 2, I received a visit from Mr. W. J. Higinbotham, President of the W. A. Case & Son Manufacturing Company. Mr. Higinbotham was referred to me through the Group Division.

Mr. Higinbotham's company manufactures plumbing ware and while his office is in Buffalo, his plant is situated in Illinois, not far from Terre Haute, Indiana. He has had some damage suits for silicosis filed against him and was interested in learning what he could of this disease and the general situation in regard to damage suits of this nature.

I spent several hours with Mr. Higinbotham, giving him information as to the cause, nature, and progress of silicosis and also giving him the complete background of this situation which has arisen as a result of damage suits which have been filed against corporations in the last couple of years. I also inspected several films which Mr. Higinbotham had brought with him. These were films taken of the individuals who were suing his company and he was anxious to know whether they really had silicosis or not. I gave Mr. Higinbotham my diagnosis, based upon my reading of these films, but advised him to consult Dr. Pancoast in Philadelphia if he wished to get expert evidence that he could use in the defense of his damage suits.

I also arranged for him to meet Mr. Vandiver Brown, General Counsel of the Johns Falville Company, and also furnished him with literature dealing with his problems that he might study at his leisure.

He had lunch together with Mr. Kavanagh and Mr. Bates and there discussed some of the legal aspects of his problems. I gave Mr. Higinbotham an outline of the work of the Policyholders Service Bureau and then conducted him to Mr. Kavanagh's office.

December 8, 1932


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

RECORDED
INDEXED

PAUL O. SNOKE, M. D.
129 COLLEGE AVENUE
LANCASTER, PA.

TELEPHONE 8018
OFFICE HOURS
UNTIL 10 A. M.
1 P. M.
7 P. M.
DAILY EXCEPT THURSDAY
AND SUNDAYS

December 14, 1939.

Dr. W. J. McConnell
Assistant Medical Director
Metropolitan Life Insurance Co.
New York, N. Y.

Dear Doctor McConnell:

Thank you very much for so promptly sending me the films of Harold Snader. I have reviewed them, and find no evidence of asbestosis. At the request of the Insurance Company, I am sending them on to Dr. Pendergrass so that he too may file an opinion in this case.

Your calling our attention to the films of Dawson Rhodes is very much appreciated. You will doubtless remember that there was a very definite question of chronic constrictive peri-carditis in this man's case, and some of us became very much interested in him. At our insistence he went to see Dr. Claude Beck in Cleveland, taking all of his records with him. After considerable study Dr. Beck wrote me at great length about this very interesting man, and they concluded, especially from their kymographic studies that he did not have chronic adhesive peri-carditis. Mr. Rhodes films inadvertently were placed in our files. We are sending them to you today under separate cover.

You are to be very much congratulated upon the excellent work you have done with the U.S. Asbestos Co. I have seen quite a few of the workmen who tell me that a great deal of money has been spent in keeping down the dust. We have also been privileged to x-ray the chests of the men before they have been employed by the Company. Some of this is the result of the recent Compensation Act in Pennsylvania. This pre-employment study of the chests has been very fruitful, and in the course of years will pay large dividends to the Company, I am sure.

Permit me to again express my appreciation to you for your kind offices, and wish you the Season's Greetings.

Very truly yours

Paul O. Snoke, M. D.

POS:0

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It has been said that "all history becomes subjective; in other words there is properly no history, only biography." Insofar as this is true of the general systems of law and science and culture concerning which it was written, it is also true of the special system of principles and rules and guides that are distinctive of industrial medicine, particularly in their development period. As with all movements that have grown into maturity, industrial medicine had its years when the men who were fashioning its form and shaping its future, themselves made its events, each distinguished by the addition of a timely talent or a needed ability as its possessor laid it on the altar of his dedication. The history of those years is the combined biographies of those men, and the order of industrial medicine that evolved from their work is the result of their combined contributions. Many of those men are gone, but a few have survived to see their field of endeavor become a profession.



Profiles in Occupational Health

Anthony J. Lanza, M.D.

1884-1964

One of the few is Anthony J. Lanza — "Tony," for so "this side of our known world esteems him." His contribution was an aggregate of contributions, a lifetime of them. That is an objective estimate. His own preference is to characterize his career in terms of one accomplishment rather than many. The nearest he can come to this singularity is to describe his part in the development of industrial medicine as having been principally that of a "catalyzer." It is an apt expression. If the catalyzer concept be transferred from substance to circumstance, and given the working arena of human instead of material contacts, the term may comprehend an action or reaction induced or accelerated by a personal presence, and in that sense it is applicable to much of what this man has been doing for nearly fifty years. The term is his, but the biographer could not have found a better one to describe a part — and only a part, but perhaps in some respects the better part — of his many activities. It is probable that, in "catalyzer" capacity, Tony Lanza has converted more physicians and industrialists to the philosophy of industrial medicine, reconciled more opposing views, made more

Dr. Anthony J. Lanza, a distinguished pioneer in occupational health, died in New York City on Monday, March 23, 1964.

In the November, 1960, issue of this journal, there appeared a living tribute to Dr. Lanza. Since it appears unlikely that any more suitable tribute might be prepared after his death, that 1960 Profile is here reproduced.

recommendations in a greater variety of situations, softened away more arguments, attended and presided at more meetings and conferences formal and informal, been chairman of more committees, and guided more discussions into constructive channels than any other man in the field of occupational health. His contributions echo in a thousand places.

Unfortunately for the record as to many of his "catalyzer" accomplishments, however, "echo" is about all that remains in the way of identification. Their details have been obscured by time, and there is practically no documentation in anything he has, nor any guide to it elsewhere in

what he will admit. He possesses no diary, no scrapbook of clippings, no files of copies or reprints. As to such reminders his comment is that he can't bother with them. If, for reasons of merit, and regardless of whom they concern, they are worth keeping, their preservation is the business of those who staff the archives. This attitude extends to all of his contributions, but it has an added meaning for such of them as have the catalyzer connotation. The catalyst has a use but no history. It comes and goes unchanged. For it to assume that it did more than that, and to buttress the assumption with accumulated proof, might savor of supererogation. And so he preserves few contacts with the past. Among his meager concessions to the permanence of time that is gone are the copies he has in his library of the books of which he was author or editor. Chronologies of the "Who's Who" type he can't escape, but it is suspected that his feeling toward them is acquiescence as much as pride.

The reason for this is not modesty or indifference. Rather it seems involved with temperament and sense of values. About the time he graduated in medicine he was deeply impressed by a statement he found in an essay by Sir William Osler to the effect that if one performs each day's work to the best of his ability he need not be unduly concerned for the future, as it will take care of itself. That, in general, has been his philosophy — "each day's work to the best of his ability." In particular, and in keeping with the sense of finality — almost fatalism — implicit in such discipline, he considers that what is done is done, "and that's an end of it," and now to go on from there. This applies in whatever he undertakes. If he were a bridge player he would treat a hand played as a hand played, and have no interest in the prompt postmortem. Sufficient unto the occasion is what it was; its importance is the score at its end. If that is deserving of a lasting place, the future will put it where it belongs. And Kismet then will be *amanuens*.

In terms of his philosophy, and subordinating the "catalyzer" characterization, Tony Lanza's career in industrial medicine is a half-century multiple of "each day's work to the best of his ability." Examination of the "day" in its repetitions, and the "ability" in its manifestations, may, therefore, prove revealing.

Doctor Lanza was born in New York City in March, 1884, the son of Manfredi and Clara (Hammond) Lanza, and was named Anthony Joseph. His father died when he was a small boy, and the family moved to Washington, D. C., where he grew up with the ambition to add one more to the three successive generations in which a family member had practiced medicine in the United States. Successful in a competitive

examination for one of the scholarships established by William Corcoran, founder of the Corcoran Art Gallery, he enrolled at George Washington University Medical School, and graduated M.D. in 1906. After a period as Chief Resident at the Eastern Dispensary and Casualty Hospital, he was commissioned in the Marine Hospital Service (later the United States Public Health Service), and in 1907 was assigned to the Marine Hospital in San Francisco. There he had the unforgettable experience of finding in the surgical ward a case of bubonic plague, diagnosed postmortem, whereupon, "all hell broke loose." When the confusion was compounded by the discovery, also in his ward, of a second case, likewise diagnosed postmortem, the Surgeon General sent Doctor Rupert Blue to take command of antiplague operations. Doctor Blue recognized the situation, brought it under control, and the "plague epidemic" aborted.

In 1908 Doctor Lanza was detailed as Ship's Surgeon in the Revenue Cutter Service, now the Coast Guard, and made several cruises to the Aleutian Islands and the Bering Sea on the Cutter *Rush*. He also served on the Cutters *Manning*, *McCullough*, and *Bear*. The tour of duty on the *Bear* was another experience to be remembered, for the *Bear* — even then recognized as "the stoutest ship ever built" — was to become famous as Admiral Byrd's flagship in the Arctic in 1933.

Following his Revenue Cutter assignments, Doctor Lanza was appointed Medical Inspector in the Immigration Service, Port of San Francisco. As Boarding Officer he examined immigrants under the same medical regulations as those that governed entry at Ellis Island. After about a year he was detailed to the Marine Hospital Tuberculosis Sanitarium at Fort Stanton, New Mexico. There he became interested in clinical tuberculosis, and in tuberculosis as an occupational disease. That was the beginning of his lifelong identification with industrial medicine.

In 1913 he was sent from Fort Stanton to the old Hygienic Laboratory in Washington, antecedent of the National Institute of Health, and already famous for the work of its distinguished physicians in connection with the principal health problems of the time: Stiles, in hookworm; Goldberger, in pellagra; Lumsden, in typhoid; Francis, in tularemia; McClintock, in Rocky Mountain Spotted Fever. At the Laboratory, under preceptors of their quality he received intensive instruction in biological diagnosis and research techniques in general, and when this was finished he was appointed to the Bureau of Mines as Chief Surgeon. From then on his work in the Public Health Service was to be in connection with occupational diseases.

His first assignment as Chief Surgeon was to take over the investigations of health conditions in the lead and zinc mines in the Joplin, Missouri, district, which had been started by the Public Health Service but in 1914 were assumed by the Bureau of Mines. There was an extraordinary prevalence of tuberculosis among the miners, and, accompanying it, was an underlying occupational disease which they themselves recognized and labeled "miner's con." Doctor Lanza examined the miners at a clinic established for that purpose at nearby Webb City, and, with Edwin Higgins, Mining Engineer, made extensive studies of ventilation, temperatures, and dust conditions underground. His first report (with Higgins), published in 1915, covered the pulmonary diseases among the miners and their relation to rock dust in the mines. His second, in 1917, was on "miners' consumption." And his third (with Harrington), in 1921, had special reference to lung conditions in the Montana area.

About the time Doctor Lanza began the Joplin studies, the Public Health Service established its Division of Industrial Hygiene, under Doctor Joseph Schereschewsky, who, as head of the Office of Field Investigations of Occupational Diseases, had just completed an exhaustive study of the health of garment workers in New York City. When World War I interrupted the mining investigations centering in Butte, Doctor Lanza was assigned to the Laboratory Station in Pittsburgh, under Schereschewsky's direction. He was followed as Chief Surgeon of the Bureau of Mines by Doctor R. R. Sayers, who had been associated with him in the Joplin and Butte investigations. In January, 1918, Schereschewsky was given charge of the USPHS Division of Scientific Research, and Doctor Lanza succeeded him as head of the Division of Industrial Hygiene. While the war continued, this Division's principal concern was the health of the workers in munitions plants and the environment in which they lived and labored.

In 1920, after thirteen years in the Public Health Service, Doctor Lanza resigned to become Medical Director of the Hydraulic Steel Company, at Cleveland, Ohio. This was an unusual company. All its executives were young men — none was over forty; and its labor relations and social and personnel policies were decades ahead of their time. Being the head of its Medical Department was a comfortable job. But Destiny hadn't been preparing this man for that kind of a life. It allowed him a year of it, and then the International Health Board of the Rockefeller Foundation, which had been arranging to set up a Division of Industrial Hygiene in the National Health Service of Australia, offered him the position of Special Field Officer. He promptly

accepted, and — with Wilbur Sawyer who afterward became head of the International Health Board, and Frank Longley, Engineer — set sail for "down under." He was stationed in Melbourne, the capital; his Chief was Doctor H. L. Cumpston, Director General of Health. Australia, however, was not ready for industrial hygiene supervision on a national scale, and the undertaking resulted in not much of permanent value. The State of New South Wales established its own Industrial Hygiene Division, which is still active; but it took the exigencies of World War II to demonstrate to the general economy the advantages of doing the same. After a little more than three years — during which he had visited mines and factories in all parts of the continent, seeing and learning, and had ventured a published comment on his observations — Doctor Lanza felt that he had accomplished all he could, notified the International Board, and returned to the United States. He was thinking of going back into industry as a Medical Director — not, however, for Hydraulic Steel, as it had lost its identity in a merger — when the opportunity to join Metropolitan Life Insurance Company as an Assistant Medical Director presented itself. He says of this: "Fortunately for me, I had the good sense to accept."

At Metropolitan, together with the late Doctor Wade Wright, he conducted a consultation service in industrial medicine and industrial hygiene for the benefit of the many concerns whose group life insurance was carried by his company. Among those who worked with him side by side throughout the twenty-three years he was with Metropolitan were J. Wm. Fehnel, experienced in industrial hygiene, and Doctor Wm. J. McConnell, quiet, capable possessor of vast wisdom in industrial medical matters, freely shared when it would serve a need. The varieties of working conditions with which these men became familiar were all that could be imagined, and the problems they presented ran the gamut of the possible and sometimes nudged the impossible. A soon-discovered relation between the problems and the kind of industry in which they occurred led to the inauguration of industry-wide studies, and beginning with its survey of occupational pulmonary disease in the asbestos industry, the Metropolitan group became distinguished for its industry-wide analyses of the hazards to health in foundries, potteries, chemical plants, the making of steel, and many other kinds of work.

In 1925 the Metropolitan Life organization, together with the Mine Operators' Association, the Public Health Service, and the Bureau of Mines, brought about the establishment, at Picher, Oklahoma, of the Picher Clinic for the further investigation of miners' diseases and

working conditions in the Tri-State area (Kansas, Missouri, Oklahoma). Two years later, at age forty, Dr. Leroy U. Gardner, already distinguished as a pathologist and authority on tuberculosis and pneumoconiosis, became Director of the Saranac Laboratory, at Saranac Lake, New York, and thereafter, at Doctor Lanza's behest, he and his Assistant Director, Donald Cummings, gave invaluable aid to the Picher Clinic in advice and counsel, and by way of scientific research that brought the Saranac Laboratory into enduring fame. Reports of the Picher enterprise are found in various governmental publications. Doctor Lanza and Doctor Gardner became great friends, and each was a source of inspiration to the other. Considering the unusual ability both possessed to inspire others in general, this was a high-voltage relation. The remarkable success of Doctor Gardner's Symposia on Silicosis in bringing together scientists and researchers from all over the world owed much to Doctor Lanza's cooperation, and reflected, to an extent, his international acquaintance among those who were interested in the pneumoconioses. During the 1930's Doctors Lanza and Gardner, together with Doctor R. R. Sayers, of the USPHS, who had succeeded Doctor Lanza as Chief Surgeon of the Bureau of Mines, were "a persuasive triumvirate" in widespread educational activities among medical and technical societies, industrial organizations, and legislative groups, aimed at bringing about a better understanding of occupational diseases in their clinical as well as their compensation aspects. Doctor Gardner died in 1946, at age 58, untimely taken in his brilliant prime.

At the outbreak of World War II, Doctor Lanza, on leave from Metropolitan, was commissioned Lieutenant Colonel in the Office of the Surgeon General of the Army, and put in charge of the newly-created Division of Occupational Health, Preventive Medicine Service, under the direction of the late General James S. Simmons, who afterward became Dean of the Harvard School of Public Health. This was an entirely new enterprise for the Army, and it necessitated much reshaping of traditional attitudes regarding the functions of a military physician. The Army quickly became owner of all types of manufacturing plants, and the operator of most of them, the others being run by contractors. Doctor Lanza's Division was concerned only with the Army-operated plants, but these produced ordnance, airplanes, chemicals, clothing, food and food containers, munitions, quartermaster supplies, and whatever else the Army needed, and, at the peak of the war effort, employed more than a million people, about forty percent of them women. Here again Doctor Lanza had the benefit of the abilities and services of Doctor Wil-

liam McConnell, who was charged with the responsibility of health supervision in the ordnance plants. Under Doctor Lanza's Division of Occupational Health were the Army Industrial Hygiene Laboratory, first set up in the School of Public Health at Johns Hopkins, under the direction of the late Doctor Raymond Hussey, and the Armored Force Medical Research Laboratory at Fort Knox, better known as the Tank Laboratory, a most successful enterprise headed by Doctor Willard Machle.

In 1942, Doctor Lanza was promoted to the rank of Colonel. When he left the Service three years later and returned to his position at Metropolitan Life, he left to his successor, Colonel Leigh Cook, the well-organized industrial medical program he had established in the Army. This has been continued, and for a long time has had its counterparts in the Navy and the Air Force. The Industrial Hygiene Laboratory became the Environmental Hygiene Laboratory, located at Edgewood, New Jersey. Doctor Lanza was awarded the Legion of Merit.

In 1947, Doctor Lanza was asked by New York University if he would be interested in organizing an Institute of Industrial Medicine in its Post Graduate Medical School. This he considered a challenge and an opportunity he could not refuse, and so, through the cooperation of the University authorities and Metropolitan Life, it was arranged that he would give half his time to each until his retirement from Metropolitan which, under Company regulations, would be due in 1949. At the start the Institute was part of the Department of Preventive Medicine, of which Professor Edward Melany was Chairman. After two years it was set up independently, with Doctor Lanza as Director and Professor of Industrial Medicine. The Institute was successful in bringing together as faculty members a young and enthusiastic group, both full-time and part-time; and when Doctor Lanza, under the University's compulsory retirement system, retired in 1954 as Professor Emeritus he left it solidly established, with Doctor Norton Nelson as its able and energetic Director, and Doctor David Goldstein, Medical Director of *The New York Times*, its Professor of Industrial Medicine.

Although compulsory retirement age has overtaken him twice—at 65 at Metropolitan Life, and at 70 at New York University—the third time is not yet, for now, at 76, Doctor Lanza is still active, still interested, writing and editing within his beloved field. In addition to other commitments, he is Editor-in-Chief of the series of Modern Monographs in Industrial Medicine (Grune & Stratton) now appearing from time to time. One wishes he would pen the narrative of his long and varied experience. There is more

than the suggestion of drama in many of his "catalyzer" episodes. Their stories all would be interesting, and some could have definite value, particularly those of his contacts with the military mind — which knew nothing and cared less about industrial medicine, and couldn't conceive of an Army doctor in any other relation than as serving troops. What he did, and the fact that he did it, are history, but the firsthand account of *how* he did it could prove useful in many places.

Doctor Lanza's thirteen years in the Public Health Service, 1907-1920, coinciding as they did with the years of industrial medicine's most rapid and intensive growth, brought him into contact with practically the whole range of its problems; and his investigative, analytical, and retentive mind stored up an encyclopedic knowledge of their causes and solutions. This, as the years were to prove, was excellent scientific equipment for a long future as consultant. The year or so as Medical Director for Hydraulic Steel reinforced his practical background, and his temperament and special abilities furnished all else that was needed to make that long future a successful one. Interestingly, it does not appear that such a future was the one he sought — there was even a period, just after his return from Australia and while he was in an advisory capacity with the National Health Council, during which the comparative security of a Medical Directorship in industry seemed much more attractive. However, it was the future for which he had been prepared and the Guiding Hand that had led him thus far was not to let him stray. Industrial medicine already had consultants — in surgery, diagnosis, toxicology, administration, research, occupational diseases, techniques in general. But, even so, there was the feeling that more were needed, although what for was only dimly seen. Tony Lanza's emergence was a sort of cumulative answer. It was gradual, almost imperceptible as it came to pass; the successive needs he filled had a way of seeming to appear tangible only after he had met their demands, or quieted their latent threats. And so his progress toward the eminence that is his was little noted as it went along, and thus was unrecorded. And by the time it was realized that he had become a consultant of such abilities as gave new meaning to the term, it was much too late for timely memos on how he got that way. In review, however, and because there is no alternative, something of a record may be attempted from several objective sources.

One of these sources is the recollections of the many who have worked with him or have seen him in action. He was always a "team" worker; never a "cause" man, or crusader; never protagonist in any individualistic purely Lanza

enterprise. The matter in hand was his only concern; and his attitude toward it was objective, his interest in it proportional to its value in the development of industrial medicine, his treatment of it impersonal. In his contacts with organized medicine, grudgingly aware of the new profession growing in its midst, and with industry, interested but unconvinced, he was the perfect liaison. Unselfish, sincere, plain spoken — sometimes almost blunt — his presence was felt, even when his part in what was going on was only the undramatic "passiveness of a catalyst in the result." Granting the "catalyzer" role, he gave it his own distinction. Whether active or passive in the action or reaction, he left something of himself in it and added something to his own experience from it. He was too forceful to be present without the one; too sensitive to leave without the other. The influence of his personality was almost tangibly and measurably a quiet, palpable, centripetal force, impelling toward the center of whatever was in hand.

All this, throughout the years, built up a second source from which, with search and patience, the record as to Tony Lanza's place in the development of industrial medicine may be confirmed. This consists of the impressively large number of references to him, items about him, and comments on his work that one comes upon in the literature of industrial health, occupational diseases, and industrial hygiene — "comes upon" because they are not indexed and mostly they occur in identification with co-workers and associates, or with the subject of the text. An example is found in a reference to "a world review and evaluation" of "Silicosis and Allied Disorders." One reads: "This report was prepared by the (Industrial Hygiene) Foundation's Medical Committee, under the leadership of its Chairman, Dr. A. J. Lanza, and brought together for the first time a practical summary of what was known and remained to be learned about dust diseases." Another occurs in connection with industrial medicine in Western Pennsylvania; he is named as one of four distinguished men who "figured prominently in its development." There are many similar allusions to his part in whatever was going on. But much more numerous are such capsule encomiums as: "pioneer in the investigation of industrial dust hazards in the United States"; "distinguished for long and instructive experience in industrial hygiene"; "leader in the development of industrial medicine in the United States and the world." Students of the published material on occupational diseases and industrial hygiene encounter recognitions of this kind so frequently and in so many contexts that they take them quite for granted as fittingly phrased and properly placed. In the permanence

of the printed word, "A. J. Lanza" is an oft-mentioned and much-respected name.

A third source from which information about this man may be derived is the formal, indexed account of the books he has to his credit, the addresses he has made, and the articles, reports, and technical papers he has produced. These are listed in several chronologies. Their texts confirm his distinction as indeed a pioneer in the investigation of dust diseases in general, and the identification of silicosis in particular. His books include *Silicosis and Asbestosis* (1938) — "the still definitive book in this field" — and *Industrial Hygiene* (with Jacob Goldberg, 1939). The timing of his articles and reports shows the second half of them published in 1933-35 (the last two in *J.A.M.A.*), after which it seems that the "catalyzer" part of his work grew into first attention. His continuing interest in occupational diseases, however, is evident from his organization affiliations. He was a Trustee of the Trudeau Foundation, and of the Industrial Hygiene Foundation, and in the latter, Chairman of the Medical Committee. In the New York Academy of Medicine he was Chairman of the Committee on Industrial Health; in the American Public Health Association, Chairman of the Committee on Pneumoconiosis; in the American Institute of Mining and Metallurgical Engineers, member of the Committee on Health and Safety in Mines; in the New York Tuberculosis and Health Association, Chairman of the Industrial Hygiene Committee. He was a member of the Medical Subcommittee of the Pennsylvania Commission on Compensation for Occupational Diseases, which made its report in 1933, and a member of the Committee on Prevention of Silicosis through Medical Control, established by the Secretary of Labor in 1936. The American Medical Association's Council on Industrial Health, established in late 1937, added him to its membership a year later.

If they mention it at all, the long-time chronicles of industrial medicine no doubt will consider it pure coincidence that the middle thirties, when Doctor Lanza was beginning to be really effective in his self-styled role as "catalyzer," saw the start of a remarkable spreading out of industrial medical programs among industries of all kinds. This was clearly reflected in the upsurge that began about then in the membership of the industrial physicians' association. From the lowly 1935 total of 257 — survivors of the twenty-year doldrums in which the average had been barely more — the number of members grew to seven times that many ten years later, and then went on to double that in the next ensuing ten. The economic influences then at work will be credited, of course, but it is within the memory of many who

lived in the thirties that there were also the influences of powerful personalities, and that these had so much to do with the happenings of the period — in big affairs and little — as to make its truest history properly biography. Tony Lanza was one of them; and the Knudsen Award, industrial medicine's highest honor, given him in 1946, was one of the ways his medical colleagues had of telling him, and the world, that they knew him to be so. He was the seventh recipient of this Award. The citation stressed his leadership. But a "catalyzer" leader? Easily enough, when the leadership is less of leading than of being followed. In this man's case it was effectively that. Unmatched skill in unifying; a positive genius for enlisting the aid and cooperation of those with whom he worked; the "with" that pervades the chronology of the things he accomplished; the results obtained, with the credit shared equally by all — these characterized the many years of days in which he did "to the best of his ability" whatever fell to him to do.

At the meeting of the Permanent Committee and International Association on Occupational Health on the day preceding the official opening of the Thirteenth International Congress of Occupational Health, at New York, July 25-29, 1960, Doctor Lanza, along with Doctor R. R. Sayers (United States) and Professor F. Koelsch (Germany), was made an Honorary Member of the Permanent Committee. This brought to five the number of Honorary Members, only W. R. N. Kranenburg (Holland) and Alice Hamilton (United States) being the living holders of that distinction at the time of the meeting. And on July 27, 1960, at a reception at New York University Medical Center, Doctor Lanza was the recipient of a New York University Presidential Citation "for his leadership in the field of industrial medicine and his service to the University." Some three hundred of his colleagues, many of them delegates to the International Congress on Occupational Health, attended the ceremony. After stating that Doctor Lanza in 1947 became the first Director of the University Medical Center's Institute of Industrial Medicine, and, in 1949, the first Chairman of the newly-organized Department of Industrial Medicine in the NYU Post Graduate Medical School, the citation continued: "Throughout his career Doctor Lanza's guidance has been sought by many. He has served as adviser in industrial medicine to many industries and other organizations. . . . Behind any recital of dates, titles, and geography are those qualities that help make the man those around him have known: the warm understanding, the unfailingly perceptive intellect, the unassailable integrity, and, most of all, the calm and steady wisdom."

—A.D.C.

Dr. Anthony J. Lanza, associate medical director of the Metropolitan Life Insurance Company, retires December 31st from his Metropolitan post after 23 years of association with the company. He is an outstanding leader in the field of industrial hygiene and a recognized authority on silicosis.

Upon his retirement he will assume full-time duties with the New York University-Bellevue Medical Center as chairman of the Institute of Industrial Medicine and professor of industrial medicine in the College of Medicine. For the past year his services have been loaned by the Metropolitan on a part-time basis to the medical center.

His career is marked by service in both World Wars. During World War I he served with distinction in the U.S. Public Health Service, and in World War II he had an outstanding record in the U.S. Army, attaining the rank of colonel in the Medical Corps, and receiving a high decoration.

Dr. Lanza was born in New York City on March 8, 1884, the son of Manfredi and Clara Hammond Lanza. He received his education in Washington, D. C., where he attended St. John's College and George Washington University, being graduated from the Medical School of the latter institution in 1906.

He entered the service of the Metropolitan in January 1926, as an assistant medical director. In conjunction with the late Dr. Wade Wright, he was in charge of the industrial health service of the company's policyholders service bureau. Later he was associated with the welfare division, of which he became executive in charge under Second Vice-President Donald B. Armstrong. Dr. Lanza was appointed associate medical director in February 1945.

During World War II, Dr. Lanza served for more than two and a half years

in the United States Army Medical Corps. His service covered the period from March 12, 1942, through December 1944, when he resumed his connection with the Metropolitan. Commissioned a lieutenant colonel less than three months after the Pearl Harbor attack, Dr. Lanza was later promoted to colonel. He was director of the occupational health division, preventive medicine service, office of the surgeon general. His office had entire charge of industrial hygiene and industrial medical service in all the plants owned and operated by the Army, including Ordnance plants, Chemical Warfare plants, air bases, and ports of embarkation. These Army-operated industrial plants employed at their peak about 900,000 civilians, of whom approximately 40 percent were women. In addition, the occupational health division was responsible for and maintained supervision over Army-owned contractor-operated industrial plants. The occupational health division also maintained the Army industrial hygiene laboratory which was located in the School of Public Health, Johns Hopkins University, in Baltimore. This laboratory was under the direction of Colonel Raymond Hussey. The occupational health division was also responsible for the organization of the Armored Forces medical research laboratory at Fort Knox, which was under the direction of Colonel Willard Machie.

Dr. Lanza carried out his assignment with such sterling ability that he was awarded the Legion of Merit Medal, which was presented to him in April 1945. The citation accompanying the presentation of the award reads:

"For exceptionally meritorious conduct in the performance of outstanding services from March 1942 to December 1944. Colonel Lanza contributed in a high degree to the development of the Army's present industrial health program for civilian workers in Army owned and operated industrial plants. He organized for the Surgeon General a special health service which protects the health of almost a million civilian workers in Army industrial plants, thus contributing to the

uninterrupted flow of munitions. To this task he brought a rich background of special knowledge and experience, which was applied with energy, intelligence, and wisdom. Largely due to his efforts, the present effective and well-organized program of industrial medicine has been developed, and he thus contributed in a high degree to the success of the Army's program of preventive medicine."

Dr. Lanza received the 1946 William S. Knudsen award for the most significant contribution to the field of industrial medicine. In making the award the American Association of Industrial Physicians and Surgeons said that Dr. Lanza was named because of the very large task which he handled so ably during the war in the surgeon general's office.

While in the public health service during World War I, Dr. Lanza reorganized the office of industrial hygiene, establishing ten branches in as many cities. He reached the grade of senior surgeon - lieutenant colonel. While in the public health service he had a year of hospital work, for two years was at the tuberculosis sanatorium at Fort Stanton, New Mexico. He was detailed for about five years to the United States Bureau of Mines as chief surgeon, organizing their medical service. He made many investigations in matters of ventilation and dust in metal mines, especially in regard to pulmonary dust diseases and tuberculosis. Resigning from the public health service, he became medical director of the Hydraulic Steel Company in Cleveland, Ohio. From there he went to Australia for the international health board of the Rockefeller Foundation, as adviser to the Commonwealth Government in inaugurating the division of industrial hygiene in the Federal Health Department of the Government. After his return in 1924, Dr. Lanza was the executive officer of the National Health Council until 1926.

Dr. Lanza is married, has two daughters, and lives at Scarborough, N. Y.

He is a member of the Cosmos Club of Washington, D. C., and of the Sleepy Hollow Country Club, Scarborough, New York. He is a member also of the following organizations: American Medical Association, American Public Health Association, Association of Industrial Physicians and Surgeons, and National Tuberculosis Association, New York Academy of Medicine.

He serves on the following directorates and committees:

Chairman, Council on Industrial Health, and member of Editorial Board, Occupational Medicine, American Medical Association;

Committee to Promote Educational Activities Among Medical Examiners, Association of Life Insurance Medical Directors;

Chairman, Industrial Medical Committee, and member Board of Trustees, Industrial Hygiene Foundation of America;

Chairman, Committee on Industrial Medicine, New York County Medical Society;

Board of Directors, New York Tuberculosis and Health Association;

Board of Trustees, Trudeau Sanatorium and Foundation;

Medical Advisory Committee, Health and Welfare Fund, United Mine Workers of America.

Nov. 28, 1947

METROPOLITAN LIFE INSURANCE CO.
Industrial Health Service
Welfare Division

DR. ARMSTRONG

A.M.A.
 Ind. Hyg. Found. --
 U.S. Chamber of
 Commerce

Liaison with

-- DR. LANZA -- Cooper-
 ation
 with

Stat. --
 Mr. Vane

Group Div. --
 &
 P.H.S.E.

Medical
 Div. --
 Risks-
 Claims-
 Med. Exr's
 etc.

Dr. Wheatley
 Medical organ-
 ization, etc.

General supervision at H.O.
 Field coordination
 Medical organization
 Claim Experience, etc.

Guidance and Utilization

Library	Editorial Unit	Safety Bureau	Industrial Hygiene Bureau	Nursing Bureau	Nutrition Bureau
			Dr. McConnell (& Asst.?)		
Miss Glatzel	Miss Hallock	Mr. Cole	At Home Office: Correspondence Literature X-ray review Fields: Med. Organ. Ventilation Illumination Pers. Hygiene Etc.	Miss Haupt	Miss Guilford
		<u>Mr. Berk</u> Industrial Accidents		<u>Miss Striegel</u> Industrial Nursing	

Mr. Fehnel
 and assistants

Fields:
 Air pollution
 Dust studies
 Fumes
 Gases, vapors,
 etc.

I.H. Laboratory:
 Analyses
 Reports, etc.

May 18th, 1932.

REPORT of the Activities of the Industrial
Hygiene Department.
McGill University.

MAY 17 1932

During the past year the following activities have been carried on by the Industrial Hygiene Department under the auspices of McGill and the Metropolitan Life Insurance Company.

1. Clinical Activities: The policy was continued of examining all cases from certain specified trades who presented themselves at the clinic, and by this means we continued to make important connections with hazardous industries. The number of cases of lead poisoning treated fell very sharply, partly owing to decreased production, but still more so, we believe, to the improvements undertaken by the plants under our supervision and advice.

Throughout the year the Health Service for General Hospital employees and administration of the benefit system among them was continued.

The night Industrial Dental Clinic, formed as a co-operative measure by the industries in whom we are interested to furnish dental care at reasonable prices to the employees, operated for ten months of the year as usual. We have lately published an account of its organisation and its financial report for the past three years.

2. Field Work: While we were unsuccessful in establishing health services in any new industries during the period under review, a supervision of those already established was continued. The Toilet Laundry Company, employing five hundred people, have opened up a local hospital with a nurse in charge, and have added a physician to their staff. All this was done under our advice and help.

3. Research and Publications: The survey of Asbestos workers in the district about Thetford Mines, undertaken by Dr. Pedley, was completed in this period.

Two very important problems of research were initiated during the period, and are being continued:

- (a) The Quebec Industrial Health Survey. Assisted by the Provincial Department of Health and the Canadian Tuberculosis Association, we have undertaken to examine fully and to make X-rays of the chests of 5,000 industrial workers selected at random from various in-

re 0412

dustries of the city and province. At the date of writing 1700 have already been completed, and arrangements are concluded for the examination of the remainder.

- (b) A second investigation is that being undertaken by Mr. Fraser, in the Department of Pharmacology, on the toxic effects of mercury. The initial part of this work is concerned with animal experimentation and the examination of employees of the Shawinigan Chemical Company, in whose workshops mercury is extensively used as a catalyst.

Both of these investigations will, we believe, throw important light on industrial medicine, and will be a distinct contribution to the subject, as is amply proved by results to date.

Some of the publications issued by the Department during the year are enclosed herewith.

4. Teaching: Lectures, laboratory demonstrations and field instruction have been given to various groups of students, nurses, social workers and candidates for the Faculty of Architecture.

The Director of the Department has continued to act as Secretary of the Industrial Medical Association of the Province of Quebec, which has now been admitted as a section of the Provincial Medical Association, and has maintained contacts between the physicians doing industrial work and the Commission of the Workmen's Compensation Board.

5. General: The most important development in the Province during this period has been the coming into force of the new Workmen's Compensation Act of 1931, granting compensation for industrial disease. We continue to work for a provincial department of Industrial Hygiene to carry on officially the work that we have been trying to do in an unofficial way.

There is every likelihood that in the near future an Institute of Hygiene will be established for the Province, and arrangements are being made in the outline of the project for a participation on equal terms of French and English Industrial Health Departments.

Owing to the general depression, and consequent restriction of funds, a slight reorganization of the department was carried out. While the clinical work is continued at the hospitals, the laboratories and personnel of the expert

0413

staff were moved to McGill University, and the work continued as outlined to you in our letter of August 22nd, 1931.

Two of the activities then recorded will be dropped this year, namely, the Health Service for General Hospital employees and the systematic sampling of all new admissions to the out-door department. This is in part compensated for, however, by weekly attendance at staff rounds and through co-operation of other workers in the out-patient department, by means of which there continues to be a supply of material from industrial diseases for observation and attention. In a similar way the staff of the Royal Victoria Hospital is co-operating to increase the contacts between the Department and industrial disease.

Social Science Service: A great deal of activity is going on at McGill at the present time in social science research, in which connection the Industrial Hygiene Department is taking an active participation.

Unemployment is being studied intensively by the Departments of Sociology, Political Economy and the Faculty of Medicine, and a co-operative group is in this way studying unemployment from its various aspects.

Physical examination is to be undertaken as a routine procedure in groups of the unemployed under the direction of the Industrial Hygiene Department, and some interesting results therefrom are anticipated.

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Physical examination is to be undertaken as a routine procedure in groups of the unemployed under the direction of the Industrial Hygiene Department, and some interesting results therefrom are anticipated.

0414

Armstrong Cork Company

Lancaster, Pa.

December 23, 1948

Dr. W. J. McConnell,
Medical Director, Industrial Division,
Metropolitan Life Insurance Co.,
1 Madison Avenue,
New York, N. Y.

Dear Dr. McConnell:

I am enclosing a letter which has been sent to the members of the Lancaster County Medical Society concerning the program we have arranged for January 5, 1948 which I felt would interest you.

I realize the subject "Industrial Medicine" is very broad, but I felt you could decide yourself just what would be of interest to this group. Most of them, I feel, do not have much of an understanding of Industrial Medicine and its aims.

I would appreciate if you would send me a bibliography of yourself which I may use in introducing you.

Again thanking you for accepting this invitation and if you will let me have the time of your arrival I will meet you at the station.

Very truly yours,

Charles R. Sullivan, Jr.
Charles R. Sullivan, Jr., M.D.

2335

Armstrong Cork Company

Lancaster, Pa.

At the December meeting of the Lancaster City & County Medical Society our invitation to hold your next meeting Wednesday, January 5, at the Lancaster Floor Plant of the Armstrong Cork Company was presented, and we have been informed by Dr. Workman, President of your Society that the invitation was accepted. The main purpose of this meeting is to give the members of your organization an opportunity to inspect our Emergency Hospital which has just been completely remodeled and in which much new equipment has been installed.

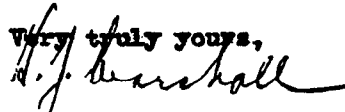
A brief tour of our plant, which will include a visit to the Emergency Hospital, is scheduled to start at 5:30 P.M. Dinner will be served at 6:30 P.M. in our Plant Cafeteria. After dinner we shall assemble in our new Auditorium where Dr. W. J. McConnell, well-known Medical Director of the Industrial Division of the Metropolitan Life Insurance Company, will address the group on the subject of the "Industrial Medicine." The regular business meeting of your Society will be held after Dr. McConnell's talk.

When you reach the Main Office Building of the Armstrong Cork Company on West Liberty Street, there will be a uniformed guide to direct you to a reserved parking area and also to direct you to the main entrance of the Factory Administration Building. Members of my staff will be on hand at that point to conduct the hospital and the plant tour in small groups.

Arrangements will be made for you to receive promptly any emergency telephone calls. Any calls expected should be made to Armstrong Cork Company, Phone No. 5151, and the operator will get the message to you at once.

If you find it impossible to be here at 5:30 P.M., we want you to feel free to join the group at any time you can, and we especially want you to be our guest for the dinner served at 6:30 P.M.

In order that we may make the necessary preparations, we shall appreciate your returning the enclosed card to us at your convenience. We are looking forward with pleasure to having you with us on January 5, and we feel sure that you will find the program very much worth while.

Very truly yours,

H. J. Marshall

2336

PH 10-F

DM 112 F

MEMORANDUM

Re: Minimum First-Year Extra Premium for
Group Life Insurance on asbestos Milling
and Manufacture of asbestos Cord and Fabric

This will make record of a conference in Mr. R. J. Vane's office on October 20, 1948 concerning the industrial hazard in the asbestos industry. Present were Mr. Vane and Mr. J. William Fehnel, Director of Industrial Hygiene Laboratory and Field Service, and the undersigned.

After consideration of the asbestos industry in general, and based on Mr. Fehnel's report to Mr. Perry with respect to the Turner & Howell Company, Montreal, Quebec, Canada, and supplemented by our discussion with Mr. Fehnel, Mr. Vane agreed that if it is possible where working or other conditions differ/are different in the same industry for purposes of Group Life Insurance, that the Turner & Howell Company could be accepted as a standard risk without any extra premium required for industrial hazards. Considerations which supported this conclusion were:

1. There are no backlog of asbestosis cases since the employer is following the practice of not hiring anyone who was formerly employed in the asbestos industry or in other industry in which there is a dust hazard.

2. The dust count in the plant will be well below the threshold at which the hazard actually begins to exist. Mr. Fehnel assured us that in his opinion there was no asbestos hazard in this plant.

3. Chest X-rays of the employees are taken both at the original hiring and at frequent intervals thereafter. Mr. Fehnel told us that such X-rays are taken by a mobile unit which is brought right into the plant and it is not necessary for the employees to either take time off from work or to make any trip in order to avail themselves of the X-ray examinations as commonly occurs in an asbestos plant in this country.

4. The employer was starting out in this plant very much aware of the potential hazard and had taken active steps to eliminate it.

5. Our experience on Raybestos-Manhattan for the Life section during the last seven years at T rates has been satisfactory.

6. Dr. McConnell assured Mr. Vane that in their studies of the laboratory cases in this country, which work he has been doing for the past twenty years, they have not been able to find any new cases developing and that the cases they have are not showing a progression.

Therefore we have decided to quote the Turner & Howell Company at "T" rates. We will file with the New York State Insurance Department a change in the classification of asbestos milling and manufacture of asbestos cord and fabric from the minimum extra of \$1 to "Refer to Home Office".

= PM-10-G = DM 1125.

- 2 -

It is intended that the T rate will only be considered for cases which are select in every respect and which measure up to the strict requirements of the Turner & Newall Company case, and that for other cases there will be an extra premium of \$2 or more.

.....
W. S. Thomas
Group Actuarial Division

October 21, 1948
EST/ch

PM-250

J-F

4/19/79

REPORT OF WELFARE SERVICES

1996

REPORT OF WELFARE SERVICES

1936

January 14, 1937

I. COSTS

The total cost of the Welfare activities of the Company for policyholders, including nursing and welfare services, for the last three years is as follows:

<u>Year</u>	<u>Total Cost</u>	<u>Percentage of Industrial Premium Income</u>
1934	\$4,649,834.35	1.48
1935	4,805,533.42	1.54
1936	4,472,556.42 4,973,846.18.	1.56 ✓

The 1936 cost is 3.5% higher than 1935. This increased cost is entirely on the nursing side, our welfare expenditures having been about the same as in the previous year. Actually, the increase is more than accounted for by the direct charge to the division for the first time of a number of items of allocated expense, this total figure jumping from \$99,427.79 in 1935, to approximately \$458,000 in 1936.

II. NURSING

Nursing figures for the last three years are as follows:

<u>Year</u>	<u>Cases</u>	<u>Visits</u>	<u>Total Cost</u>	<u>Cost Per Visit</u>
1934	664,302 ✓	3,816,029 1/4 ✓	\$3,476,059.30 ✓	.91.14
1935	693,929 ✓	3,803,936 ✓	3,632,938.16 ✓	.95.54 ✓
1936	673,704 ✓	3,717,067 1/2 ✓	3,774,376.76 3,795,826.02 ✓	102.14 ✓

The slight decrease in cases and visits in 1936 is to be found among our salaried staffs rather than our visiting nurse association affiliations. It results in part from the development of W.P.A. nursing projects, the continuation of our maternity restriction, and the transfer of several centers from salaried staff to an affiliation arrangement.

REPORT OF WELFARE SERVICES - 1936

The increased cost largely reflects the allocation item above referred to, and also covers increased visiting nurse association expenses incidental to salary restorations, etc. The increase in the cost per visit naturally follows from the decrease in visits and the increase in gross cost.

During the year the chief points of emphasis and principal developments in our nursing work included:

1. The appointment of an Educational Director and the development of more thoroughgoing educational activities for our salaried staffs, including a quarterly mimeographed nursing news bulletin, to be initiated shortly.
2. The discontinuation of four special Group liaison nurses, and the generalization of our nursing service to cover this activity, thus reducing cost to the Group.
3. The complete revision and rewriting of the nursing manual.
4. The establishment of visiting nurse association affiliations in Pittsburgh, Rochester, N.Y., and St. Paul.
5. The continuation of nursing studies in Cincinnati and San Francisco to determine the value in life-saving of nursing care and instruction for the younger mainly ambulatory so-called chronic patient group.
6. An experiment with a series of mental hygiene instructive talks for our nursing staff in Los Angeles.
7. An experiment in Jersey City and Cincinnati with a five-day working week for field nurses, the results of which are encouraging though as yet not conclusive.

III. LITERATURE DISTRIBUTION

<u>Year</u>	<u>Total Distribution</u>
1934	52,682,603 ✓
1935	58,353,063 ✓
1936	64,279,811 ✓

1936 represents a 10% increase over the preceding year. This increase is widely distributed and occurs in all brackets,

REPORT OF WELFARE SERVICES - 1936

including field staff, health officers, schools, groups, etc. The greater use of welfare literature in agency work, in connection with the Rainy Day Canvass and otherwise, is partly responsible. Increasing appropriations for state and local health departments for printing purposes may subsequently lessen their use of our literature. On the other hand, we are experiencing an increasing demand from many relatively new governmental agencies, such as the W.P.A. projects, the National Youth Administration, the C.C.C. Camps, etc.

The total distribution up to and including 1936 is approximately 926,000,000.✓

IV. FILMS

<u>Year</u>	<u>Recorded Attendance</u>
1934	5,890,704
1935	18,816,583
1936	9,518,566

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The drop in total attendance for 1936 of course reflects the falling off of the showings of the "Once Upon A Time" safety cartoon picture. This was expected. We have been somewhat surprised with the excellent showing of certain of our older pictures. For instance, "Working For Dear Life", "Diphtheria", and "Man Against Microbe", all show increases in 1936. "Man Against Microbe" showed an increased attendance from 462,000 to 690,000.

Following the peak of theater showings, the "Once Upon A Time" picture is now being very effectively used, both in sound and silent form, in schools. This is shown by the following table; for total film use:

<u>Year</u>	<u>School Showings</u>	<u>Recorded Attendance</u>
*1935	14,292	1,765,998
*1936	19,867	4,373,864

* (Final yr. in de, Dec 1.)

The school use of our materials is also reflected by our experience with film strips, on the subjects of Pasteur, Trudeau, Reed, Florence Nightingale, Koch, and How to Live Long. In 1935 we distributed 2,288 such strips to schools, while in 1936 the total was 4,143. 2558

REPORT OF WELFARE SERVICES - 1936

Attention is, of course, still being given to the development of suggestions for the proposed new film on the subject of pneumonia.

V. CAMPAIGNS

<u>Year</u>	<u>Total</u>
1934	409 ✓
1935	436 ✓
1936	210 /

This decrease is largely due to the falling off in specialized diphtheria prevention efforts, the work having now become of a general more or less routine character in most communities. The campaigns in 1936 include both state and local efforts, dealing with safety, diphtheria, cancer, pneumonia, malaria, measles, infantile paralysis, and tuberculosis.

With the decline in diphtheria emphasis, the principal point of attack for the immediate future is in the direction of pneumonia control, street safety, home safety, and syphilis prevention.

VI. EXHIBITS

<u>Year</u>	<u>Total</u>
1934	591 ✓
1935	1394 ✓
1936	2834 /

This marked increase in exhibits in 1936 includes window displays, county fair exhibits, health shows, floats, displays at Company territorial or sales conferences, special exhibits at professional meetings, etc.

Window displays released this year dealt with the subjects of dental decay, food for health, and driving safety. Exhibits for special meetings concerned such subjects as pneumonia prevention, cardio-renal disease, diabetes, silicosis, cancer,

REPORT OF WELFARE SERVICES - 1936

nursing, street safety, general accident statistics, special education material for schools, etc., and gave the Company conspicuous representation at such important conferences as:

American Medical Association
American Public Health Association
National Medical Association
Southern Medical Association
Canadian Medical Association
American Association for the Advancement of Science
American Home Economics Association
American Dietetic Association
National Safety Council
American Dental Association
The Biennial Nursing Congress
The National Education Association
The National Catholic Education Association
American Physical Education Association
Progressive Education Association
State Medical Associations in a number of states
Provincial Medical Associations in several provinces

VII. SCHOOLS

Year	Incoming Correspondence	Literature Distribution
1934	62,559 ✓	6,290,839 ✓
1935	63,650 ✓	7,056,533 ✓
1936	78,720 ✓	7,203,430 ✓

✓ The incoming correspondence represents an increase of 24% over the preceding year, and it is particularly gratifying to report that we had a 60% increase in correspondence with educational administrators, in accordance with our effort to work in close contact with educational heads.

During the year, in addition to this effort to reach administrators, we have continued measures to influence the education of prospective teachers, and have made studies to determine the extent to which courses are given in the administration of school health programs in teacher-training schools. These inquiries and subsequent correspondence have encouraged a growing interest in the needs being disclosed. We have also made a special effort to encourage a better use of our

REPORT OF WELFARE SERVICES - 1936

literature in the schools, our publication entitled "Biological and Scientific Material in Health Teaching" being directed to that end. "Safety in Schools" is also receiving increasing attention, and with the cooperation of a committee of the Advisory Educational Group, a special booklet was prepared for early release dealing with the teaching of safety in industrial schools.

VIII. INDUSTRIAL HEALTH

During 1936 certain of the activities of the Industrial Health Service were quantitatively as follows:

Industrial Health Surveys	- 42✓
Plants (largely Groups) Visited	- 66✓
Special Reports Completed	- 135✓
Special Inquiries Answered	- 332✓
Laboratory Analyses	- 819✓

During the year the silicosis studies were continued, and the special survey of asbestos plants was completed, involving, incidentally, the reading of 3,200 X-rays. ✓

Special research carried out at the request of Groups included such problems as the menace of mercury in large battery plants, the dangers of nitrogen oxides in acetylene welding, etc.

The laboratory studies, involving dust and fume problems, dealt with such matters as silica, lead, zinc, carbon monoxide, sulphur dioxide, etc., as these hazards affect certain of our insured industries, such as printing, mining, foundry work, or the production of glass, steel, bricks, china ware, paint, oil, etc.

The section continued its studies of claim experience for the Group Actuarial Division as an aid to them in their decision on rates.

During this year, for the first time Groups were asked to meet incidental costs of field studies, such as travel, with the result that these items of expense were practically covered, income from this source amounting to over \$3,400. At the same time, there was an increased demand for the service.