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and direct management of
THE DIVISION OF SAFETY AND HYGIENE

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The Industrial Commission of Ohio

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APRIL 16-17-18, 1946

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Grove Patterson, President, Toledo Blade, Toledo, Ohio.

Peter E. Rentschler, President, Hamilton Foundry & Machine Co., Hamilton, Ohio.

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C. E. Torrey, Director, Ohio Power Company, Canton, Ohio.

J. A. Voss, Vice-President in Charge of Personnel, Republic Steel Corp., Cleveland, Ohio.

Ernest Williams, Safety Director, Rail and River Coal Co., Bellaire, Ohio.

COMMITTEES

Arrangements

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John Askam, The Ohio Oil Company, Findlay, Ohio.

Ernest Augustus, Safety Director, The Mead Corporation, Chillicothe, Ohio.

Dr. F. G. Barr, Vice-President, National Cash Register Co., Dayton, Ohio.

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Robert J. Brown, American Education Press, Columbus, Ohio.

William Brown, Safety Director, Libbey-Owens-Ford Glass Co., Toledo, Ohio.

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Leslie L. Diehl, Dayton Safety Council, Biltmore Hotel, Dayton, Ohio.

G. A. Doeller, Dayton Power & Light Co., Dayton, Ohio.

Frank Elias, The Barnes Manufacturing Co., Mansfield, Ohio.

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R. H. Krone, Safety Director, Cincinnati Gas & Electric Co., Cincinnati, Ohio.

Clifford Laver, Cincinnati Hocking Corporation, Lancaster, Ohio.

Omer S. Legg, Federal Printing Co., Columbus, Ohio.

A. L. Leonard, Manager, Columbus Packing Co., 1981 S. High St., Columbus, Ohio.

C. L. Lockhart, Shell Oil Co., Cleveland, Ohio.

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James G. McAuley, Diamond Alkali Company, Painesville, Ohio.

H. H. McCorkle, Safety Supervisor, Republic Steel Corp., Warren, Ohio.

Paul McNish, Past Master, Ohio State Grange, Chardon, Ohio.

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Harry S. Mealey, Safety Director, Ohio Steel Foundry, Lima, Ohio.

Ray S. Metzger, Director of Claims and Safety, Toledo Edison Co., Toledo, Ohio.

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Walter B. Moler, Moler's Belmont Dairy, Dayton, Ohio.

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Thomas J. Price, United Mine Workers of America, Columbus, Ohio.

H. G. Ramsower, Director of Agriculture Extension, Ohio State University, Columbus, Ohio.

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Harry Rebrassier, Wheeling Steel Corp., Wheeling, W. Va.

H. W. Reed, Safety Director, American Welding & Manufacturing Co., Warren, Ohio.

L. E. Reinwald, Safety Director, Crowell-Collier Publishing Co., Springfield, Ohio.

Peter E. Rentschler, President, The Hamilton Foundry & Machine Co., Hamilton, Ohio.

H. N. Rider, Automatic Sprinkler Corporation of America, Youngstown, Ohio.

Ferry Ritchie, Cooperative High School, Dayton, Ohio.

J. R. Rowntree, Ohio Inspection Bureau, Columbus, Ohio.

W. L. Schneider, Safety Engineer, B. F. Goodrich Co., Akron, Ohio.

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L. J. Schutte, Superintendent of Industrial Relations, National Supply Co., Springfield, Ohio.

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E. M. Simpson, Chief, Division of Workshops & Factories, Department of Industrial Relations, State Office Bldg., Columbus, Ohio.

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Howard Smith, Diamond Milk Products Co., Columbus, Ohio.

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Fred C. Tarbox, Vice-President, C. C. C. Highways, Inc., Cleveland, Ohio.

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S. J. Tranter, Sorg Paper Co., Middletown, Ohio.

Reid Vance, Secretary, Ohio Printers Federation, 30 E. Broad St., Columbus, Ohio.

Thomas E. Waller, Secretary and Business Representative, Carpenters' Local Union No. 200, Columbus, Ohio.

Robert A. Warfel, Ohio Petroleum Assn., 50 West Broad St., Columbus, Ohio.

T. H. Watkins, General Agent, Railway Express Agency, Columbus, Ohio.

A. B. Waugh, Otis Works, Jones & Laughlin Steel Corp., Cleveland, Ohio.

J. R. Westbrook, Shawnee Pottery Co., Zanesville, Ohio.

Chester Wherry, Boys Trade School, Columbus, Ohio.

J. E. Williams, Rail and River Coal Co., Zanesville, Ohio.

Robert R. Williams, Executive Secretary, Ohio State Restaurant Assn., 1118 Reggs Bldg., Columbus, Ohio.

C. H. Workman, Pharis Tire & Rubber Co., Newark, Ohio.

Paul Ziegler, The H. P. Deutscher Co., Hamilton, Ohio.

Joseph Zucker, Cleveland Plain Dealer, Cleveland, Ohio.

Program

Chairman: Carl L. Smith, Managing Director, Cleveland Safety Council.

Exhibit

Chairman: Ruell W. Nutt, President, Safety Equipment Service Company, Cleveland, Ohio.

Entertainment

Leslie L. Diehl, Secretary, Dayton Safety Council, Dayton Chamber of Commerce, Dayton, Ohio.

Publicity

Chairman: Harry M. Paul, Supervisor of Printing and Publications, Division of Safety and Hygiene, Industrial Commission of Ohio.

Reception

Chairman: James H. Fluker, Assistant Superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio.

Registration

Chairman: C. C. Beasor, Statistician, Division of Safety and Hygiene, Industrial Commission of Ohio.

BUREAU OF INFORMATION ON SAFETY, COMPENSATION AND CLAIMS

SAFETY

Chairman—H. P. Heyne, Safety Advisor.

Staff of the Division of Safety and Hygiene of the Industrial Commission of Ohio:

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Charles G. Barth	Safety Advisor
Arnold Bill	Safety Representative
W. Thornton Bogert	Safety Advisor
George H. Calhoun	Safety Representative
David Fox	Safety Advisor
Bliss Frame	Safety Representative
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Don Hanna	Safety Advisor
H. P. Heyne	Safety Advisor
Herbert F. Hillebrandt	Special Representative
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Wilbur E. Stuckey	Safety Advisor
Fred H. Watson	Safety Representative
Howard E. Waugh	Safety Advisor
Amos R. Whippis	Safety Representative

COMPENSATION

Geo. H. Thompson, Supervisor of Information, Industrial Commission of Ohio.

LIST OF EXHIBITORS

Deshler-Wallick

Booth No.

14-15	Acme Safety Products Co., Akron, Ohio.
21	American Abrasive Metals Co., Irvington, New Jersey.
22	American Mat Corp., Toledo, Ohio.
4-5	E. D. Bullard Co., Chicago, Illinois.
10	The Dille Mfg. Co., Cleveland, Ohio.
19	The C. P. Dolge Co., Westport, Conn.
13	Hy-Test Division, International Shoe Co., St. Louis, Missouri.
30	Industrial Safety Educational Service, Chicago, Illinois.
16-17	Junkin Safety Appliance Co., Inc., Louisville, Kentucky.
12	Kimball Safety Products Co., Cleveland, Ohio.
29	Lightfoot Schultz Co., New York, N. Y.
20-21	The Lindsey Sanitation Co., Cleveland, Ohio.
24	Luse Display Co., Akron, Ohio.
11	Martindale Electric Co., Cleveland, Ohio.
33	Medical Supply Co., Chicago, Illinois.
9	Melflex Products Co., Akron, Ohio.
25	G. H. Packwood Mfg. Co., St. Louis, Mo.
2	Portable Products Corp., Pittsburgh, Pa.
8	The Positive Safety Mfg. Co., Cleveland, Ohio.
6	A. Schrader's Son Division, Scovill Manufacturing Co., Inc., Brooklyn, N. Y.
1	Scott Aviation Corp., Lancaster, N. Y.
7	Safway Steel Scaffold, Inc., Detroit, Mich.
3	The Stepan Chemical Co., Chicago, Illinois.
31	The Surty Mfg. Co., Chicago, Illinois.
26	The Wilkins Co., Cortland, New York.
	The Geo. L. Williams Co., Cleveland, Ohio.

Neil House

Booth No.

27-28	American-LaFrance-Foamite Corporation, Chicago, Illinois.
39-40	American Optical Co., Southbridge, Mass.
56	Bausch & Lomb Optical Co., Rochester, New York.
47-48	Columbus Glove Mfg. Co., Columbus, Ohio.
76	R. C. Cook Co., Lorain, Ohio.
75	Flohr Manufacturing Co., Buffalo, New York.
59	The Fyr-Fvter Co., Dayton, Ohio.
69	Gro-Cord Rubber Co., Lima, Ohio.
32-33	Helmerichs Supply Co., Cleveland, Ohio.
20-21	Industrial Commission of Ohio, Columbus, Ohio.
38	Iron Age Division, H. Childs & Co., Inc., Pittsburgh, Pennsylvania.
43-44	Walter G. Legge Co., Inc., Allentown, Pennsylvania.
29	Lehigh Safety Shoe Co., New York, New York.
49-50	Metropolitan Life Insurance Co., New York, New York.
35-36-37	Mine Safety Appliances Co., Pittsburgh, Pennsylvania.
45-46	The M. F. Murdock Co., Akron, Ohio.
68	Oil-Dri Corp. of America, Chicago, Illinois.
53-54	The Patent Scaffolding Co., Inc., Chicago, Illinois.
57-58	Safety Clothing & Equipment Co., Cleveland, Ohio.
31	Safety Engineering Magazine, New York, New York.
73-74	Safety First Supply Co., Cleveland, Ohio.
25-26	Standard Safety Equipment Co., Cleveland, Ohio.
55	The Steel Scaffolding Co., Inc., Brooklyn, New York.
30	Sugar Beet Products Co., Saginaw, Michigan.
34	Thom McAn Safety Shoe Division, New York, New York.
24	West Disinfecting Co., Cleveland, Ohio.
22-23	Williams & Company, Inc., Pittsburgh, Pennsylvania.
60-61	Wilson Products, Inc., Reading, Pennsylvania.

F O R E W O R D

Since there was a considerable expansion of the 1946 Congress programs over those of preceding years, it has been found necessary, in the editing of this report of the proceedings to eliminate considerable matter, especially where it has not even a remote relation to the safety theme.

This has been absolutely necessary in order to keep this volume within reasonable limitations, both as to size and content. This will, we believe, be a convenience to the reader. Likewise, it will obviate any unnecessary drain upon the financial resources of the Division and maintain the general character of the Congress as a state-wide conference devoted exclusively to safety topics.

In the carrying out of this policy, we have attempted to exercise extreme care in preserving the essential elements of all safety discussion and in giving full reports on all talks wherein the subject matter was at all applicable to the work of industrial accident prevention. In this, we have endeavored to be fair and impartial in the handling of both commendation and criticism.

Even as it is, this volume is still considerably larger than we had hoped it would be and if the section officers for 1947 will use every effort to see that discussions are confined more closely to subjects covering the purpose of the Congress, it will be possible to publish a verbatim report of the proceedings without the necessity of culling out irrelevant matter.

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Official Program

TUESDAY MORNING, APRIL 16

EIGHT A. M.

All Sessions Will Convene on Eastern Standard Time
Registration—Mezzanine Floor

No Charge for Registration

GENERAL SESSION
NINE-THIRTY A. M.

Ball Room

Chairman—G. L. Colfinberry, Chairman, Industrial Commission of Ohio.
Song—"America"

Invocation:
Rev. D. S. Mills, Pastor, Avondale United Brethren Church, Columbus.

Dedication:
His Excellency Frank J. Lausche, Governor of Ohio.
Song—"My Ohio"

Welcome to City:
Honorable James A. Rhodes, Mayor of Columbus.

Remarks:
Harry L. Sain, Superintendent, Division of Safety and Hygiene.
Solo—Leslie L. Diehl
Group Singing—Led by Leslie L. Diehl
Accompanist—Norman Jones

Inspirational Address:
Theo. F. Smith, President, Oliver Iron and Steel Co., Pittsburgh, Pa.

TUESDAY AFTERNOON

SECTION MEETINGS
CERAMICS

TWO P. M.

Room 260—Neil House

Chairman—F. W. Gunther, Universal Sewer Pipe Co., Cleveland, Ohio.

Vice-Chairman—J. R. Westbrook, Shawnee Pottery, Zanesville, Ohio.

2:00 P. M.—Opening Remarks by F. W. Gunther, Chairman.

2:15 P. M.—"Methods and Equipment for Dust Control": Illustrated) Harry O. Danz, Manager Dust Control Division, American Blower Corporation, Detroit, Michigan.

3:15 P. M.—"Personal Protective Equipment":
George Lascher, Mine Safety Appliances Co., Pittsburgh, Pennsylvania. Mr. Lascher will show the new respirator movie "The Air We Breathe".

4:00 P. M.—Discussion Period.

CONSTRUCTION

TWO P. M.

Red Room—Neil House

Chairman—Howard E. Parse, Warren Roofing and Insulating Co., Cleveland, Ohio.

Vice-Chairman—T. E. Waller, Secretary and Business Representative, Carpenters' Local Union No. 200, Columbus, Ohio.

Closing Remarks by H. E. Pearce, Chairman.

"Industrial Safety":

Jas. L. McDevitt, President, Pennsylvania Federation of Labor, Harrisburg, Pennsylvania.

Remarks by T. E. Waller, Vice-Chairman.

"Safety Thru Better Human Relations":

Milan Stocking, Executive Secretary, Cleveland Chapter Painting and Decorating Contractors of America, Cleveland, Ohio.

"Safety From A Labor Viewpoint":

John F. Burns, Business Manager, Cleveland Building and Construction Trades Council, Cleveland, Ohio.

Discussion.

Presentation of various representatives of Contractors and Union Officials (Two minutes each).

DAIRY AND DAIRY PRODUCTS

TWELVE NOON

Luncheon

Birch Room—Neil House

TWO P. M.

Walnut Room—Neil House

Chairman—Howard Smith, Diamond Milk Co., Columbus.

Vice-Chairman—O. E. Anderson, Dairy Products Association, Columbus.

"Safety with E's in the Dairy Industry":

Bernard E. Savey, Safety Manager, Midwest Division, Borden Company, Columbus.

Highlights and Briefs on Workmen's Compensation Costs":

John T. Cantlon, John T. Cantlon & Associates, Columbus.

"Milk Man's Place in Safety Program":

Lt. J. E. Knight, Columbus Traffic Safety Department. Moving picture "X Marks the Spot" shown by Officer J. A. Foster, Columbus Traffic Safety Department.

Discussion.

Presentation of Safety Plaque and Safety Certificates.

EMPLOYEE PUBLICATIONS

ONE-THIRTY P. M.

Garden Room—Neil House

Chairman—Gordon Buchanan, Cincinnati and Suburban Bell Telephone Co., Cincinnati, Ohio.

First Vice-Chairman—Dorothy E. Schlect, Ohio Tool Co., Cleveland, Ohio.

Second Vice-Chairman—Charles O. Guy, Lima Association of Commerce, Lima, Ohio.

Secretary—Phyllis M. Swisher, Cincinnati and Suburban Bell Telephone Co., Cincinnati, Ohio.

Editor of The Blue Pencil—Joseph A. Ignat, U. S. Automatic Corporation, Amherst, Ohio.

1:30 P. M.—"Our Safety Job":

Garman Fish, Editor, National Safety News, National Safety Council, Chicago, Illinois.

2:00 P. M.—"Smile With Safety":

Walt Ditzen, Artist, Affiliated with National Safety Council.

3:00 P. M.—Discussion.

3:15 P. M.—"Keep It Breathing":

Robert Gunning, Director, Readable News Reports, Columbus, Ohio.

3:45 P. M.—Discussion:

4:00 P. M.—"The Function of Communication in Human Engineering":

Rev. Richard T. Deters, S. J., Dean of the Evening College, Xavier University, Cincinnati, Ohio.

4:45 P. M.—Discussion.

FARM

NINE-THIRTY A. M.

Grand Ball Room—Neil House

Joint session with the General Safety Congress. (See program)

Junior Ball Room—Neil House

Farm and Home Sectional Luncheon—Presiding:

H. C. Ramsower, Director of Agriculture Extension, The Ohio State University, Columbus.

"The National Farm Safety Program":

Mr. Ralph A. Rohwedder, Editor, Farm Safety Review, Farm Division, National Safety Council, Chicago, Illinois.

TWO P. M.

TWELVE NOON

Junior Ball Room—Neil House

Honorary Chairman—H. G. Ramsower, Director of Agriculture Extension, Ohio State University, Columbus, Ohio.

Chairman—Harry M. Pontious, Safety Director, Ohio Farm Bureau, Columbus.

Vice-Chairman—Chairman Program Committee—Joseph W. Fichter, Master, Ohio State Grange, Columbus.

Vice-Chairman—Paul McNish, Past Master, Ohio State Grange, Chardon, Ohio.

Treasurer—Harry G. Beale, Glendale Stock Farms.

Secretary—W. E. Stuckey, Safety Advisor, Division of Safety and Hygiene, Columbus.

Presiding—Mr. Joseph W. Fichter, Master, Ohio State Grange, Columbus.

2:00 P. M.—"A State Health Department's Interest in Farm and Home Safety":

B. R. Rickards, Director, Division of Public Education, New York State Department of Health, Albany, New York.

2:30 P. M.—Question Period.

2:45 P. M.—Panel Discussion: "County Programs in Farm and Home Safety":
 Leader: W. E. Stuckey, Farm Safety Specialist, Division of Safety and Hygiene, Industrial Commission of Ohio, and Agricultural Extension Service, The Ohio State University, Columbus.

Members: Mrs. Verdie Weaver, FSA Supervisor, and Forest Hall, Agriculture Agent, Hancock County.
 Miss Dorothy Sweany, FSA Supervisor, and James Pendry, District Soil Conservationist, Columbiana County.
 W. B. Wood, Agriculture Agent, and Seymour Mailey, Manager, Farm Bureau Co-op, Madison County.
 Dale Bee, Rural Service Supervisor, Cincinnati Gas and Electric Company and Carl Ansteatt, Deputy Grange Master, Clermont County.

3:45 P. M.—Question Period.

INDUSTRIAL ARTS AND VOCATIONAL EDUCATION

TWO-THIRTY P. M.
 Room 360—Neil House

Chairman—Perry Ritchie, Cooperative High School, Dayton, Ohio.

Vice-Chairman—Chester Wherry, Boys Trade School, Columbus.

Secretary—Raymond O. Fludder, Supervisor of Industrial Arts, Board of Education, Hamilton, Ohio.

"The Proposal for a State Wide School Shop Safety Program":

Wayne P. Hughes, Acting Director, School and College Division of the National Safety Council, Chicago, Illinois.
 The organization of state committees.

- Uniform accident-reporting procedures.
- Program of safety instruction according to trades.
- Uniform shop safety instruction techniques.
- Uniform safety guarding in school shops.
- A plan for making the program function.

Discussion.

Safety film and slide film in color.

INDUSTRIAL AND COMMERCIAL MOTOR VEHICLE OPERATION

ONE-THIRTY P. M.
 Parlor H—Deshler-Wallick

Chairman—Fred C. Tarbox, U. S. Truck Lines, Cleveland, Ohio.

First Vice-Chairman—T. H. Watkins, General Agent, Railway Express Agency, Columbus.

Second Vice-Chairman—A. H. Polk, Superintendent, Cincinnati and Lake Erie Transportation Co., Dayton, Ohio.

2:00 P. M.—Opening Remarks by Chairman.

Appointment of Nominating Committee.

2:10 P. M.—"Urban Developments to Facilitate Movement of Commercial Vehicles":

Vernon L. Johnson, Traffic Engineer, Department of Public Safety, Cleveland, Ohio.

2:40 P. M.—"Safety Program for Commercial Motor Vehicle Fleets":

D. H. Gilhousen Safety and Personnel Director, Norwalk Truck Lines, Norwalk, Ohio.

3:10 P. M.—"Greater Safety Through Truck and Bus Design":

Robert Cass, Vice President, White Motor Company, Cleveland, Ohio.

3:45 P. M.—Panel Discussion participated by the three speakers and discussion from floor.

4:00 P. M.—Election of officers.

METALS

TWO P. M.

Hall of Mirrors—Deshler-Wallick

Chairman—A. B. Waugh, Otis Works, Jones & Laughlin Steel Corporation, Cleveland, Ohio.

Vice-Chairman—James Gourley, Timken Roller Bearing Co., Canton, Ohio.

Secretary—Joseph F. Collins, Youngstown Sheet and Tube Company, Youngstown, Ohio.

"The Responsibility For Safety":

R. J. Greenly, Personal Relations Department, Jones & Laughlin Steel Corporation, Pittsburgh, Pennsylvania.

"Industrial Hygiene Developments Relating to Safety":

Theodore F. Hatch, Head, Membership Relations, Industrial Hygiene Foundation, Pittsburgh, Pennsylvania.
 H. G. Dyklor, Chief, Bureau of Industrial Hygiene, Division of Health, City of Cleveland, Ohio.

NEWSPAPERS AND PRINTERS

ONE-THIRTY P. M.

Room 160—Neil House

Chairman—Joseph S. Price, The McCall Corporation, Dayton, Ohio.

Co-Chairman—William F. Gutwein, The McCall Corporation, Dayton, Ohio.

Vice-Chairman—Omer S. Legg, Federal Printing Co., Columbus.

Secretary—Robert J. Brown, American Education Press, Columbus.

Round Table Discussion:

- Instructing new employees in Safety habits.
 - Adjust the disabled veterans to old job.
 - Good Housekeeping.
 - New techniques in material handling as they apply to safety.
 - Providing safe atmospheric conditions in Pressroom.
 - The Foreman's part in the Safety Program.
 - How the Unions can help a safety program to succeed.
- Bring information on any of the above subjects which you think might help others; and also questions about conditions involving safety in your plant, on which you desire help.

Presentation of Safety Plaque and Safety Certificates.

PAPER AND PAPER PRODUCTS

TWO P. M.

Coral Room—Neil House

Chairman—Clifford S. Laver, Anchor Hocking Glass Corporation, Lancaster, Ohio.

Vice-Chairman—S. J. Tranter, Sorg Paper Co., Middletown, Ohio.

Secretary—A. H. Oglesby, Gardner-Richardson Co., Middletown, Ohio.

2:00 P. M.—What has happened in 1945:

Clifford S. Laver, Chairman.

2:15 P. M.—Introduction of Victory Drury of the Joseph E. Seagram's Sons, Inc., Lawrenceburg, Ind. Demonstration and Talk on Fire Prevention.

3:15 P. M.—Discussion.

3:45 P. M.—Appointment of Nominating Committee.

PETROLEUM

TWO P. M.

Parlors A-B-C—Deshler-Wallick

Chairman—C. L. Lockhart, Shell Oil Company, Cleveland, Ohio.

Vice-Chairman—R. C. Zupp, Canfield Oil Co., Cleveland, Ohio.

"Management's Responsibility and Leadership in Safety":

Henry B. Day, General Electric Co., Electronics Division, Owensboro, Kentucky.

"Highway Safety":

Sgt. M. G. Hegele, State Highway Patrol, Columbus.

Motion Picture Illustrating Methods Used in the Control of Fires at Refineries and Large Terminal Storage Points:

R. T. Henderson, Safety Director, Standard Oil Company of Ohio, Cleveland, Ohio.

RUBBER

TWO P. M.

Parlors I and J—Deshler-Wallick

Chairman—F. A. Berkey, Mansfield Tire and Rubber Company, Mansfield, Ohio.

First Vice-Chairman—George F. Hodgson, Republic Rubber Co., Youngstown, Ohio.

Second Vice-Chairman—C. H. Workman, Pharis Tire and Rubber Co., Newark, Ohio.

Secretary—Marion Hurr, General Tire and Rubber Company, Akron, Ohio.

2:00 P. M.—Opening Remarks:

F. A. Berkey, Chairman.

2:05 P. M.—"Rubber Industry Statistics":

Glen D. Cross, Safety Director, The Firestone Tire and Rubber Company, Akron, Ohio.

2:15 P. M.—"Understanding and Controlling Human Behavior":

Clyde R. Powell, Public Relations Director, Endicott-Johnson Corporation, Allentown, Pennsylvania.

3:15 P. M.—"Getting Safety Over to the Employees":

1. New Employees—George Burkhardt, General Tire & Rubber Company, Akron.

2. Old Employees—M. E. Badstuber, The Ohio Rubber Company, Wiloughby, Ohio.

General Discussion:

Leader, W. L. Schneider, The B. F. Goodrich Company, Akron, Ohio.

TUESDAY EVENING

SIX-THIRTY P. M.

ANNUAL CONGRESS BANQUET

Ball Room—Neil House

Dinner Music

Toussaintmaster—John M. Roche, Director, Industrial Division, National Safety Council, Inc., Chicago, Illinois.

Invocation:

Rev. D. S. Mills, Pastor, The Avondale United Brethren Church, Columbus.

Solo:

Leslie L. Diehl, Baritone, Dayton Safety Council, Accompanist, Norman Jones.

"Keeping Ahead of the Headlines":

Golyer Snyder, War Correspondent and World Traveler, Kingston, New York.

Surprise Entertainment.

WEDNESDAY MORNING

EIGHT-THIRTY TO NINE-FIFTEEN

Junior Ball Room—Neil House

"Psychology of Public Speaking":

Prof. W. Hayes Yeager, Chairman, Department of Public Speaking, The Ohio State University, Columbus.

WEDNESDAY MORNING

SECTION MEETINGS

CEMENT, LIME, QUARRY, SAND AND GRAVEL

NINE-THIRTY A. M.

Walnut Room—Neil House

Chairman—O. R. Cornelius, Southwestern Portland Cement Co., Osborn, Ohio

Vice-Chairman—Claude L. Clark, Ohio Sand and Gravel Association, Columbus.

Call to Order and Opening Remarks:

O. R. Cornelius, Chairman.

Appointment of Nominating Committee to Nominate a Chairman, Vice-Chairman and Secretary, with Instructions to Report at the Close of the Meeting.

"Organized First Aid Training as a Means for Making Employees Safety-Minded":

S. D. Gardner, Chief Engineer, Southwestern Portland Cement Co., Osborn, Ohio.

"Improved Safety Methods in the Handling of Explosives in Production of Crushed Stone, Lime and Cement":

J. M. Pierson, Technical Representative, Dupont Powder Co., Wilmington, Delaware.

Award of Trophies by Representative of Division of Safety and Hygiene.

"Industrial Accident, Disease Cost Control":

Geo. A. Mohr, Chief Actuary and Underwriter, Gates-McDonald & Co., Columbus.

Open Forum Discussion of New Methods for Promoting Safety:

Leader, A. J. R. Curtis, Assistant to the President, Portland Cement Association, Chicago, Illinois.

Election of Officers—a Chairman, Vice-Chairman and a Secretary.

CERAMICS

NINE A. M.

Room 260—Neil House

Chairman—F. W. Gunther, Universal Sewer Pipe Corporation, Cleveland, Ohio.

Vice-Chairman—J. R. Westbrook, Shawnee Pottery Co., Zanesville, Ohio.

9:00 A. M.—Opening Remarks:

F. W. Gunther, Chairman.

9:30 A. M.—"Sight Security" (Illustrated):

Milton M. Bowman, Safety Director, Cleveland Transit System, Cleveland, Ohio.

11:00 A. M.—Report of Nominating Committee and Election of Officers.

CHEMICAL

NINE A. M.

Parlor H—Deshler-Wallick

Chairman—W. T. Foulz, E. I. duPont de Nemours & Co., Grasselli Chemical Department, Cleveland, Ohio.

Chairman—J. G. McAuley, Diamond Alkali Company, Painesville, Ohio.

A. M.—“A Study of Specific Hazards in Handling Chemicals”; John J. Hoffman, Assistant Director of Safety, Monsanto Chemical Co., St. Louis, Missouri.

9:45 A. M.—“How We Reduced Accident Frequency and Severity Rates through a Supervisory Safety Training Program”; J. G. McAuley, Director of Safety and Welfare, Diamond Alkali Company, Painesville, Ohio.
This talk will be followed by audience participation in a “true and false” quiz conducted by Fred A. Koester, Assistant Director of Safety and Welfare, Diamond Alkali Co., Painesville, Ohio.

10 A. M.—Discussion:
Led by Fred A. Koester.

CONSTRUCTION

NINE A. M.

Red Room—Neil House

Chairman—Howard E. Pearse, President, Warren Roofing and Insulating Co., Cleveland, Ohio.

Chairman—T. E. Waller, Secretary and Business Representative, Carpenters' Local Union No. 200, Columbus.

Opening Remarks:

Howard E. Pearse, Chairman.

Introduction of Those Present.

Joint Nominating Committee.

By, Accident Prevention and Rehabilitation”;

Elmer Davis, Treasurer, Cleveland Construction Co., Cleveland, Ohio.

Remarks:

T. E. Waller, Vice-Chairman.

Arrangements for Safety on the Job”;

John W. Jockel, Secretary and Treasurer, Ohio State Conference Bricklayers and Masons, and Plasterers International Union, Cleveland, Ohio.

Joint Discussion.

Announcement of Certificates to Group Winners in the 1945 Safety Campaign.

Announcement of Various Representatives of Contractors and Union Officials (10 Minutes Each).

Announcement of Officers for Next Year.

Business.

EMPLOYEE PUBLICATIONS

NINE-THIRTY A. M.

Garden Room—Neil House

Chairman—Gordon Buchanan, Cincinnati and Suburban Bell Telephone Co., Cincinnati, Ohio.

First Vice-Chairman—Dorothy E. Schlect, Ohio Tool Co., Cleveland, Ohio.

Second Vice-Chairman—Charles O. Guy, Lima Association of Commerce, Lima, Ohio.

Secretary—Phyllis M. Swisher, Cincinnati and Suburban Bell Telephone Co., Cincinnati, Ohio.

Editor of The Blue Pencil—Joseph A. Ignat, U. S. Automatic Corporation, Amherst, Ohio.

9:45 A. M.—“I Was There”;

William G. Whyte, a Colonel in the United States Army, who originated the Employee Publication Section of the War Department, Bureau of Public Relations, now in Public Relations Department, United States Steel Corporation, Chicago, Illinois.

10:45 A. M.—Discussion.

10:30 A. M.—“Let's Get Analyzed”;

Theodore Brown, Vice-President, Perry Brown, Inc., Advertising Agency, Cincinnati, Ohio.

11:00 A. M.—Discussion.

11:15 A. M.—“Reconversion—A Challenge”;

Elmer Applegett, Editor, Socony-Vacuum News, Oil Power, Socony-Vacuum Oil Co., New York.

12:00 M.—Discussion.

12:30 P. M.—Auld Lang Syne Luncheon.

EMPLOYEE PUBLICATIONS WILL BE ON
DISPLAY THROUGHOUT THE
SECTION MEETINGS.

FOUNDRIES

NINE-THIRTY A. M.

Junior Ballroom—Neil House

Chairman—Allen Cleaver, Newark Stove Co., Newark, Ohio.

Vice-Chairman—To be elected.

Secretary—To be elected.

9:30 A. M.—Opening Remarks:

Allen C. Cleaver, Chairman.

9:45 A. M.—“Foundry Ventilation” (Illustrated);

John M. Kane, Chief Engineer, Dust Control Division, American Air Filter Co., Louisville, Kentucky.

10:45 A. M.—“Foundry Safety”;

W. P. Dudley, Secretary-Treasurer, Ohio Steel Foundry Company, Lima, Ohio.

11:30 A. M.—Report of Nominating Committee and Election of Officers.

METALS

NINE-THIRTY A. M.

Hall of Mirrors—Deshler-Wallick

Chairman—A. B. Waugh, Otis Works, Jones & Laughlin Steel Corporation, Cleveland, Ohio.*Vice-Chairman*—James Gourley, Timken Roller Bearing Co., Canton, Ohio.*Secretary*—Joseph F. Collins, Youngstown Sheet and Tube Co., Youngstown, Ohio.**"Methods of Assisting the Foreman to Develop Safe Thinking on the Part of His Men":**

F. W. Kelsey, Manager of Safety & Welfare, Jones & Laughlin Steel Corporation, Pittsburgh, Pennsylvania.

"Power Press and Machine Tool Guarding" (With Slide Illustrations)

D. T. Mould, Safety Director, General Motors Corporation, Detroit, Michigan.

"Developing a Safety Program in a Small Plant":

John Roche, National Safety Council, Chicago, Illinois.

MINING

NINE-THIRTY A. M.

Victory Room—Neil House

Chairman—J. E. Williams, Rail and River Coal Co., Bellaire, Ohio.*Vice-Chairman*—James Collins, Warner Collieries Co., Fairport, Ohio.*Secretary*—Thos J. Price, United Mine Workers of America, Columbus.**Opening Remarks:**

J. E. Williams, Chairman.

Welcome:

Stephen Williams, Chief, Ohio Division of Mines, Department of Industrial Relations, Columbus.

"Methods of Solving the Safety Director's Problems":

Robert Dixon, Personnel and Safety Director, West Virginia Coal and Coke Co., Omar, West Virginia.

"Prevention of Fires Caused by Electric Arcs and Sparks":

E. J. Glein, Chief Electrical Division, Bureau of Mines, Pittsburgh, Pennsylvania.

Presentation of Certificates to Winners in the State-Mine Safety Campaign

by R. W. Morse, Vice-Chairman, Industrial Commission of Ohio.

Election of Officers.

PAPER AND PAPER PRODUCTS

NINE-THIRTY A. M.

Coral Room—Neil House

Chairman—Clifford F. Laver, Anchor Hocking Glass Corporation, Lancaster, Ohio.*Vice-Chairman*—S. J. Tranter, Sorg Paper Company, Middletown, Ohio.*Secretary*—A. H. Oglesby, Gardner-Richardson Co., Middletown, Ohio.9:30 A. M.—**"The Value of a Safety Program":**

John T. Cantlon, John T. Cantlon & Associates, Columbus.

10:15 A. M.—**Discussion.**10:00 A. M.—**Election of Officers after Report of Nominating Committee.**10:15 A. M.—**"Your Problems and Ours"—Panel Discussion.**
Questions for Discussion:

1. How much authority should be given to safety committees?
2. How to get supervision's cooperation on safety program.
3. How would you suggest handling a new man on a paper machine, who was actually afraid of the machine?
4. How would you curb the over-ambitious man who seemingly has no fear of a paper machine?
5. Proper placement of lights to reduce hazards on a paper machine.
6. Explain the dangers of inrunning nips.

Participants: Kenneth L. Faust, Champion Coated Paper Company, Hamilton; Don Hunter, Oxford-Miami Paper Company, West Carrollton; H. E. Hadley, The Gardner-Richardson Company, Middletown, and George Bryan, Sorg Paper Company, Middletown.

PETROLEUM

Parlors A-B-C—Deshler-Wallick

Chairman—C. L. Lockhart, Shell Oil Co., Cleveland, Ohio.*Vice-Chairman*—R. C. Zupp, Canfield Oil Co., Cleveland, Ohio.**"Safety in Refinery Operations":**

R. W. Greenburg, Safety Engineer, Toledo Refinery, Pure Oil Company, Toledo, Ohio.

"Fundamentals of Accident Prevention and Safety Program for Personnel":
F. R. McLean, Manager Safety and Insurance Department, Socony-Vacuum Oil Company, Detroit, Michigan.**Presentation of Safety Plaques and Safety Certificates.****Motion Picture on Eye Conservation:**

Milton M. Bowman, Safety Director, Cleveland Transit Co., Cleveland, Ohio.

PUBLIC UTILITIES

NINE A. M.

Grand Hall Room—Deshler-Wallick

Chairman—F. W. Frecker, Ohio Power Co., Canton, Ohio.*First Vice-Chairman*—J. W. Read, Ohio Bell Telephone Co., Columbus.*Second Vice-Chairman*—G. A. Doeller, Dayton Power & Light Co., Dayton, Ohio.**Opening Remarks:**

F. W. Frecker, Chairman.

Appointment of Nominating Committee.**"Planned Wire Crossings":**

Sound movie in color furnished by The Ohio Bell Telephone Company with comments on training methods in the communication industry by G. H. McBride, Accident Prevention Supervisor, Ohio Bell Telephone Company, Southwestern Area, Columbus, Ohio.

"Recognizing Hazards—Then What?":

Mark Flad, Safety Supervisor, Dayton Power & Light Company, Dayton, Ohio.

"Promotional Problems of a Safety Program":

H. O. Sprinkler, Manager of Operations, Monongahela West Penn Public Service Company, Fairmont, West Virginia.

Discussion Period.

Report of the Nominating Committee.

RUBBER

NINE-THIRTY A. M.

Parlors I & J—Deshler-Wallick

Chairman—F. A. Berkey, Mansfield Tire & Rubber Co., Mansfield, Ohio.

First Vice-Chairman—George F. Hodgson, Republic Rubber Company, Youngstown, Ohio.

Second Vice-Chairman—C. H. Workman, Pharis Tire and Rubber Co., Newark, Ohio.

Secretary—Marion Hurr, General Tire & Rubber Company, Akron, Ohio.

9:30 A. M.—*Report of Nominating Committee.*

9:45 A. M.—*"Labor's Contribution to Safety":*

L. S. Buckmaster, General President, C. I. O. United Rubber, Cork, Linoleum and Plastic Workers of America, Akron, Ohio.

10:15 A. M.—*"The Control of Electrostatic Fires and Explosions in the Industry":*

Robin Beach, Engineers Associated, Brooklyn, New York.

11:15 A. M.—*"Operation of the New Health Code":*

Joseph E. Flanagan, Division of Industrial Hygiene, Ohio Department of Health, Columbus.

12:30 P. M.—*Rubber Section Luncheon, Hall of Mirrors, Deshler-Wallick.*

Toastmaster—J. T. Kidney, Manager, Employees Service Division, Goodyear Tire Rubber Co., Akron, Ohio.

WEDNESDAY AFTERNOON

GENERAL SESSION

ONE-THIRTY P. M.

Ball Room—Neil House

"SEE THAT SAFETY CLICKS IN '46"

Program Chairman—R. W. Morse, Vice-Chairman, Industrial Commission of Ohio, Columbus.

Invocation:

Rev. C. D. Osborn, Como Evangelical Church, Columbus.

"Labor's Responsibilities and Interest in Safety":

Hon. John W. Gibson, First Assistant Secretary, United States Department of Labor, Washington, D. C.

"The Worker's Stake in Safety":

Thomas J. Duffy, Former Chairman, Industrial Commission of Ohio, Columbus.

"Management's Responsibilities and Interests in Safety":

O. L. Beardsley, Personnel Staff, General Motors Corporation, Detroit, Michigan.

"The New Industrial Health Regulations of Ohio":

Joseph E. Flanagan, Jr., Industrial Hygiene Engineer, Ohio Department of Health, Columbus.

WEDNESDAY EVENING

FIRST AID DEMONSTRATION

SEVEN-THIRTY P. M.

Ball Room—Deshler Wallick

Chairman—W. E. Obetz, Medical Advisor, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus.

W. R. Middendorf, American Red Cross, Columbus, Ohio, and J. E. Williams, Rail & River Coal Company, Bellaire, Ohio.

THURSDAY MORNING

EIGHT-THIRTY TO NINE-FIFTEEN

Junior Ball Room—Neil House

"Psychology of Public Speaking":

Prof. W. Hayes Yeager, Chairman, Department of Public Speaking, The Ohio State University, Columbus.

TOPIC SESSIONS

NINE THIRTY A. M.

INDUSTRIAL COMMISSION SECTION

Garden Room—Neil House

Chairman—Clark L. Grubb, Assistant Chief, Claims Section, Industrial Commission of Ohio.

Remarks:

"Legal Problems":

Homer Hickling, Chief of Legal Section, Industrial Commission of Ohio.

"Medical Problems and Procedures":

Dr. R. M. Ambre, Chief of Medical Section, Industrial Commission of Ohio.

"Effects of Accident Experience on Costs":

H. H. Pickering, Chief of Actuarial Section, Industrial Commission of Ohio.

"Claims Procedure":

George H. Thompson, Chief of Claims Section, Industrial Commission of Ohio.

Discussion:

INDUSTRIAL FIRE PREVENTION

Red Room—Neil House

Chairman—H. N. Rider, Automatic Sprinkler Corporation of America, Youngstown, Ohio.

Vice-Chairman—J. R. Rowntree, Ohio Inspection Bureau, Columbus.

"The State of Ohio's Interest in Fire Prevention":

Harry J. Callan, State Fire Marshall, Columbus, Ohio.

"Let's Sell Fire Safety":

Capt. J. J. Smidl, Chief of Fire Protection, Wright Field, Dayton, Ohio.
Discussion.

MERCHANDISING SAFETY

Junior Ball Room—Neil House

Chairman—R. H. Ferguson, Republic Steel Corporation, Cleveland, Ohio.

"Techniques in Selling Safety":

Howard M. Dirks, Industrial Relations Director, The Perfect Circle Company, Hagerstown, Indiana.

"Sell—Don't Peddle Safety":

L. W. Lohrey, Personnel Consultant, Delco Products Co., Dayton, Ohio.
R. Ernest Christin, Safety Advisor, Columbus Bolt Works, Columbus, Ohio.

"A Safety Approach to Accident Prevention":

R. Ernest Christin, Safety Advisor, Columbus Bolt Works, Columbus, Ohio.

OCCUPATIONAL DISEASE HAZARDS—THEIR CAUSES AND CONTROL

Birch Room—Neil House

Chairman—Dr. A. L. Kefauver, Assistant Supervisor, Medical Section, Industrial Commission of Ohio.

"Highlights of Post War Industrial Hygiene":

F. S. Mallette, Industrial Hygienist and Toxicologist, The Firestone Tire & Rubber Co., Akron, Ohio.

"Personal Protective Equipment and How to Use It":

Dr. M. M. Shafer, Medical Director, Frigidaire Division, General Motors Corporation, Dayton, Ohio.

THURSDAY AFTERNOON

GENERAL SESSION

ONE-THIRTY P. M.

SUPERVISION SAFETY IMPROVEMENTS

Junior Ball Room—Neil House

Introduction:

Will T. Blake, Member, Industrial Commission of Ohio, Columbus.

Chairman—Joseph R. Strobel, Director of Vocational Education, Department of Education, Columbus.

Vice-Chairman—W. F. Ballant, President, The Foremen's Club of Columbus, Inc., Columbus.

THE SAFETY DIRECTOR ON TRIAL

A Town Meeting Program to discuss

"Is the Safety Director Passing the Buck to the Foreman?":

Moderator—Paul R. Giuglier, Moderator, Columbus Town Meeting of the Air.

Panel Members:

Ralph C. Ferguson, Safety Engineer, 843 Specialized Depot, Army Air Forces, Columbus.

R. Ernest Christin, Safety Advisor, Columbus Bolt Works, Columbus.

John E. Lewis, Safety Engineer, Curtiss-Wright Corporation, Columbus.

Willoughby J. Mowery, Foreman, Columbus Auto Parts Co., Columbus.

C. S. Kuskowski, Foreman, Columbus Coated Fabrics Corp., Columbus.

Thomas J. Emrick, Foreman, 843 Specialized Depot, Army Air Forces, Columbus.

GENERAL SESSION

Tuesday Morning Session, April 16, 1946

The General Session of the All Ohio Safety Congress was called to order at 9:30 A. M. by Mr. G. L. Coffinberry, Industrial Commission of Ohio, Columbus, Ohio, Chairman.

The program opened with the singing of America, led by Leslie L. Diehl, Dayton, Ohio, who later in the program, favored the audience with a solo, Norman Jones providing the accompaniment.

Rev. D. S. Mills, Pastor, Avondale United Brethren Church, Columbus, Ohio, delivered the invocation.

Chairman Coffinberry: Ladies and gentlemen, to preside at this opening session of the All Ohio Safety Congress is appreciated indeed by me. It is very gratifying to have the large registration that is already indicated. The torch of safety has been held aloft and kept in the forefront all during the war while carnage was present in many parts of the world. The perspective of safety was kept in view. We may disagree as to the best means of promoting safety, but we are all united in the thought that safety is necessary and desirable.

We have in session today the General Safety Code Advisory Committee which is going ahead with the revision of our Safety Codes that now exist and need revision and also to establish other safety codes. I have discovered that there are several different and divergent schools of thought on the matter of safety, and particularly safety codes. They range from those who believe that every particular machine should have its code; those who want to cover the whole situation with one code by treating principles instead of machines.

I think the latter is the ideal solution, if it is really the solution. To have the Code split up into industries is very confusing. The question has always been as to whether the provisions of the Code of one industry apply to another. I don't know how practical it is to have one Code, but it certainly would be very desirable insofar as mechanism is concerned in industry; when it comes to occupational diseases we have an entirely different matter, at least insofar as treatment is concerned.

Governor Lausche had a previous engagement and is therefore unable to be here this morning, which we all regret. However, we have in his place a well known man in the State Government who is charged with great responsibilities. I refer to Mr. Perry Ford, the Director of Highways of Ohio. Mr. Ford.

DEDICATION

By Mr. Perry Ford, Director of Highways of the State of Ohio

Chairman Coffinberry, distinguished guests, Mr. Sahn, ladies and gentlemen: I can well imagine how disappointed you must be in having to listen for three or four minutes to a thirteenth carbon copy. I am just about that far removed from the Governor in the matter of addressing you.

I am conscious of your mission here and am charged by him to express his regrets in his incapacity to be here this morning and to pledge to you the full support and cooperation of his administration in a subject that brings you to this meeting.

I suspect that the greatest thing that can be done in meetings of this kind is to keep constantly before our people the necessity for added vigilance with respect to safety. The mounting casualties by reason of carelessness and inadequate methods is appalling. It challenges the people of this country. In the particular department with which I am associated it is quite acute, and we are charged by the course of moving events to take stock of our present conditions and anticipating what we might expect in the future. This is indeed a vital and important question. Things that prompt us to think as deeply as we possibly can come to us in the form of a challenge and require of us to prepare our plans.

I did quit a bit of construction work, and you just can't tell what is going to happen to the stuff.

I remember one particular experience: I hired a man to do the shooting for me. He said he was an experienced dynamite man. He drilled some of the holes, and they were quite deep, and I was standing up on top of the cut one day watching this man. He was shooting the water out of the hole before he loaded them with a half stick of dynamite.

He put the dynamite in the hole and took the wire out, and then he turned around this way (indicating) and he shot one hole as I watched him.

A half stick of dynamite, of course, isn't much, but he didn't know where the stones were going that were coming out of that hole.

So, for you people who have made a good record in this business, I believe it is exceptional because you have a hazardous industry.

The first presentation I want to make is to the Standard Lime and Stone Company, the winners in the July-December 1945 period.

I take great pleasure in giving this to you, Mr. Weber.

You also are awarded a certificate for the lime burners state-wide safety campaign.

Mr. Weber: Thank you, Mr. Chairman, and gentlemen, I am pleased to receive this trophy, and on behalf of the employees of our company I wish to state that it is something which they have very well deserved.

Mr. Morrow: The next safety merit certificate I have is for the Central Silica Company, State-Wide Quarry Campaign.

The next one I have is the safety merit certificate for the Sand and Gravel Producers, the North Cincinnati Sand and Gravel Company.

I have one here for the Sand and Gravel Producers, the American Aggregates Corporation.

Mr. Morrow: I take great pleasure in presenting this to you, Mr. Ruse.

Mr. Ruse: May I say on behalf of Mr. Edward Mills, manager of the American Aggregates Corporation of Massillon, Ohio, for whom I am accepting this, that next year he is going to have some competition. Columbus is going to be in there.

Mr. Morrow: The Central Silica Co. also wins this plaque, but there isn't anyone here to receive it.

I have a number of 100 per cent certificates here.

(These certificates were presented to firms having representatives present and it was announced the others would be mailed.)

Chairman Cornelius: Thank you, Mr. Morrow. The next speaker on our program is Mr. George A. Mohr, Chief Actuary and Underwriter, Gates-McDonald & Co., Columbus, Ohio. He will speak to us on "Industrial Accident, Disease Cost Control."

"INDUSTRIAL ACCIDENT, DISEASE COST CONTROL"

Mr. George A. Mohr, Chief Actuary and Underwriter,

Gates-McDonald & Co., Columbus, Ohio.

Mr. Mohr: Mr. Chairman, and ladies and gentlemen.

I consider it indeed an honor to be selected to address your group here this morning. I only hope I may be able to bring you some ideas and suggestions which will help you in solving your individual problems.

As a matter of fact, my main reason in selecting as my topic the cost of industrial injuries and diseases was that I feel that most of us here today are pretty well sold on the psychological angle of safety. I also believe that most of you are rather familiar with the hazards of your industry and your individual establishments, and how to cope with them.

I do find, however, from my almost daily contacts with personnel directors, safety directors, and plant superintendents, that many are not familiar with all of the costs attendant upon industrial injuries and diseases, and the proper means of controlling these costs.

The success of any safety program depends in a large measure upon the supervisory staff, the foremen and superintendents. Almost always a bad departmental safety record can be traced directly to lack of effective supervision. Now, I don't mean that it is

always the fault of the supervisor. Unless he is given the full backing of management and the proper training in safety, he cannot be expected to give good results.

There is nothing so discouraging in the planning of a safety program than to have some superintendent or foreman of the old school tell you that all of these new fangled safety ideas are in vain. Just because he has worked on the job 45 years, and is still alive and still has both of his arms, both of his legs, and both eyes.

Like the old lady who went to the psychiatrist to be psychoanalyzed because her friends and neighbors thought she was crazy, and when the doctor asked her why they thought she was crazy, she replied, "Because I am so fond of pancakes."

The doctor commented that that was no reason to feel that she was crazy, as a matter of fact, he was very fond of pancakes.

The old lady's face brightened perceptibly, and she exclaimed, "Oh, doctor, then you must come up to my house and see my pancakes sometime—I have six whole trunks full."

(Laughter.)

For the purpose of my discussion today, let's assume that in spite of everything we may do along the lines of safety and accident prevention, we will have injuries. Our secondary objective, therefore, is to whenever possible control the costs of those injuries that occur.

Now, let's consider some of these factors of cost and how they can be controlled. Probably the first one that comes to mind is Workmen's Compensation Insurance, and that is a large factor of cost. However, statistics compiled throughout the country indicate that, on the average, Workmen's Compensation represents only one-fifth of the total cost to the employer of an industrial injury.

Now, let's take an industrial injury and follow its reaction from start to finish, and see what we get. First, we have the loss of time on the part of the supervisory staff in arranging for the necessary medical treatment or hospitalization and investigating the injury. That is costly. Then we have the slow down in production in the department in which the accident occurred, or possibly the whole plant, for the balance of the shift or day, occasioned by the psychological impact of a serious injury on the other workers. That can be costly.

We are faced with the necessity of replacing the injured worker either temporarily or permanently. That means investigating applicants, changing numerous records, and extensive training of the new employee, and more time on the part of your supervisory staff.

The new employee will damage materials, tools, and costly machinery, and until he is thoroughly adapted to the job, he will be more accident prone than a seasoned worker and for a considerable length of time his production will be definitely limited. In the case of a highly skilled or technical job, this cost alone can be prohibitive.

If the injured employee has a large family, it, of course, cannot exist long on his compensation checks. So they become the obligation of some local charity organization, a high percentage of whose funds may be contributed by the employer.

If too many serious injuries occur in a plant, the company may be hard put to obtain workers. A bad accident record gets around, especially in your smaller communities. A bad accident record is often used by labor organizations as a bargaining instrument for higher wages.

Add all of these costs together with the many others attendant upon industrial injuries and diseases, and you indeed have an alarming figure.

Now, how can these factors be controlled?

Well, there are a great many things that can be done to materially reduce the cost of industrial injuries.

Under the merit-rating system presently utilized by the Ohio Industrial Commission, the individual employer's rate can vary to the extent of 800 per cent, dependent upon how his own individual accident record stacks up to that of his basic industry in general.

Many of us here today are operating under a basic industry rate of \$4.00, and that means that under this system, by a good accident record you can develop an individual rate as low as 80 cents, or by a bad record an individual rate as high as \$7.20. That gives you a potential savings of \$6.40 per hundred dollars of payroll to shoot at, and that is from the Workmen's Compensation angle alone.

Unfortunately for those employers who are unaware or unprepared, this rate is not determined solely on the amount of compensation and medical costs dispersed by the Industrial Commission on an employer's claims.

Each year incident to the revision or redetermination of rates, the Industrial Com-

mission establishes reserves on all claims within the five year rating period which are found to be in a pending status for any reason on certain review dates. These reserves start at \$500 and range up to approximately \$18,000 per claim, depending upon the type of claim and the duration of pendency.

Once established and charged in the employer's experience, one of these reserves will increase the same amount of rate or premium for one year as though the Industrial Commission had actually paid out the amount of the reserve on the claim. It is not unusual for one intermediate reserve alone to increase an employer's rates as much as 25 per cent.

In a large number of cases these reserves are incurred because of delay in the processing of the claim by the Industrial Commission because of lack of information from the employer.

This type of cost can be reduced to a minimum by the prompt investigation of every injury to obtain the essential facts, the prompt filing of the initial application, and by the prompt supplying of any additional information, such as wage statements, date of return to work, and other information which will assist the Industrial Commission in adjudicating and closing out the claim.

In the case of injuries occurring in the latter months of the year, in many instances a delay of a few days in the filing of the initial application will mean the difference between a costly reserve or no reserve.

I can give you an outstanding example of how seriously reserves can affect the employer's individual rates.

At the start of the war my company was retained to handle the Workmen's Compensation matters of a large corporation in this state engaged in direct war work. This company's payroll ran in the millions of dollars annually, and it initially contributed in excess of \$100,000 a year in premiums to the Industrial Commission.

The Safety Director of this organization was delegated the handling of claims for the company, and he was interested in only one thing, and that was his accident frequency record. Any claim that was allowed by the Industrial Commission affected his record. Any claim disallowed by the Industrial Commission did not affect his record. He would accompany us on hearings before the Industrial Commission or the regional boards, and in spite of everything that we could do to assist him, would raise objections and request investigation in minor clear-cut cases, probably involving only 25 or 30 dollars in total costs. The procedure naturally delayed the processing of many claims. As a result, at the end of the year when this company's rate was redetermined, over 50 reserves were established and charged in its experience, a high percentage of which could be avoided by the proper treatment.

The penalty modification incurred by these reserves increased the company's premiums over 50 thousand dollars in the year period affected, and needless to state, when the management of this company was familiarized with the cause of this penalty increase, the Safety Director was promptly relieved of the necessity of handling their claims.

Another most important factor which greatly influences the cost of the employer of industrial injuries is the physical condition of the worker at the time of injury.

Here in Ohio the employer is held responsible for the physical condition of an employee at the time of his hiring, or at the time of an injury he may subsequently sustain. That means that if you hire a man with a weak heart, weak back, inguinal rings, tuberculosis, diabetes, arteriosclerosis, or numerous other such conditions, and he sustains some minor injury which affects the pre-existing condition and it causes death or extended disability, you are just as responsible for the total cost of the claim, just as though the man had been in a perfect state of health at the time of his accident.

The employer's only defense against this type of claim is to avoid the hiring of applicants suffering from the more serious conditions, and the proper placement of other employees suffering from less serious conditions.

Of course, the only effective method of accomplishing this result is pre-employment physical examinations. It has been the experience of our organization, gained from some 17 years of servicing Ohio industry, that pre-employment physical examinations will pay for themselves tenfold by only the occasional elimination of a claim of this type.

When conditions are such as to make pre-employment examinations impracticable, other less effective means can be utilized. In many instances the investigation of an applicant's previous employment record will indicate a history of accidents or serious physical impairment. Often the appearance of an applicant will indicate the probability of some serious impairment in health or physical condition.

This factor is of even greater significance to those of you whose employees may be subjected to harmful dusts, and especially silicon dioxide. Exposure to silicon dioxide

which will not harmfully affect an employee in a normal state of health will quickly cause death or permanent disability in an employee with a latent tubercular condition or previous harmful exposure to silicon dioxide.

If you have these conditions, your only safeguard against occasional deaths or permanent total disability claims is preemployment examinations, including chest X-ray examinations.

Another factor which results in extreme cost against the employer is the allowance of claims for injury not sustained in the course of employment. Every day the Industrial Commission is confronted with the question of whether or not the condition from which a claimant is suffering was actually sustained while he was working for the employer. In these cases the Industrial Commission is required, and rightly so, to resolve any reasonable doubt in favor of the injured employee. This means that many claims are allowed in which the injury was not sustained while the worker was in the course of his employment or even on the employer's premises.

Your defense against this type of claim is the strict enforcement of a rule that all injuries, even though trivial, must be promptly reported to the departmental supervisor. In those cases in which this is done, the injuries should be carefully investigated, and unless information can be obtained definitely indicating that the injury did occur in the course of employment, the claim should be submitted without signature together with a request to the Industrial Commission that it complete a thorough examination or investigation.

Many claims of this nature arise through the disgruntlement of dismissed workers, and in order to wherever possible eliminate this condition, we have recommended to our clients that upon quitting or dismissal, an employee be required to sign a written statement indicating whether or not he is suffering from an injury sustained while working for this employer. If the answer is no, this statement can be used effectively as a defense against any claim which may later arise. If the answer is yes, the employer has a perfect right to insist upon an immediate physical examination, and if necessary, the filing of a claim with the Industrial Commission, which can be determined upon facts available at the time, and which in many instances will not be available later.

An injury involving a violation of a specific safety requirement can be a most costly problem. In this case the employer is required to pay direct to the injured employee or his dependents a sum ranging from 15 per cent to 30 per cent of the compensation calculated at the maximum weekly rate covering the period or compensability. In the case of a permanent total disability claim, the cost of a violation award against an employer can run well over \$10,000.

Your only safeguard against this type of claim is full compliance with the Ohio Safety Code and the enforcement of the use of proper safeguards and protective equipment. The employer furnishing the guard and protective equipment is not enough. Their constant use must be enforced.

A high percentage of industrial injuries can be attributed to a lack of aptitude, intelligent or proper mental attitude on the part of the injured employee.

The proper training of a new worker in how to do the job safely is of utmost importance. If he is permitted to develop bad habits, in many instances it will be hard to change them. Bad habits, once formed, are hard to break. The repeated violation of safety rules on the part of the employees can be in many instances attributed to lack of proper training at the start.

Supervisors should be continually on the lookout for unsafe acts, and they should be able within a reasonable time to determine whether a new worker has the proper aptitude for a dangerous job.

He should be able to detect the symptoms of the worker going about his job with his mind somewhere else. In a daze, possibly on a sick wife or child, or financial troubles. A man in this condition is ripe for industrial injury, and when this condition is observed he should be promptly taken off of a dangerous job until he has gotten himself straightened out.

Permitting these conditions to exist not only jeopardizes the one individual, but in many instances his fellow workers.

Like the grandmother who said to her daughter who was a plumber, "Daughter, never take your blowtorch with you on a streetcar. You may deprive some man of his seat." (Laughter.)

I am continually impressed with the extent to which safety reflects the over-all production efficiency of an organization. Almost always you will find that where there is a bad accident record, the over-all production efficiency of the company will be low.

Everywhere I hear the complaint that if a certain type of guard is placed on a

certain type of machine, production will be greatly slowed down. This is seldom the case. Rather, because the proper safeguard relieves the worker of tension or worry of continually avoiding a safety zone, his production will increase progressively as he becomes adapted to the change.

There is a definite movement on foot throughout the country for safe and healthy working conditions. Labor unions are using safety as a bargaining instrument. Just recently the Ohio Department of Health has adopted a code for the control of harmful dust, fumes, and vapors. There is a movement on foot at the present time to revise our safety codes.

Now, I believe that this is the handwriting on the wall, and that the employer who does not take heed and plan accordingly will some day in the not too far distant future wake up to find that the parade has passed him by.

Mr. Koontz: Libby-Owens-Ford Glass Company, Toledo, Ohio. I would like to ask a question on the responsibility of the employer with respect to the physical condition of the man at the time of an injury. If the injury directly involves and is due to the physical condition of the man, is it true that all the cost will go to the employer?

Mr. Mohr: Well, unless the condition is affected by a specific injury, the employer wouldn't be held responsible for just some physical condition or impairment on the part of a worker. But there it can be shown that an employee with some dangerous conditions—a good example of that is arteriosclerosis. If a man has arteriosclerosis and he gets some slight trauma or blow in the vicinity of a varicose ulcer, in many instances that will break out and reopen the whole condition, and he may never work again.

That can be a blow that is no stronger than the snap of a finger, and if the medical profession will say that that did exaggerate or accelerate the condition, the employer is stuck with the total compensation of the man, as long as he is disabled. If it is a man upward of 50 years old, the chances are that he will never work again.

If the injury accelerates the physical condition for example, if a man has a latent hernia condition or a bad back, and he slips and doesn't even fall, and his back goes out of joint or he develops a hernia, of course, that blow did bring the thing on, that slip did bring the thing on, so you are stuck with the claim.

Mr. Fischer: Libby-Owens-Ford Glass Company, Toledo, Ohio. How will this release that you mentioned be accepted in a court of law?

Mr. Mohr: Of course, the determination of a Workmen's Compensation claim depends on the summary of facts available in the case. A man leaves the company employ and in a month or two later he files a claim for an injury which he alleged he sustained while working for this employer several months ago now, in order to establish a case, he would have to prove within a reasonable doubt that he did sustain an injury. He has to bring in some fellow employee to say that they observed him slip, or saw a certain condition at a certain time.

If a man leaves your employ and signs a written statement that he has not had or is not suffering from an injury sustained while in your employ, and then later comes along and states that he did, you have got a pretty good defense.

In other words, here is this man's testimony. He has a written statement saying one thing, and now he is coming forth with another statement.

Of course, that is not conclusive by any means. If he can prove that he did have an injury and that at the time of that signing he felt it was of little consequence, and he didn't even remember it, and now it is bothering him, I suppose that claim could be established. But in our experience we find that that is a tendency, that an employee becomes disgruntled because he is let go, and he starts thinking of how he can get even with the company, and there are certain individuals operating throughout the country who will always be willing to assist in that sort of thing.

Mr. Koontz: In the case of a man that brings up a claim or initiates a claim before the company can act on it, and then you find out at some later date that he is trying to use that as sort of a bargaining agent, or the same as a bargaining agent, to get a different job, and then he finds out that he is not going to get his job and he withdraws his claim, is there any way you could have any evidence on hand there that could be used at some later date in case the same claim would be brought up?

Mr. Mohr: I don't quite understand your circumstances.

Mr. Koontz: It usually comes up in occupational diseases. A man will have some allergy and he will use that as a weapon to get some desirable change in his work.

Mr. Mohr: You mean because he will prevail upon the employer to transfer him from a machine that will disturb this condition, on the idea that every time he is exposed he will have that thing reopened, is that it?

Mr. Koontz: Is there any way you could protect yourself against a man opening up a claim at any unexpected moment, outside of taking him off that job?

Mr. Mohr: No. Under the State Compensation Act, of course, he would have to show that that condition was due to exposure to that particular compound or substance to which he was allergic. But in most cases it is rather easy for the medical profession to determine whether a rash or skin condition is the result of exposure to this particular compound. In other words, they tell whether it is the result of exposure to an alkaline, or something of that nature, and if they find that in this substance in a high percentage, they will say that it is probably the result of that exposure.

But you run into many cases in dermatitis, and we have had cases where men would be treated by a doctor for a few years or so for a foot condition, and instead of getting better it continually gets worse. And then some old country doctor comes along and tells him it is nothing but the old flitch disease, and he cleans himself up, and in a matter of two weeks it is all gone.

It is just a question of whether a condition can be reasonably proved to be a result of that exposure.

I would say that if he was taken off of that, unless it is something that once acquired would continue for some length of time, it should go away, and if he has done that, then the employer should raise the question of whether he is getting this condition or has gotten this condition from exposure to this particular thing, or whether it is something he is getting away from work.

Maybe it is an allergy to something he eats or comes in contact with at home.

Mr. Koontz: Does the Commission still assume it when it is proved to be an allergy? Mr. Mohr: Usually, if it is by extended exposure to a harmful substance, if the allergy is characteristic of that exposure, yes. The only answer in that case is to take the man off the job.

(Thereupon a short recess was taken.)

Chairman Cornelius: Gentlemen, we will come to order. We will have the report of the nominating committee now after the brief recess.

Mr. Grimsley: Mr. Chairman, speaking for the nominating committee, we would like to have approval of Mr. W. A. Young, of the National Gypsum Company as chairman of this committee; Mr. Walter E. Ruse of the American Aggregates Corporation as vice chairman.

(The report of the committee was adopted.)

Chairman Cornelius: The secretary, Mr. Clark, has been retained for 1947. He is our permanent secretary. We don't want to let him get away from us. I think he has done a wonderful job of publicity and helping to arrange the program.

We now have the final part of our program, which is an open discussion led by Mr. A. J. R. Curtis.

I am sure you all know Mr. Curtis. He has been here a good many times, and without further remarks I will turn the meeting over to Mr. Curtis.

"OPEN FORUM DISCUSSION OF NEW METHODS FOR PROMOTING SAFETY"

Leader, A. J. R. Curtis,
Assistant to the President,
Portland Cement Association,
Chicago, Illinois

Mr. Curtis: Mr. Chairman, and long suffering friends. I was relieved when the chairman didn't attempt to identify me too closely or say

I want to take, with your indulgence, a couple of minutes before I accept the assignment of the subject I have been given, to give you a couple of figures. I couldn't exist if I didn't get these figures off my mind.

A few of you would be interested in what has been happening in the limestone and quarry industries as well as in Portland cement, and it might be a pretty good indica-

manual skills required to do their present job and learn to think in terms of how that job and others may be improved. Here is a responsibility we have for safety.

There is one technique, if you would call it that, which will help you to grow in this respect, and that is the habit of asking the question "Why?"

How many of you have examined your forms to find out how many useful statistics you are now getting? Management says, "I guess we will have to think about a standard force. We have too many on the payroll." We should examine those that were put in during the war and throw out those that are not needed. Why should the job be done this way? Why should the present form be used? Why should this report be continued? Why is this process used in making the product? Why do we find it difficult to assume the proper relationship with our associates? A little word, yes, but one which makes possible success and accomplishment when we think of the responsibility we have for safety.

Growth is revealed when a man learns that it is more important to train an understudy than it is to educate himself. Some men have attempted to maintain their position by surrounding themselves with weaklings. Some have attempted to insure their success by making certain that their place could not readily be filled. Some have believed that to give credit to an understudy for accomplishment is a sign of personal inadequacy; but sooner or later, those who have adhered to this philosophy find that their places can be filled by an organization dedicated to the theory that the most valuable production in terms of cost sheets, sales and safety is the production of "men." When we assume a position of safety supervision, let us be sure that we surround ourselves with strong men, with men who do the job better than we, with men of vision, of loyalty, of zeal, and of devotion to the task assigned. They will assure your promotion. You cannot.

Growth is revealed when you have learned to live with those with whom you work. It is not enough to be right. Your associates must know that you are right. Dogma will not make this possible. Personal energy alone will not compensate for this deficiency. Knowledge of the job will not temper the need for this form of understanding of responsibility for the safety movement. The greatest men have been and, I believe, always will be the most considerate men. Considerate not because of selfish motives, not because it appears to be a technique which will enhance their achievements—considerate because through experience they have developed a tolerance and an attitude of respect for all men.

Lastly, I would urge that you constantly devote your energies to your personal growth as you consider the responsibility we all have for safety. If you have learned to appreciate the presence of growth, you will have accomplished much. You will have learned that you cannot study growth as you would study a picture; and I ask you, is growth taught or is it caught? That you cannot grasp and inspect it as you would a motor; that you cannot analyze it or place it under a microscope; but that you can feel it.

You can feel it in your organization and you are the folks who must help your own associates grow. Your movement is dominant and your growth will cause others to grow. We must look upon it with a sense not so much of understanding but with a concept of realization that it is there.

John Ruskin once said: "In order that men can be satisfied with their own destiny, they must be paid for the work they are doing and they must feel a sense of success in it."

This organization is composed of men and women who have been both academically and industrially prepared for the work of safety engineering. You have now reached a great work. The work has not been completed. The responsibilities are still numerous. I leave you with the hope that you have learned to look at the sun. The man who has will never see his own shadow. The man who has will never find his mind clouded by the dark forebodings of an impossible future. The man who has will find in difficulty the key to growth and in growth the key to success in assuming continuously the responsibility that he has and must assume in this great safety movement. Let us continue as safety people to look at the sun. That is our responsibility, as I see it. Thank you very much.

Chairman Waugh: Thank you, Mr. Greenly. Personally I am satisfied that he lived up to his reputation. Maybe he did not need any introduction. I felt sure that Harry Bain's testimonial should have been enough to satisfy me.

The general tenor of it I liked very much, particularly the growth of the man above

by promoting the man below him to grow also. You will never get his job if he is that kind of a man. If he is not you may get his job.

At this time I would like to call on Mr. Campbell Allen of American Rolling Mill, who is Chairman of our Nominating Committee, to give us his report. I would like to explain, and probably should, first, that Jim Gourley of the Timken Roller Bearing Company of Canton would normally become the Chairman of this Section for next year and Joe Collins the Vice Chairman and a new Secretary selected. Mr. Gourley has assured me several times that he will not be able to take this chore on due to having considerable other work and new responsibilities that we feel that he should not try to do it, that is, he would like to but he has so many other things to do that he just does not feel that he can take it on, and Mr. Allen will now give us the results of the Nominating Committee's selections.

Mr. Campbell Allen: Your Committee has met and submits for your approval Joe Collins as Chairman for next year. Mr. Collins is of Youngstown Sheet and Tube. As Vice Chairman Mr. E. O. Kumer of American Steel and Wire Company, of Cleveland, and Secretary Mr. John Van Syckle, Republic Steel Corporation.

On motion the nominations were unanimously approved.

Chairman Waugh: Thank you, Mr. Allen. Frankly, in going into the next part of our program I do not really feel capable of dealing with a satisfactory introduction of the subject. It states in the program here that we are going to deal with the Industrial Hygiene Developments Relating to Safety, and we asked two gentlemen to discuss this problem from several different angles; we have asked Mr. Theodore F. Hatch of the Industrial Hygiene Foundation of Pittsburgh, who is head of the Membership Relations Department or Division of that organization to talk to us first.

Mr. Hatch comes very well qualified. Perhaps some of you know that better than I do. You may have heard him talk at the National Safety Congress or other places. I can assure you that he knows his subject.

I have been provided by Mr. Hatch, at my request, with some of his background. He was an instructor of Industrial Hygiene at Harvard University, Associate Dust Control Engineer, New York Department of Labor, Associate Professor of Industrial Hygiene, University of Pennsylvania, and his military service—I might mention before I go into that that Mr. Hatch is also co-author of a book on "Industrial Dust", collaborating with Professor Philip Drinker, I believe, of Harvard in this work.

He is a Director of the Industrial Hygiene Foundation, and I believe that is his chore most of the time, but this military phase of Mr. Hatch's life—he is a very modest fellow and someone called my attention to the fact that he is wearing a pin which he prizes very highly. It is called the Legion of Merit and it was awarded for service as Research Executive, Armored Research Laboratory engaged in work on Design of Armored Vehicles and other weapons resulting in increasing combat efficiency and saving lives.

It was not at Mr. Hatch's suggestion that I mention this, but I know he is very proud of it and justly so because he is one of the many civilians in military service who have supplied the weapons and the means for our men to fight a victorious war, probably with considerably less loss of life.

I think I have probably said more than Mr. Hatch would prefer to have me say, but I hope you will pardon me if I have overdone it. I, however, do not think so.

So, I believe that it would be well for us to get on with our program, and it is with considerable pleasure that I introduce Mr. Theodore F. Hatch of the Industrial Hygiene Foundation who will discuss the subject of Industrial Hygiene Development Relating to Safety.

Mr. Dykster will be heard later on on another phase of this subject.

"INDUSTRIAL HYGIENE DEVELOPMENT RELATING TO SAFETY"

Mr. Theodore F. Hatch, Head, Membership Relations,
Industrial Hygiene Foundation,
Pittsburgh, Pennsylvania

Mr. Chairman and Gentlemen:

The Chairman has been kind enough to refer to my recent military connection along with many others in the recent war. I should like nothing better than to talk about my own personal experiences and the experiences of others who were associated with me in the Armored Medical Research Laboratory because the work which confronted us there and the experience which we had have some very real significance in relation to this problem which we are interested in here this afternoon in industry.

The soldier is a worker in the same sense that the worker in industry has a particular job. Our problem with the Armored Medical Research Laboratory was to analyze military occupations with a view to making them more effective and, more importantly, with a view to minimizing, insofar as possible, the needless loss of life.

The requirement, of course, is quite a different one in military than it is in industry. In the military, in this war, particularly, this highly mechanized war, the inherent capacity of weapons was about the same on all sides. Guns were equally accurate. Sights were equally accurate, so that it was not with regard to gunnery, it was not a question of one man being more able to hit the other than was true of the other side. It wasn't a question of having a greater probability to hit. The question was which one would hit first, and the one that hit first won that engagement, so that anything that could be done to increase the speed with which action could be effected would give that man definite advantage over the other, a very real one of life or death.

Now, in industry that is not the problem. It is a problem of increasing production, increasing efficiency, increasing general comfort of the worker, but the same principles apply.

The thing that stands out in my mind most with respect to our studies of weapons was that it is possible, in a systematic way, to break down any job that may be instituted into its essential parts, to study the effect of each part, to determine wherein certain factors are reducing efficiency, reducing capacity, to improve those parts so that when those parts were re-assembled we had a new unit that was more effective than before such study.

Our job was not to improve the man; that could not be done. Our job was to take out of the machinery with which the man had to work all of those factors that limited his capacity.

As I say, I would like very much to discuss that matter further because I believe we could draw some very useful parallels from it. However, the subject which I am to talk about this afternoon makes it impossible for me to discuss that one any further.

The title, as the Chairman has just read, "Developments in Industrial Hygiene Relating to Safety" suggests first off that there are some basic differences between Industrial Hygiene and Safety and that it is necessary by some systematic comparisons to show wherein the two are related and how they can be made to work together.

I think we all recognize that is not so. There are some basic differences between Industrial Hygiene and Safety. The aims and the objectives of both Hygiene and Safety are the same, namely, to secure and maintain an industrial environment so that the workers will be subjected to a very minimum of hazard, a very minimum of stress. Hygiene and safety are merely two parts of the same thing.

Mr. Greenly has already talked to you in a far better way than I can about this same problem. Industry can be thought of as being made up of three essential parts, three equally essential parts, men, production, equipment and materials. Somebody has defined industry as a combination of these three working together for profit and with a minimum of damage and weariness, damage and weariness of the men and machines and of the materials.

Now, I recognize, as you do, that this is, in no sense of the word, a proper or adequate description or definition of industry, but it serves our purpose here, I believe particularly well, in that it does recognize these three essential parts, the man, the production equipment machines and the materials and it emphasizes that each one of those must be properly safeguarded and employed in the proper manner with due regard to the requirements of the others.

So far as we are concerned in safety and hygiene, our primary interest is in one of the elements, the man, but not forgetting in focusing our attention on the man, we do not forget the other two.

It is a cardinal principle, of course, in both safety and hygiene that it is no solution to a problem to work out the perfect methods of safeguarding the man and, in applying that, you controvert or go counter to the economic requirements of production. The responsibility of safety and hygiene, then, is not only to provide means of protecting the man against a hazard, real or potential, but to provide those means which, on the one hand, provide the protection, and, on the other hand, will fit into this triangular system of man, machinery and materials.

Interest in the maintenance of the proper working environment is not limited, of course, to the safety engineer and the safety hygienist. The safety engineer and the industrial hygienist concerned with the selection of production equipment know that the worker cannot be forgotten in the selection of equipment, the determination of plant layout or the method of operation. More important than that, every top manage-

ment recognizes the soundness of providing adequate safeguards, adequate measures of protection and, to me, of particular interest in that connection, the interest does not stop merely with the obvious protective measures such as safeguarding men against hazards, machinery, or protecting them properly against toxic chemicals.

To a rapidly increasing extent management's interest is directed toward the introduction into industry of measures that have for their objective the removal of factors that are less obvious in their effect, the benefits from which are not obvious at the outset.

I am thinking now of such questions as airconditioning or plant illumination, elimination of noise, production noises, and even, as we see today, the application of color in industry for the development of restful atmospheres. Many of those things have been adopted and will be adopted without any real proof at the outset that they are going to result in any concrete benefit, but experience had always been that they have been and, as I say, to me the most interesting thing is that those matters are receiving increasing attention.

I like to think that the safety engineer and the industrial hygienist are management's agents in these activities.

It is the responsibility of these specialists to bring to proper attention every improvement which is economically sound so that it can be properly considered in plant design and operation.

Now, recognizing that safety and hygiene have these same aims and objectives, it is natural and proper to raise the question as to the differences in the details of service to industry which justify the existence of two separate fields of specialization. I call myself an industrial hygienist or industrial hygiene engineer, whatever you may term it. You are, for the most part, I presume, safety engineers.

Why do we have two special fields? Is there any need for them? What can industrial hygiene provide in industry that is not provided in the usual safety program and what requirement is there for this additional special service?

Now, according to a very limited definition with which you will all quarrel, I know, safety engineering is concerned with safeguarding workers against physical injury, burns, explosion, suffocation and other types of physical injuries resulting from accidental occurrences.

Industrial hygiene, equally limited in definition, is directed toward the control of occupational poisons causing systematic rather than traumatic injury and usually chronic in action. The first is mainly concerned with physical forces whereas the latter has to do with physiology and toxicology and commonly involves chemical forces. The causal relations in the simpler industrial accidents are generally clear and have not required research to demonstrate. The causative agents in occupational diseases, however, are commonly not evident (chiefly because of the time lag between first exposure and evidence of damage) and elaborate investigations have been needed to determine the relationships before adequate control measures could be formulated.

Quantitative relationships are most important with regard to occupational poisons. An outstanding example is seen in the case of lead which is poisonous but only if absorbed in sufficient quantities and in the proper form. If the daily intake is below a certain level, no disabling effects are produced. Thus, we must distinguish between lead absorption and lead poisoning. The primary concern in designing control measures is to reduce the lead exposure below the maximum acceptable level which prevents poisoning but does not necessarily stop absorption. Silicosis is another industrial disease in which quantitative relationship are of the highest importance. A period of many years of exposure is required to produce demonstrable silicosis, the duration varying with dust concentration, composition of the dust and its particle size.

All of these factors must be carefully measured and weighed in judging the hazard and in formulating control measures. To illustrate the refinements in analysis which may be necessary: the composition of the dust must be determined in relation to particle size since only particles below a certain size are significant in the causation of silicosis; not only must the composition analysis distinguish between free and combined silica, it must also recognize the difference between amorphous and crystalline silica, and even separate the crystalline free silica into its proper form as quartz, tridymite or cristobalite since they differ in toxicity. Finally, the dust analysis and interpretation of results must take into consideration the modifying effects of other materials present in the dust since some of these tend to dilute the toxic action of silica.

Thus, a high dust concentration alone, regardless of the free silica content, does not necessarily constitute evidence of a silica hazard. Nor does a high percentage of free silica in the parent material from which the dust is generated certainly produce a

hazard since in many cases it is found that the free silica released from the parent source is largely confined to coarse particles in the dust and thus does not contribute to silicosis simply because it does not reach the lung depths. Samples for determining dust concentrations must be taken with the greatest care and the responsibility of the sampler in securing a representative measure of exposure is great. An exposure of ten years or more is generally required to produce silicosis; consider, then, the limited meaning of a single dust sample collected in a few minutes!

Another outstanding difference between industrial accidents and occupational diseases is with respect to proof of existence. An accident results in a lost finger or other evident damage which did not exist prior to the incident. The signs and symptoms of occupational diseases, however, are not always so obvious. Again silicosis will serve as an illustration. The clinical signs are not characteristic of this disease alone and even the chest X-ray picture may fail to give a positive answer.

In other than advanced and obvious cases, therefore, the medical examination must be supported by positive evidence from a study of the conditions of exposure and in the absence of such evidence the medical findings are in doubt. This is well illustrated by one interfering factor alone: the apparent ability of certain dusts in lungs (notably iron oxide and others relatively opaque to X-rays) to produce X-ray pictures very much like those given by true silicotic lungs.

These illustrations are not presented for the purpose of minimizing the importance of true occupational diseases but, rather, to point out the necessity for adequate studies of working conditions and, more particularly, to emphasize the importance of quantitative relationships between degrees of exposure and extent of injury. The only acceptable alternate to traumatic injury is no injury.

Control of occupational disease, however, does not necessarily mean complete elimination of exposure to the offending substance. It is important to note that continued measurement of the degree of exposure is an essential part of the control program under these conditions since the evidence for control is the maintenance of exposure below the maximum acceptable level. This further illustrates the importance of quantitative relationship in industrial hygiene.

The attack upon occupational diseases proceeds in four major steps:

(1) Initial studies of environmental conditions by the industrial hygienist are correlated with medical findings and, perhaps, toxicological studies, to define the hazard and to determine the maximum acceptable concentration and other conditions of permissible exposure.

(2) The industrial hygienist assists the plant engineer in the development of control measures.

(3) Subsequently, he conducts routine surveys to make certain that adequate control is maintained.

(4) The findings of the check survey are correlated with periodic medical examination, since, in the last analysis, the proof of control lies in the medical control. With respect to the last step, however, it is important to remember the great time lag in some occupational diseases which prevent any immediate proof of the success of control measures. The responsibility of the industrial hygienist, under such circumstances, is greater than when dealing with a hazard which produces immediate damage.

The tools of the industrial hygienist include a considerable array of more or less elaborate instruments which have been developed over the past twenty-five years and with them he is able to define and measure the hazards of working conditions with considerable exactness. Few of the procedures are absolute, however, in the sense of defining the problem without careful interpretation of results, based upon considerable experience. Thus, the industrial hygienist must know the limitations as well as capacities of his special instruments and techniques. He must be acquainted with the physiological and toxicological significance of his findings and a considerable knowledge of the industrial process under study is required (if for no other reason than to recognize how well the findings represent typical exposures).

Finally, the industrial hygienist must recognize and properly distinguish between those hazards which lead to frank occupational disease and others which cause only temporary irritation and discomfort and thus fall into the category of a nuisance rather than a real health hazard. Again, the industrial dust problem will serve as an illustration. All dusts are not equally hazardous and undue exaggeration of silicosis is therefore not justified. More importantly, it is not wise because equal attention to all dust may result in inadequate attention to a real dust hazard. There are well recognized and justifiable reasons for the control of dusts which do not produce silicosis and the cause of prevention of this industrial disease is not best served by lumping all dust problems

together. Parallel situations exist in respect to vapors and gases—some are frankly toxic, others produce nothing more than temporary discomfort. If this fact is not clearly understood the latter may receive more attention because of the immediate and obvious effects which they produce as compared with the delayed action which characterizes some of the truly poisonous substances.

The maintenance of a good industrial environment is primarily an engineering problem based upon standards which are essentially physiological. Thus, we see how the industrial hygienist bridges the gap between the industrial physician and the engineer who is responsible for the control measures. The relation of the industrial hygienist to the Engineering Department and to production engineering is exactly like that of the safety engineer. Both are specialists trained in the requirements and design of their respective control measures and the plant engineer looks to them to supply the special engineering knowledge needed. In industrial hygiene, the major engineering problems are:

(1) Recognition of the factors in operation of the process or machine which are chiefly responsible for the trouble and what measures are required to eliminate such factors, and

(2) The design of ventilation systems for the removal of contamination that cannot be eliminated by more basic means.

A considerable body of information from experimental studies and systematic plant experience has been built up over the past 25 years which has taken a great deal of the guess-work out of the design of industrial ventilating systems. It is the experience of very engineering specialists in industrial hygiene that the application of this special knowledge pays considerable dividends, not only in securing proper control, but in actual savings in cost.

These comparisons between industrial hygiene and safety engineering are not made with any desire to build up the relative importance of the one over the other. Indeed, there is probably more overlapping than clear-cut separation of activities in the two fields. The safety engineer has been and will continue to work on industrial hygiene problems. Likewise, the industrial hygienist cannot avoid safety problems in his daily work. Enough has been said, however, to illustrate the different types of problems with which each is primarily concerned and to indicate that the "tools of the trade" are not the same. Each must recognize how far his own training and skills are applicable and when the services of the other are required.

Industrial hygiene as a special field is much younger than safety engineering. Moreover, health hazards in industry, real or potential, are not as common as accident hazards and the incidence of occupational disease is lower than is the accident rate. The number of specialists in industrial hygiene is, therefore, very much smaller than is the number of safety engineers.

Industrial hygiene as a public service in the federal, state and municipal governments has grown much faster than it has as a separate activity within industry and these public agencies are providing advisory service. Many of the industrial insurance companies provide special service to their policy holders. An increasing number of industrial establishments, however, have established their own facilities. A significant development is the Industrial Hygiene Foundation, an industry-supported organization which was established for the express purpose of bringing together an industrial hygiene staff with adequate facilities to provide the supporting members with technical assistance in this special field and to supplement their own facilities. The fact that this organization has, from the beginning, worked on the problems of member companies to the maximum extent of staff capacity is good evidence that there is a need for the services of such specialists in industry. Experience in those industries having their own facilities has been the same—the industrial hygienist employed initially to clean up certain obvious hazards very quickly discovers that his services are required on a wide and active scale.

I am confident that the future need will be even greater as the desirability of improved working conditions become more widely recognized—improvements designed not only to remove obvious hazards but also to eliminate environmental factors which are more subtle in their effects.

In dealing with these new problems, the skill and judgment of the specialist will be even more important in proportion to the degree that the relationships become more obscure. Even when the standards for the working environment are set at the highest level there still remains the responsibility for developing facts as a basis for determining the direction in which improvements should go.

I happen to represent an organization which equally represents everyone, the Industrial Hygiene Foundation, which was set up by industry in order that they would have

a central point and staff and facilities which could be used to supplement their own facilities in working out the problems that fall within this special field of industrial hygiene.

As to the future I feel confident that the importance of the work will continue and will expand. I do not care much what you call it, whether you call it industrial hygiene or whether you call it safety engineering or what.

The gross obvious accident hazard in industry are pretty largely eliminated, the gross occupational disease hazards are pretty largely eliminated.

More and more attention is paid to these more subtle situations that I mentioned a moment ago. In the future the requirement and need for the specialist will increase and even though you may set up the highest possible standards of working conditions it will still be necessary to base any program upon fact, and in both safety and hygiene our objectives are to determine the facts, quantitative relationships between the working environment and the stress on the worker so as to determine where a dollar spent will result in the greatest good.

Chairman Waugh: Thank you very much, Mr. Hatch. I felt sure that you were going to give us something very worth while. I feel that probably the majority present will agree with me in that.

There is another thing that I forgot. During the war the aircraft industry established a section of their own of substantial size but at the meeting of the committee on arrangements last October their chairman or more of their officers indicated that with the cessation of hostilities the aircraft industry had shrunk considerably, and as they were an off-shoot of the metals section originally it was their desire to join in the sections of the Metals Section this year, and if anyone is here from any of the aircraft companies, I want you to feel sure that we are glad to have you here.

We did not pick anything specific about aircraft on our program but, nevertheless, the subjects that are being discussed are applicable to any industry.

I am not very good at telling stories but I ran across one in my notebook here that kind of tickled me and if there are some women here I think it will still pass. I picked it up at a meeting of industrial editors in Cleveland last year.

There was a fellow by the name of Ray Turk who had just come back from the South Pacific and had a rather interesting story about General MacArthur and the boys down there, and apparently in coming through Washington he claimed to have picked this story up about two lovely secretaries who were discussing the merit of their respective bosses, both U. S. Senators.

After the first lovely had extolled her Senator to the skies the second one sighed and said, "Well, I will admit Senator Whoels is getting along in years but he is still in there pinching." (Laughter.)

Mr. Dyktor has been in Cleveland for several years now, if I remember correctly. We have asked him to talk to us on this subject, but he is going to specialize in Cleveland industries. He has asked that we call his talk "Responsibility of Cleveland Industries under the new Ohio Industrial Hygiene Code."

Probably I had better read a paragraph Mr. Dyktor furnished me, insofar as past history is concerned. He says, "It may be of interest to you that I was born in France and educated partly in France, Belgium, Austria and England. I am a graduate engineer of the Polytechnique, London, England. I have been engaged in industrial hygiene since 1922 and was director of the first bureau of industrial hygiene for the City of St. Louis until 1939. I then became the chief engineer of the bureau of industrial hygiene for the State of Michigan until late in 1944 when I came to the City of Cleveland to organize and administer a similar activity."

I know that Mr. Dyktor has made a very fine impression on everyone in Cleveland by his tolerant attitude. If he had wanted to he could probably do the same thing that Harry Sain said this morning about the flour mills. He said he could shut down every one of them in the state from the standpoint of a violation of the code if he wanted to be tough.

I don't know whether Mr. Dyktor could do the same from his standpoint, but he could be tough if he wanted to, but he realizes that he probably would get farther if he teaches us how to solve our problems rather than coming in with a baseball bat or a shotgun and saying, "You have got to do it."

In Ohio it is particularly important because up until a few years ago there was some what of a limitation on occupational diseases. Now the bars are down, as I heard it expressed more than once, and practically everything that the human body is subject to in the way of an ailment can become a claim, or that is the way it seems. That is, the

bars are down and this subject is very pertinent, and without any further words on my part, it is with considerable pleasure that I introduce to you Mr. H. G. Dyktor, Chief of the Bureau of Industrial Hygiene, who will speak, as I said before, on the Responsibility of Cleveland Industries under the new Ohio Industrial Hygiene Code, Mr. Dyktor.

RESPONSIBILITY OF CLEVELAND INDUSTRIES UNDER THE NEW OHIO INDUSTRIAL HYGIENE CODE

H. G. Dyktor, Chief,
Bureau of Industrial Hygiene,
Division of Health,
City of Cleveland, Ohio

Mr. Chairman and Members of this Congress:

I remember when I was a little boy my mother told me it is much easier to catch flies with sugar than with vinegar, and perhaps that is one of the reasons I have been tolerant ever since.

An addition to the Ohio State Sanitary Code was enacted by the Public Health Council on February 16, 1946, and will take effect on January 1, 1947. This addition is a set of regulations, Number 244 and 256, inclusive, and is commonly referred to as the "Industrial Hygiene Code" because it relates to occupational health hazards. To simplify reference to it in this presentation, this set of regulations will be called hereinafter the "Code."

Stated broadly, the Code is of concern to all employers of labor, and covers the environment aspects of a work place insofar as they might affect the employee's health. The Code is quite specific in part, namely in regard to the toxicological limits of certain substances and the use and care of respirators. It is general as to ventilation requirements, which is as it should be because of individual variations. It is sketchy, however, in regard to the basic requirements of the industrial hygiene, namely housekeeping and sanitary facilities. This specific part of the Code leaves little to the discretion of the investigator, but the general part does; and its interpretation will depend on the knowledge, experience, and common sense of the investigator. The so-called sketchy part was no doubt premeditated in order to allow local ordinances or regulations to reflect more specifically local requirements.

In this connection, it should be explained that the official responsibility for the administration of a health program is a problem mainly for the local health departments. State regulations are minimal and local ordinances which are more specific or far-going are in no way affected. In other words, existing local laws and regulations are not invalidated except those which may be less stringent.

The Code provides for the possibility of relief if total compliance with it can be proved to be an undue hardship in an individual case, but the onus of the proof will be on the applicant for such relief. It can be well imagined, therefore, that there will not be too many such applications for relief as they will have to be fully justified, and, it might be found that compliance with the regulations will be a less cumbersome procedure.

From the foregoing, it will be realized that merely complying with the letter of the Code will not be sufficient. Such restricted compliance would not assure a working environment satisfactory from all points of view. Something more is required and it might not be amiss, therefore, to use the City of Cleveland as an illustration as to how it is proposed to interpret and implement the provisions of the Code.

In the Code there is only one regulation which refers briefly to cleanliness of the interiors, exteriors and environs of buildings and to the protection of the employee doing the cleaning. There is no apparent concern about general housekeeping, sanitary facilities, lighting and some of the other physical factors which contribute so materially to the well-being, efficiency, and good morale of workers. These items are present in any plant, regardless of whether there is a harmful toxic exposure for the workers, and, therefore, merit universal consideration.

In Cleveland we shall continue our efforts for good housekeeping and insist that it be carried out on a regularly planned basis, with certain of its activities scheduled daily, others weekly and monthly. This housekeeping must be thorough going and extend beyond the slogan of "a place for everything and everything in its place." It will include, for instance, the proper marshalling and movement of materials to and from the operators and maintenance of all protective equipment.

All plants must have proper toilet and washing facilities as, without these, good per-

sonal hygiene which is of such great importance in disease prevention, would become most difficult. Plenty of hot water, mild soap, individual towels, clean and approved water dispensers are imperative. Locker rooms must be adequate, well lighted, and properly ventilated throughout the year. Lunch space must be completely separated from the toilet facilities and all must be kept free of vermin or rodents.

It must be remembered that both housekeeping and sanitation are absolutely fundamental to all plants, and without them, there cannot be a good safety or medical program.

Other important items which will be considered are good lighting with proper distribution, reduction of excessive and unnecessary noise, good general ventilation, brief rest periods in midshift wherever possible, and, where food is dispensed to the workers, supervision of the kitchen and dietetic advice in the preparation of the menus.

All of the foregoing recommendations are applicable to all plants. Environment, whether it be in an office, workshop or recreation room, does affect a person, and, since this is so, it becomes evident that investing in a good environment will pay satisfactory dividends.

In regard to toxic contaminants, the Code provides that operations hazardous to the workers' health be protected, preferably, by local exhaust ventilation. It requires quite properly that such ventilation systems have adequate pick-up velocity, that they operate throughout the length of exposure and, at times, beyond, to ensure removal of residual contamination. The code further provides that proper maintenance of the equipment be available and that the exhaust materials be not permitted to re-enter the workroom or cause a nuisance in the neighborhood of the plant.

These ventilation requirements mean that the systems will have to be designed with care and understanding of the problems. It will mean that elimination of hit-or-miss installations, erected by handymen on the say-so of some supervisor. The design and construction of such systems will have to be based on engineering data and it will be to the benefit of management to have the official Industrial Hygienist participate in some of the consultations with the ventilation engineer. Embarrassing and costly mistakes will be avoided in many instances by taking such course of action.

A substantial portion of the Code concerns itself with personal respiratory protection. Basically, it is nothing more than that which many properly informed plants have practiced for a long time. It will, however, have a salutary effect on others who do not understand the differences in respirators and neglect their maintenance and distribution.

A cautionary statement in this connection is that the length of space allotted in the Code to respirators should not be constructed as a measure of their importance in the prevention of occupational diseases.

The other control methods are very much preferred and the use of respirators is recommended only in cases where these other methods are impossible or impractical.

There are other provisions such as isolation or enclosure of a hazardous operation which will be required if the employer does not or cannot control it by exhaust ventilation. Another provision states workers shall be informed of the hazard connected with their job. This is done extensively in regard to safety, and there should be no objection simply because the hazard is to health rather than limb. Moreover, when the worker is informed in a straightforward manner, he will be less apt to be affected by misinformation passed on by fellow workers and will more likely cooperate with his supervisor in using the controls provided for his benefit. For example, in many instances workers refuse to wear respirators not only because they are poorly maintained and adjusted but because they do not realize the absolute necessity for wearing them; there may be no other means of protection possible.

Another regulation limits the maximum allowable concentration for a great variety of contaminants, when the exposure lasts throughout a work day of eight hours. It should be understood by all who refer to this list that the given concentrations are averages arrived at in many ways, such as through research on small animals, actual experience with humans over extended periods, etc. The results of these experiments and studies are not as immutable as the laws of physics, and, therefore, having an atmosphere just below a given allowable concentration will not necessarily ensure the avoidance of a disease any more than a concentration slightly above the limit will make certain of a disease. Some of these allowable concentrations are considered by some authorities to be on the liberal side, and it will behoove the employer to stay well below the legal maximum limit to be on the safe side. A further consideration to be remembered is that just because a contamination is not listed that it is non-toxic and that the sky is the limit; such may not be the case. Many contaminants have been omitted because sufficient in-

formation, based on approved work was not available and because it was desired to avoid controversy. However, tentative maximum allowable concentrations are used in practice for many non-listed contaminants; and while they may not have the power of law, they should receive most serious consideration as they have the power of long experience and practice.

So far the environment aspect of industrial hygiene have been emphasized because of their incontestable importance in the prevention of occupational diseases. This importance is based on the fact that a worker will become ill through breathing contaminated air despite the best washing facilities or any other factor. The contamination must be eliminated from his breathing zone or he must be personally protected from it. In spite of this, the value of preemployment and periodical medical examinations must not be minimized. The employer must know that the physical condition of the work applicant is such that he can perform satisfactorily the assigned task, without danger to himself or to his fellow workers. Periodic examinations are necessary in certain exposures to make certain of the effectiveness of the preventative control measures and to provide a check for individual susceptibility. A complete program, combining the environmental and personal phases, is necessary to round out the requirements of the Code in order to attain its only objective, namely, the provision of a work place which will not affect the employee's health and well-being.

As stated before, independent local industrial hygiene units, such as Cleveland, in close contact with local conditions, will carry out and administer the provisions of the Code somewhat along the foregoing lines. It is, therefore, of the greatest importance to the employers and employees, that the personnel of these independent units be technically qualified and competent. It is only with such personnel, under experienced direction that proper investigations can be carried out. Results depend largely on the manner and method of sampling, analyses, interpretation of findings and consequent practical recommendations for the solution of the individual problems. Mr. Hatch told you something about it himself. This type of work requires great specialization in many arts and science and, entrusting it to inexperienced personnel, will wreck the best of codes.

To sum up, the Code reduces to writing, by and large, many of the requirements in the prevention of occupational diseases, which have been practiced for long by most state and local bureaus of industrial hygiene, without the power of law. Enlightened management has not hitherto quibbled about the legality of recommendations provided they were logical, practical, and met the particular condition. Other types of management will be helped by the code to find out the goals to aim at in order to solve their own problems. It must also be understood that the Code was never intended to cover all phases of the control of industrial health hazards and, therefore, meeting only its requirements will not be enough, at least in Cleveland. As outlined in this discussion, employers will have to go beyond the provisions of this Code before they can truthfully say that they have done everything possible to provide a healthful environment for their employees. There is nothing in the code intended to interfere with flow of materials and production; on the contrary, there will be expedited.

Finally, safety supervisors may well ask themselves the question: "Do we have to assume the responsibility for carrying out the Code provisions in our plants, in addition to our other duties?" The answer is definitely "Yes." In ninety-nine cases out of one hundred, it is unfortunate that very few corporations have seen fit as yet to add an experienced industrial hygienist to their staff. Such a man would ensure the elimination of health hazards in the same way that an experienced safety supervisor eliminates hazards to life and limb of the workers. It is unfair to expect the safety supervisor to carry also the load of industrial hygiene since this involves in most instances, knowledge and experience beyond his present training. However, reality must be faced and to do the job at hand, the safety man will have to avail himself of all the information possessed by various agencies and use them in consultation. It is there, free for the asking.

Mention of agencies acts as a reminder that governmental industrial hygiene units have been established in order to provide free and competent service to industries. However, these agencies cannot be expected to provide an ideal industrial hygiene service to all the plants within their respective jurisdiction. It will be necessary, therefore, for management to underwrite the investment for its own benefit as well as that of its employees.

The preservation and promotion of the industrial workers' health is admittedly not a subject on which there can be any controversy. Hitherto, success in this direction was achieved by a cooperation of the highest order between government, management and labor, and there is no doubt that this desirable tripartite participation in the program will continue: it must.

Chairman Waugh: Thank you very much, Mr. Dyktor. Do you have some questions that you want to ask these fellows? I feel pretty sure that they will do their best to answer any that you have. Someone must have a question.

Mr. Kaufmann, American Steel Foundries, Alliance, Ohio: Mr. Chairman I would like to ask who is going to enforce this Code? There has been nothing said about enforcing it.

Mr. Dyktor: Insofar as localities outside of Cleveland, the enforcement will be by the State Health Department. They are the originators, of course, of the Code and they will cover the entire State with the exception of the City of Cleveland.

Mr. Henry Rutledge: Along that line I might say that the Code is enforced in the same way that our health laws are enforced locally at the present time, such as the handling of dead bodies and things of that kind.

In other words, it is a local enforcement through the local health officer. For instance, the placing of a Measle sign or a Whooping Cough sign that you have on a house, those same laws are the ones that are in effect in the enforcement of this Code.

Chairman Waugh: Is it a local enforcement in the particular community?

Mr. Henry Rutledge: Yes, through the local health officers. I made an investigation at the time when we had the public hearings, before the adoption of the Code. There is some provisions for a fine of maybe thirty dollars or a hundred dollars for the first offence. There is to be no imprisonment, but for repeated offences they could use the state laws which call for imprisonment for resistance and disregarding the Health Code.

Chairman Waugh: Thank you, Mr. Rutledge. I think Mr. Dyktor indicated he would like to say something.

Mr. Dyktor: Yes, I would like to comment on the point you brought out. I, of course, cannot speak for the State of Ohio, the State Department, but I can speak for the Division of Health of the City of Cleveland. We do not intend to enforce the penalties at all. We want to cooperate with the companies like a salesman selling goods rather than a policeman with a great big stick.

Mr. Rutledge: I agree with him that that is the purpose of the State Code as adopted but there is a law which, if anyone persists in violation of the Code, could lead to rather serious penalties.

Mr. Frank Kelsey, Jones & Laughlin: Mr. Chairman, I am wondering whether or not the local health authorities will be competent to make adequate or just inspections. Of course, I am very much impressed by these two gentlemen here this afternoon, but I am wondering about the smaller communities.

Mr. Dyktor: I think I can just give you an idea that I understand that the State Health Department is going to take care of that situation very soon.

Mr. Leo Wiley, American Rolling Mill: Mr. Chairman, what means would be at the disposal of the average plant to check quantity control? I know devices have been developed, but what will be the accepted method generally used for that purpose?

Mr. Wiley: Well, what is suggested for the average industry to use in the way of instruments and so forth for quantity controls?

Mr. Hatch: Well, that, of course, will depend on the nature of the hazards, the hazards of that particular industry. If it is characteristically a dust problem then there are standard instruments for evaluating dust hazards which will be the ones that they should employ.

If their problem is one of Benzol exposure then the instruments that are required for the evaluation of Benzol quantity should be employed. I am not sure that is what you have in mind.

Mr. Wiley: Well, I am thinking of methods. Will all industries be in a position to own this equipment or will there be services of that type set up throughout the State?

Mr. Dyktor: Well, that depends on the size of the corporation, the number of workers, the number of hazards that you may have in the plant. I certainly would not advise every Tom, Dick and Harry to burden himself with a lot of expensive equipment because when you start doing industrial hygiene work buy-

ing equipment is the first and easiest step. The next important step, like Mr. Hatch told you, is knowing where to sample, how to sample and when, and the next thing is to know how to interpret these results in relation to other factors, and there are many, many other things that I can't go into at this time and, therefore, it behooves industry to be a little careful if they are going to set up a division of industrial hygiene and they would like to have set up there safety divisions, that they find a competent man is exactly what I meant when I gave my little talk, who knows what to do.

Chairman Waugh: Does that satisfy your question, Mr. Wiley? I can probably say something for Mr. Hatch that he would not want to say, but that is his business. It is the business of his organization to render such service. Call it a commercial plug. If you want to, but that is the thing that they are doing all the time.

Mr. Hatch: Mr. Chairman, I do not feel at all backward about plugging the Foundation. I think what this gentleman had in mind was whether or not the State was going to provide such services, and I am sure that they will.

The question was what must industry do itself and I would say just as Mr. Dyktor said a moment ago that with a large industrial establishment there is a multitude of problems that without any question meets its own facilities.

I represent the Industrial Hygiene Foundation which was set up to provide this sort of service for smaller companies. We have a staff there just for the regular evaluation of working conditions in industry for industrial hygiene. I am not engaged in selling it, however.

Mr. R. W. Bonifield, National Smelting Company: Well, this is to Mr. Dyktor, also. We, of course, are not a large enough company to have an industrial hygienist on the staff, so I have very freely used the services that Mr. Dyktor offers to industry in the City of Cleveland as a Consultant.

Actually, if we have a problem there in the field of industrial hygiene I call him and then submit his recommendations to top management, and it has worked out very successfully so far. I think that there is nothing in there that we are not complying with now that is going to give us any trouble at all.

Mr. Oscar Kent: We have in our plant a very able assistant and I think it is under way now that we are going to make a survey and we are looking forward to Mr. Dyktor to give us very valuable assistance in serving our plant and seeing where the worst conditions might be and trying to eliminate them. The time is getting short and we want to be on the right track. I think you will agree with me on that. My boss here is Mr. Kelsey.

Mr. L. S. Sherman, The Ashtabula Bow Socket Company: The only thing that I have to say is that I wonder how it could fit into such a small plant like ours. We probably don't have the funds to hire a special analyst or whatever you call it in this type of work, and I wonder how it fits into a small plant.

Mr. Dyktor: I think you will find that all you have got to do is send a request to the State Health Department and they will send you a man and it will not obligate you or involve you in any way, shape or form and they are there for that purpose the same as I am in Cleveland.

If I can give the information to anyone by telephone, fine and dandy. If not, I go over there to see about it.

Sometimes I give the information over the telephone because I know the man I am talking to and know that he will use that information correctly.

So far as Cleveland is concerned, the Cleveland industries, I talked to them last month and I told them that the very fact that the so-called Code becomes operative on January 1, 1947, does not mean that on January 2 I will come down there like a ton of bricks, not at all. We cannot hope to cover all of the industries, so there will be a great time lapse there.

Mr. Sherman: Thank you. There is one other question I would like to ask and that is are the contents of this Code published and available at the present time?

Mr. Dyktor: It is being printed and you will have copies of it.

Chairman Waugh: I would like to ask Mr. Dyktor who is the individual in the State Health Department that you should contact or do you have to know the individual?

Mr. Dyktor: Oh, yes. It is the Chief of the Industrial Hygiene Division, Dr. T. F. Mancuso.

Mr. Rutledge: In regard to the small plants there are three distinct and separate law enforcement bodies for safety. There is the department of safety and hygiene that holds this convention and there is the health department and another one. Those three work independently.

Now, the department of safety and hygiene is now equipped and can give the service if you have a safety problem in your shop. It is available right now to give the small plants any help that they need, especially regarding dust. Now, how far they will go on some of the gases, I can't say.

Chairman Waugh: Does someone else have a question?

Mike, how about you? What was the one you had some years back where the welders claimed they had to have milk in order to be able to stand the fumes? Was it the brazing operation or what was it? I remember Dr. Glover at the time thought they should be granted the privilege of getting a quart of milk a day from the restaurant and it seemed to satisfy them. I don't know if there was any proof to indicate that was beneficial and whether it provided proper protection for them. Do you know anything about that, Mr. Hatch? Maybe it is not worth commenting upon.

Mr. H. H. Henry, Merriman & Southerly: The fumes emanating from inadequately ventilated places caused nausea and possibly headaches resulted. That was one of the purposes of furnishing the milk.

Chairman Waugh: I think it referred somewhat to the type of welding being done, also. It may not have been of sufficient moment, but it was interesting and it may have been considered an amusing incident although they should not have been amused by it at all, but the men got the milk and they were more contented.

Now, gentlemen, we will meet back here again tomorrow morning at 9:30. Thereupon at 4:20 P. M. the session adjourned.

NEWSPAPERS AND PRINTERS SECTION

Tuesday Afternoon session, April 16, 1946

This session of the Newspaper and Printers Section of the All Ohio Safety Congress was called to order at 1:30 o'clock by Mr. Dan Grothaus, the McCall Corporation, Dayton, Ohio, Chairman.

Chairman Grothaus: I am Dan Grothaus, as some of you know, from The McCall Corporation, Dayton, Ohio, and I don't say that to be concealed. I hope we will get well acquainted before we get through this afternoon.

Mr. Price is supposed to be Chairman, but as I told some of these gentlemen, he is getting very near the retirement age, so he is trying to get out from under some of his responsibilities in life. I suppose one of these days he will go out to his farm. He wants to stick to his legal job, and probably one of these days he will go out to a farm which he has close to Dayton.

Mr. Gutwein, who is quite a young live wire at The McCall Corporation, developed about a 102 fever yesterday afternoon, and he was hanging on and said he would be out here this morning. He was going along today, but it took about a half a dozen of us to talk him into going home yesterday afternoon to forget about things.

So, you see that leaves me in sort of a spot, and I will say this for McCall Corporation, however, they will never let anybody down regardless of how poor a job they may have to do in sending out representatives like myself.

About ten or twelve years ago I was very much interested in safety and carried on the safety program at The McCall Corporation, and at one time I was Vice-President first and then President of this organization.

I brought another gentleman with me whom I will introduce later on and who has been doing some sweating this morning since he has been around here, trying to get some information on some of these questions that you have here.

Now, before we go into the discussion of these questions that we have, it is always a very good idea to find out just how good or how bad or how indifferent our record may be. I notice that in looking over the records of the newspapers and printers, it looked as though they have been doing some good work in the last five years. That might not have anything to do with it. But I see in 1911 we had 3,019 accidents, in 1945, 2,509. I don't know how many of you people have these reports, but we are going to have them incorporated into the record, and I will incorporate that now.

THE INDUSTRIAL ACCIDENT RECORD OF THE PRINTING AND PUBLISHING INDUSTRY (Including Manuals 4300, 4301, 4304, 4306, 4350, 4351.)

Years	1941.	1942.	1943.	1944.	1945.
Fatal	11	7	10	7	1
Permanent Partial Dis.	21	25	29	20	22
Over 7 Days	420	380	383	368	412
7 or Less	160	169	186	249	249
No Time Loss	2,407	2,179	2,153	1,945	1,825
Total Accidents	3,019	2,769	2,761	2,580	2,509
Payroll	1941.	1942.	1943.	1944.	1945.
Total Days Lost	\$69,352,167	\$76,205,539	\$75,598,785	\$83,478,318	***
Frequency Rate	100,291	72,204	81,775	65,068	32,443
Severity Rate	4.42	3.62	3.65	3.09	***
	147	95	121	78	***

NOTE—Frequency rate is the number of accidents reported per \$100,000.00 of payroll.

Severity rate is the number of days lost per \$100,000.00.

***—Payroll not available at this time.

"THE NEW INDUSTRIAL HEALTH REGULATIONS OF OHIO"

Joseph E. Flanagan, Jr., Industrial Hygiene Engineer,
Ohio Department of Health, Columbus 15, Ohio

Introduction:

Whenever a new code or set of regulations is proposed for adoption by an official agency of government, an immediate reaction may be expected. This reaction ranges from violent objection, through tacit acceptance of the inevitable to the less noticeable, but equally important favorable reaction of a small but well informed group. These reactions were expected during the development of the new industrial health regulations and they occurred. Some of the more important questions raised were the following:

"What authority does the Ohio Department of Health have for the adoption of such regulations?"

"What effect will these regulations have upon the payment of compensation for occupational diseases?"

"What are the penalties provided by law for a violation of these regulations?"

And last, but not least, was the question as actually phrased, "Who goes to jail first?" There have been, and there are still, many misconceptions concerning these regulations and this discussion, today, will attempt to give you the basis for their establishment and to answer as many questions as possible regarding the regulations.

Historical:

The records of the Ohio Department of Health indicate an interest in occupational hygiene as long ago as 1886 when the first annual report of the Ohio State Board of Health announced the appointment of a Committee on Hygiene of Occupation and Railway Sanitation. The 1887 report included a section entitled, "The Effect of Occupation Upon the Health of Individuals." From 1910 to 1914, the Bureau of Vital Statistics of the State General Assembly passed two legislative bills; one, which authorized the Board of Health to make an investigation of occupational diseases and causes of death. In 1913, the same amount for 1914 for this purpose; and the other, which required every physician in Ohio to report certain occupational diseases to the State Board of Health. This requirement, as amended in 1920, was extended to include several other occupational diseases and contained the clause, "and not excluding others," so that an overall reporting requirement was secured. The legislature also passed the so-called "Lead Law" in 1913 which gave the State Board of Health jurisdiction over the health of workers in industries which manufactured lead and certain lead compounds.

This early activity and legislation represented an extremely progressive attitude toward the recognition of the importance of occupational diseases in Ohio and, as a result of this legislation, a Division of Occupational Diseases was created within the Board of Health on May 15, 1913. This was the first such State division in the United States.

In compliance with the 1913 legislation (Joint House Resolution No. 12), Dr. Emory R. Hayhurst and his associates made a detailed survey of industrial health problems and occupational diseases in Ohio. The report of this survey to the legislature in February, 1915, covered 1,067 work places employing 235,984 wage earners, or about half of those industrially employed in the State. It is interesting to note here that, at the present time, there are over 2,600,000 workers and over 10,000 manufacturing plants alone in Ohio. The number of services industrial establishments exceeds 35,000.

Other activity of interest was the formation of the Ohio Industrial Commission in 1912; the designation of 15 specified occupational diseases as compensable diseases in 1924; and the gradual extension of the compensable occupational disease schedule by the Industrial Commission until, in 1940, a final item No. 23 was added to designate, "All other occupational diseases," as compensable diseases.

The activity of the Ohio Department of Health from 1913 to 1936 in the field of industrial hygiene, was very commendable but was hampered seriously by a shortage of funds and, therefore, of personnel. From 1936 to 1940, the Department carried out a survey of exposures to toxic materials in industry and accumulated much statistical material. This activity was aided by funds from the U. S. Public Health Service by virtue of the provisions of the Social Security Act and approval of the subsidy by the Ohio General Assembly and by the then Governor of Ohio.

From 1940 to 1943, the Ohio Department of Health carried on no industrial hygiene activities other than a consulting service for the benefit of industrial nurses. In 1943, because of wartime conditions, technical experts were secured from the U. S. Public Health Service to assist the Department in this field. Wartime activities included a cooperative program with the Continuous Security Division of the Army, a foundry study for the War Manpower Commission, an intensive scientific investigation of the health hazards in the beryllium industry in Ohio, and handling of miscellaneous requests for service.

Development of Health Regulations:

Section 1237 of the Ohio General Code, in stating the general powers and duties of the Department, says in part, "the state board of health shall have supervision of all matters relating to the preservation of the life and health of the people. . . ." It has been painfully apparent that although Ohio was one of the leaders in industrial health activities in the nation, the Department of Health has relied upon piecemeal legislation for a great many years and has not taken advantage of its primary responsibility to develop a strong coordinated and sustained program to protect the health of the industrial workers by attempting to minimize the occurrence of occupational diseases. The problem of occupational disease is one of the pressing problems in the field of public health and the existence of a working population of over 2,600,000 people in Ohio, plus the fact that Ohio generally is considered to rank fourth in importance industrially in the country, emphasizes the increased importance of the problem from the time of the original 1913 investigation. The importance is emphasized further by the large number of occupational disease reports which are made to the Ohio Department of Health each year, by the great diversification of industry in Ohio, and by the well-known fact that new materials and processes of which little is known are being introduced rapidly and continuously on the industrial scene.

An examination of rules, regulations and codes of other Ohio agencies also has shown that primary emphasis has been placed upon the prevention of accidents and that efforts to control occupational diseases occupy a minor part of the overall program. In the field of accident prevention, codes have been developed which are specific codes to cover specific cases; certain types of safeguards are provided for certain types of machines, etc. By means of such codes, industry knows exactly where it stands insofar as compliance is concerned and a good educational and enforcement effort has been made possible in Ohio.

The Ohio Department of Health is not, and cannot be, concerned with the field of accident prevention as such, but it is concerned with the absence of regulatory measures as they relate to the occurrence of occupational diseases, and with the advisability of establishing such regulations both for the protection of individual workers and for the guidance and protection of industrial management. The development of methods of procedure, detection of small amounts of toxic impurities in the atmosphere and the accumulation of information regarding the toxicological properties of many hazardous materials has progressed tremendously since the early days and in particular since 1930. The progress has been so noticeable throughout the country that approximately 15 states have adopted regulations for the prevention and control of occupational diseases which include a table of maximum allowable concentrations for various atmospheric contaminants. In some of these states, the codes or regulations were adopted by the Industrial Accident Commissions; by the Health Departments; or by the Labor Departments, and in a few cases joint jurisdiction exists on this matter.

In the latter part of November, 1945, the Director of Health of the Ohio Department of Health directed an inquiry to the Attorney General which requested advice as to the jurisdiction of the Ohio Public Health Council in adopting regulations establishing maximum allowable concentrations for substances dangerous to public health. In view of the duties laid upon the Department of Health by various legislative enactments in former years, a copy of the suggested regulations was attached to this inquiry. On December 8, 1945, Opinion No. 609 was issued by the Attorney General which states in its Syllabus, "The Public Health Council of the state department of health has

authorities establishing maximum allowable concentrations for substances used in industry which are dangerous to public health."

This opinion traced the origin of the original state board of health, the transfer of all powers and duties of the board to the present department of health, the creation of the public health council, and the duties of that council.

Referring to the duties of the council, Section 1235 of the General Code reads in part as follows:

"It shall be the duty of the public health council and it shall have the power:

(a) To make and amend sanitary regulations to be of general application throughout the state. Such sanitary regulations shall be known as the sanitary code."

In discussing the word "sanitary," the opinion reads as follows:

"The word 'sanitary' is a word having wider meaning than the prevention of the spread of contagious or infectious diseases. Webster's Dictionary defines it thus: 'Of or pertaining to health; designed to secure or preserve health.' While the law very naturally places emphasis upon regulations designed to prevent the spread of communicable diseases in view of the obvious fact that they may become epidemic, it does not appear to be the policy of the law to limit the powers of either the state or local health authorities to the spread of contagious or infectious diseases but rather to guard the public health in every possible way and from every menace."

Referring to Sections 1243-1 et seq., General Code, providing for the reporting of occupational diseases to the state health department, the opinion says:

"Presumably the public health council will use this information as the basis for regulations to control and suppress the causes of such diseases."

This opinion also considered the powers and duties of the Ohio Industrial Commission and the Ohio Department of Industrial Relations and says in part:

"Accordingly, it is my opinion that nothing in the laws relating either to the Industrial Commission or to the Department of Industrial Relations, in any manner prohibits or limits the powers of the Department of Health through its public health council in enacting penal regulations of a general character designed to preserve and protect the public health, and in extending such regulations to cover occupational diseases."

The opinion also discussed the possible action of courts of law regarding rules of health departments. In one case cited in the opinion, the court discussed the question of the right of the legislature to delegate its lawmaking power to the public health council and declared the authority given to a public health council, and similar health authorities, to adopt and enforce regulations was not an unlawful delegation of legislative power.

In view of the Attorney General's Opinion on this matter, a draft of the proposed regulations was prepared, distributed according to law, and a public hearing was called before the Ohio Public Health Council on January 13, 1946. At this same time, the Ohio Manufacturers' Association was notified with the idea in mind of securing consultation and advice from that group and their representative industries. Between this notification and the January 13th date, several conferences were held with legal and technical groups representing industry, with two large labor organizations in Ohio, and with private concerns interested in the proposed regulations.

As a result of this activity, the initial draft was revised and the hearing was held as scheduled on January 13th. At that time the Public Health Council recognized requests for a delay in final action and another hearing was set for February 16, 1946. During this one month period, we received only five suggestions for modification of the second draft, and on February 16th the Public Health Council approved the regulations to become effective on January 1, 1947.

Regulations:

As adopted at the February 16th meeting of the Ohio Public Health Council, the new industrial health requirements will become Regulations 244 through 258 of the Ohio Sanitary Code. Regulations adopted by the Public Health Council and constituting the Ohio Sanitary Code the force and effect of statutory law and a penalty fixed by law can be invoked for failure or refusal to comply with the provisions of such regulations. We will not attempt to read these regulations in their entirety but Regulations 244, 245, 247, and 248 are deserving of special mention at this time.

Regulation 244 entitled "Application of Regulations" reads as follows:

"These regulations shall apply to every place of employment and particularly to those places of employment where a work or process is carried on by which dusts, fumes, mists, vapors, gases or environmental conditions of a harmful nature are produced or generated, or exist independently of the work or process, which may be inhaled, or absorbed, or in any other manner enter the body in quantities or concentrations that constitute harmful exposure as hereinafter defined."

This regulation indicates the general applicability of these regulations and no further comment is necessary here.

Regulation 245 entitled "Modifications" reads as follows:

"When strict compliance with all of the provisions of these regulations would involve undue hardship, the Ohio Department of Health may, upon application in writing, permit modification of the requirements when protection practically equivalent to that required by these regulations has been provided. The application for modification of any of these regulations in any particular case shall be accompanied by a full statement of the existing conditions and the reasons for requesting such modification. Any modification granted under the provisions of this paragraph shall be limited to the particular case covered by the application for such modification."

This regulation is a recognition by the Ohio Department of Health that no code or set of rules can be written which will cover each and every possible combination of circumstances which might arise. It also recognizes that, in some cases, a re-evaluation of a particular health hazard may be advisable in order to avoid an undue hardship.

The two introductory paragraphs of Regulation 247, entitled "Harmful Exposure" read as follows:

"(1) No employer shall use or permit to be used in the conduct of his business, manufacturing establishment or other place of employment, any process, material or condition known to have an adverse effect on health, unless reasonable provisions have been made to prevent injury to the health of the employees and of the public.

"(2) The concentration of dusts, fumes, mists, vapors, or gases, in the air breathed by employees shall not exceed the following maximum allowable concentrations for an 8-hour daily exposure."

Immediately following these paragraphs is a table listing the maximum allowable concentrations for gases and vapors, metallic dusts, fumes, mists and vapors, other dusts and fumes, mineral dusts comprising asbestos and free silica, and radiation. The regulation is then completed by an explanatory note which amplifies some of the important items such as sampling technique, analysis of sample, temporary concentrations in excess of those listed, the method of determining free silica and a statement on the method of dust counting.

This Regulation 247 is the most important single regulatory provision of the group. In order to administer this regulation, it is essential that exposure to any of the materials listed in the table of maximum allowable concentrations be evaluated on a quantitative basis. It gives industry and labor a series of reference points or levels which, if exceeded, will establish working conditions that are hazardous to the health of people exposed. It removes the evaluation of health hazards from the purely inspection class of activities. The values included are based upon the most recent information available from all of the states which have industrial hygiene units in either their health departments or their labor departments. At the present time, this means that we used the information obtained from two state departments of labor and from about 42 state and local health departments. In addition to these sources, reference was made to standards prepared by the American Standards Association, to toxicological literature as represented by publications like the Journal of Industrial Hygiene and Toxicology, to the practices of the Industrial Hygiene Foundation of America located at the Mellon Institute in Pittsburgh, and to the opinions of recognized experts in industry, and private research organizations. As a result of communications, conferences, telephone calls, and personal visits, many changes were made in this table before it reached its present form. One of the most important changes was the deletion of such items as gasoline, arsenic, monochlorobenzene, flourides, several glycols, slate, cement, mica, and talc from the table because there was not sufficient toxicological evidence to warrant their inclusion at the present time.

Under the Explanatory Note in Regulation 247, the section regarding temporary excessive concentrations deserves comment. This section (3) of that note reads as follows:

"Temporary concentrations in excess of the maximum allowable concentrations listed shall not be permitted if exposure to such concentrations for a period of one hour or less may result in any adverse effect on health as determined by the Ohio Department of Health."

This section recognizes the fact that excessively high concentrations do exist for short

periods of time during certain industrial operations and that such short duration exposure may not be a violation of this regulation.

Section (4) of this same Explanatory Note states:

"For the purpose of the above maximum allowable concentrations for silica, the free silica content shall be the per cent of free silica in the fraction of the air-borne dust in the breathing zone of the workers that is smaller than 5 microns in maximum diameter."

This method of evaluating the exposure to harmful free silica in dusty atmospheres represents a departure from the generally accepted procedure of most health experts. The most recent medical evidence indicates that only particles smaller than 5 microns in size are harmful as far as the possibility of producing silicosis is concerned. Analysis of settled dusts in foundries, potteries, etc., often gives different results than examination of the air-borne dusts in the same plant. By this method we will obtain a direct measure of the actual amount of harmful dust breathed by the workers. The analytical method involves the application of X-ray diffraction technique following a separation of the collected dust into fractions which are larger and smaller than 5 microns. The technique is not simple and the labor involved is considerable. The results, however, will be very much more reliable than have been those from former studies. This procedure will be identical to that used by the Industrial Hygiene Foundation of America.

Regulation 255 deals with violation of these regulations and reads as follows:

"A violation of any of the provisions of the foregoing regulations or failure to comply with any orders made pursuant thereto by the Department of Health shall subject the person so violating or failure to comply to the penalties provided by law."

In connection with this regulation, we refer to Section 1247 of the Ohio General Code which is entitled "Prosecution and Proceedings." In effect, it says that the laws outlining the methods of procedure, courts, penalties, etc., applicable to local boards of health shall apply to the State Board of Health.

Ohio General Code, Section 4414, entitled "Penalty for Violations" states that an individual who obstructs, interferes with or omits to obey an order or regulation of the board of health shall be fined not more than one hundred dollars or imprisoned not longer than ninety days, or both. No one shall be imprisoned for a first offense, however.

Section 4415 of the Ohio General Code, entitled "Violation by a Corporation" establishes a fine of not more than three hundred dollars and also provides for the fine and imprisonment of any officer of a corporation having authority over the matter who permits a violation of a regulation.

These sections outline all the penalty provisions and need little comment, other than the fact that only the Ohio Department of Health can institute proceedings under these sections as far as these regulations are concerned.

The other regulations of the group are concerned with methods of control of atmospheric contaminants such as ventilation; with the use and care of personal respiratory equipment; isolation of hazardous operations; sanitation in the plant; and warning of health hazards.

Whenever possible, the control methods to be used in a given case depend upon the decision of the plant management. The regulations are not mandatory with regard to the type of control to be installed. The final judgment of the adequacy of control will be made only after referral to the mandatory provisions of Regulation 247, and to the specific maximum allowable concentration for the material concerned.

Referring to respirators, the Ohio Department of Health will approve only those designs bearing the stamp of approval issued to the manufacturer of the respirator by the U. S. Bureau of Mines. The use of any other so-called respirator where exposure to a toxic material occurs, offers a false sense of security to the worker, to the foreman, to the safety department and to management. We also will recommend the use of respirators only secondarily to good engineering control. They are for jobs of short duration and for emergency exposure which cannot be avoided at the particular time or place.

Administration of Regulations:

One of the keys to eventual success in reducing the incidence of occupational disease in Ohio is the intelligent administration of these regulations by the Ohio Department of Health. The fact that these regulations will become part of the Ohio Sanitary Code on January 1, 1947, guarantees that the Department of Health has a firmer and more specific basis upon which to act in this field than at any time since 1913. Former legislation has been partly devoted to the basic principles of control and partly to application of specific

control measures as illustrated by the old "Lead Law" and the regulation providing for the prevention of mercury poisoning in the hat industry. (Reg. 241, O.S.C.). The regulations discussed today provide for the evaluation of dangerous exposures in industry at large by the application of scientific methods on a quantitative basis. There are no exceptions allowed in the overall application of these regulations, and no organization other than the Ohio Department of Health will be in a position to administer these regulations.

Although none of the foregoing remarks may sound extremely dramatic, it is not the intention of this Department to take these regulations into the field and start an intensive search for specific violations on a plant to plant basis, merely for the sake of citing the violations and imposing the penalties provided by law. It also is not the intention of this Department to limit its activities to the evaluation of the working conditions which are responsible for each specific case of occupational disease which is reported to the Ohio Department of Health, although reported occupational diseases will be used in a general manner to guide the Department in preparing its program because they indicate which industries are the most hazardous over a period of time.

It should be mentioned, at this point, that our work will have no connection with specific occupational disease claims which may be filed with the Ohio Industrial Commission. The fact that an occupational disease is reported to the Ohio Department of Health does not mean that a claim for compensation has been filed with the Industrial Commission and we are not interested, nor do we have any jurisdiction, in the claim phase of this work. The existence of these regulations also does not affect the procedure or methods of awarding or disallowing claims in Ohio.

The approach toward the control of occupational disease hazards will be based upon industry-wide studies in cooperation with industrial management and labor and, in many cases, with the assistance of technical personnel employed by industry itself. For example, much work is needed in evaluating hazards in the foundry, ceramic, pottery, steel, rubber, and glass industries and such work should be based upon industry-wide studies in order to accumulate data which are statistically significant with regard to exposure themselves and to control measures generally. Some of the studies may require cooperative ventures with other groups which are in a position to carry on necessary toxicological studies or radiation studies. The program, as envisioned at this time, is in many respects a long-range program based upon a necessary cooperative approach by all concerned. Information which may be published in any given field will not divulge the identity of individual plants but will be valuable for general application throughout the industry concerned.

Individual requests from management, labor, individuals, and other state official agencies will also be a basis for activity in this field, but the self-initiated studies will comprise the largest part of our activity.

Reports will be prepared on all activities and will be submitted directly to plant management in all cases with the exception of requests from state official agencies, and in this case, a duplicate report will be forwarded to the management concerned. This would apply to instances where requests for service are received from the Ohio Industrial Commission and the Ohio Industrial Relations Department. Any departure from such a procedure will undermine the confidence which is necessary between this Department and industrial management and will be fatal to continued progress.

The Ohio Department of Health also will carry on an intensive educational program as part of its usual activities in the field of industrial health. This phase of the work is considered to be most important, and will be of such scope that it will include medical, nursing, and engineering activities as well as problems in the field of general health as they might be applied to the industrial population. It is our intention, as well, to utilize the conference or round table discussion approach to such problems in our various districts throughout the state both for the benefit of managerial, safety, and labor groups. In-service training programs can be established to train industrial representatives in techniques and methods of industrial hygiene where a plant is interested in establishing and maintaining an adequate checking system for its hazardous operations. Without an overall program of education, both management and labor groups could struggle for long periods of time before resolving differences where health hazards are suspected in their plants.

The preceding discussion of the regulations themselves, and the present discussion of the proposed administration of these regulations clearly indicates that the Ohio Department of Health is concerned with a field of activity which has become increasingly complex throughout the years. The administration of these regulations demands that the Department utilize the services of the most competent personnel that can be secured. There is very little room, for an individual who can qualify only as an inspector, and, if the level of operation is limited to inspection, the entire approach to this problem will be a complete waste of time and of the taxpayers' money.

Experienced medical, chemical, and engineering personnel must be secured. The most direct and continuous contact with industry will be made by our engineering representatives located in district offices in Ohio. In this connection, we refer to a very definite and commendable limitation which is placed upon the Ohio Department of Health by the Engineers and Surveyors Registration Act passed by the General Assembly in 1933 and amended in 1935, 1937, and 1943. The following quotation is made from the act:

"Sec. 1083-1. That in order to safeguard life, health, and property, any

person practicing or offering to practice the professions of engineering or of surveying, shall hereafter be required to submit evidence that he is qualified so to practice and shall be registered as hereinafter provided; and it shall be unlawful for any person to practice or to offer to practice the professions of engineering or of surveying, in this state, or to use in connection with his name or otherwise assume, use, or advertise any title or description tending to convey the impression that he is a professional engineer or surveyor, unless such person has been duly registered or exempted under the provisions of this act."

"Sec. 1083-2. The term 'Professional Engineer' as used in this act shall mean a person who, by reason of his knowledge of mathematics, the physical sciences, and the principles of engineering, acquired by professional education and practical experience, is qualified to engage in engineering practice as hereinafter defined.

The practice of professional engineering within the meaning and intent of this act includes any professional service, such as consultation, investigation, evaluation, planning, design, or responsible supervision of construction or operation, in connection with any public or privately owned public utilities, structures, buildings, machines, equipment, processes, works or projects, wherein the public welfare, or the safeguarding of life, public health or property is concerned or involved, when such professional service requires the application of engineering principles or data."

The provisions of this act have been adhered to by the Division of Sanitary Engineering of the Ohio Department of Health since its enactment in 1933, and the requirements in this respect. The Registration Act requires the individual to pass an examination in his field and also requires a minimum of four years experience following graduation from an accredited engineering college, university or technical school.

We will endeavor to employ registered chemical engineers for this work and industry and labor may be assured that the personnel will be the most competent and experienced which can be obtained in the field. Supplementary necessary services also will be available in the fields of medicine and chemistry to round out the picture. Additional services in the fields of nutrition, tuberculosis control, and venereal disease control also will be available through the respective divisions of the Ohio Department of Health.

This entire development is one more example of the trend toward specialization both in respect to industrial hygiene itself, and to the personnel necessary to carry on the required work. There are those who deplore such an increasing trend in life's activities, but, with increasing scientific knowledge of disease and their control, the field of public health has become too broad to expect any one man to be a master of its many arts, or to be a master of all phases of any one particular branch. Life is too short to expect such an expansion of individual talent, and, at the same time, to expect that a satisfactory job will be done in a particular phase.

The Ohio Board of Health had the vision to recognize the potentialities of the occupational disease problem as early as 1913 and we believe that the enactment of our most recent regulations concerning industrial health problems will place Ohio once again as a leader among the several states, and will constitute a significant contribution toward increasing the public's consciousness and interest in a matter which, in the long run, affects so many thousands of families in the State of Ohio.

Chairman Berkey: Mr. Ernie Beck, who has traveled year after year a lot of miles, who has shown so much interest in these meetings, is here again this morning and he's always got something interesting, something good to tell us. Mr. Beck, I wonder if you will say something at this time?

Mr. Beck: Well, we've heard a lot about static. It takes a man like Professor Beach to come here and tell us a few of the things that he's been studying on and I've been studying some of his works as he knows, and the boys in Akron have been closer to

Professor Beach than I have because I understand he has spent many hours in Akron at this problem of static control.

We have fires in industry and we have fires in the rubber industry, many of them. What pleases me is the controls that we have over those fires. In other words, it's not what we know, but what we do about it.

Now we haven't all the answers on static, but we have some of the answers on fire control, and if I might mention the company that I represent, we have over forty plants, representing over \$200,000,000 insured value and probably another \$100,000,000 of finished goods and goods in process, and we keep a very careful record of every fire and the loss of every fire.

We have a fire contest. I don't know whether you ever heard of a fire contest or not. I never did until I was told to start one, and I looked around and couldn't get much help. So all I did was took the severity and frequency of fires and we took the severity of fires compared with the insured value and the frequency of fires, and we multiplied the two and we got a quotient that we could use.

Alongside of that we put our loss ratio. Six years ago we had a fire loss, United Sales Rubber Company, including the Canadian plants, of which we have about eight, of something like \$45,000 a year. The next year we cut that down to \$40,000 and the next year to \$35,000, and the next year to about \$30,000, \$35,000. Every year we reduce our fire losses. I went to the Factory Mutual whom we all admire and I asked our insurance carrier who happened to be the Arkwright, how our ratio compared with others, and I was very much pleased and surprised when he told me that we were below their average for our insured values. That pleased me and I knew that we couldn't continue that way, and sure enough last year, according to the old law of averages, we got a wallop and our fire losses last year were just double what they were the year before. But two of those fires were responsible for about half of our losses.

Now a strange thing did happen. During those fifteen years, fellows, we increased our fires a hundred per cent. Now I think one reason for the increase in fires was the increase in interest, in reporting fires. In other words, it's not what you know but what you do about it.

We went after the reporting of those fires, and we found out that many of them were static fires, so we did all that we could to stop our static fires. We even grounded our young ladies and humidity control. We still humidify as many other rubber manufacturers do. We grounded and we used the neutralizers and we are looking for the latest which I understand recently two or three new experts have come out with some new recommendations, and we have got to keep up to the times.

My advice for us all is to keep this question before us. I was on a static committee twenty years ago and they thought they had all the answers. They wanted to discontinue the committee. I said, "Oh, no," and that committee stayed in existence for many, many years.

Now we heard a little yesterday about the faults of management. We will always hear a few things about the faults of management, and it's probably healthy that we should. By the same token I think that it might also be stated, I know I cannot help but feel this, fellows, because I have been very close to the rubber industry for many years, and the one thing that has surprised me personally is what rubber manufacturers have done in the last five years in management.

Now when the war broke out we were forced into munitions. We were forced into many operations that we had never been in before, and I've been extremely pleased and I think you'll agree with me, with the way big management took that responsibility. They went into fields of activity that they had never been in before.

In my company, what do we know about explosives? And yet we ran eight munition plants. We made millions of pounds of TNT, millions of rounds of thirty and fifty caliber ammunition, loaded millions of forty millimeter shells, and fellows, during the whole period of the World War we did not lose one life due to a fire or an explosion in any of our munitions plants. As a matter of fact that goes for all of our plants. Not one life was lost due to a fire or explosion. That wasn't the fault of any one man; that wasn't wholly the fault of management. It was the fault of everybody working together, everybody cooperating, everybody realizing what their job was, that they had one big job and it had to be done and it had to be done safely, and it was done safely.

Now my experience in the United States Rubber Company is probably no different than the experience of other companies, but I just want our labor boys to get that picture. Static is one big problem, but we can't spend all our time on static. We can't spend all our time on labor.

We've got to turn out some production, and it's got to be quality production at a price, and we can do it if we all work together, just as we did during the World War.

We all worked together and we did one whole of a job, and it gives me a great deal of pleasure to come here and just get your thinking because I think a lot of the rubber industry in the State of Ohio. I try not to miss your Congress, I just came from a New York Congress last week. There were over eight thousand people down in Pennsylvania Hotel in New York last week, with a four-day conference.

They had a splendid session and it pleases me to feel that no time is being lost, no ground is being lost on accident prevention, and it's fellows like you that we rely on because no one person can carry the ball, it's a game where we have all got to work together and I feel that that same sentiment is being expressed at all of your sessions here in Ohio, as it is expressed in so many other sessions.

We don't want to talk penalties. I just read this book, the first time I've seen where you want to charge these fellows if they don't put on their gas masks. Well, gentlemen, if we had started doing that we'd have been rich today; but the thing to get them to do is realize why they are doing it. They're the ones that are going to pay the price.

Our biggest job is selling. We can bring our Professors in to do our engineering job, and we can go to work and put in our machines, and our guards and in spite of it all, it just happened only last week, in one of our plants, a boy eager to do a piece of work, jumped up on a conveyor nine feet from the floor and without any chance of holding, he falls over and he landed on his head, was unconscious, taken to the hospital, and the poor fellow died.

He was mentally disturbed when he did it because his wife was in the hospital with their first baby. Now imagine a condition like that. Is that management's fault? Is it the man's fault? The union's fault? I think we've all got a part to play, every one of us. The man should have been carefully supervised but when did it happen? Four o'clock on a Sunday morning. Because that's when the work was being done and the fellow was mentally disturbed.

Now is it management's responsibility to know the mental condition of those men and if a man is mentally disturbed we shouldn't ask him to jeopardize his interests, but you know how eager men are to do a production job. They don't think of themselves. They'll jump in there in order to get the conveyor going, and so let us assume the responsibility that we are our brother's keeper, that we have an interest in him and he has an interest in us, so that when we see a man jeopardizing his own interests, that we just tap him on the shoulder and just say, "Buddy, look out, you're going to fall."

I know I would like to get closer to our men. Whenever I get into a plant I always take advantage of talking of the men, talking to the foreman and talking to the workman, because I know they feel, "Well, here's a chap from New York, he's got all the answers."

I haven't got all the answers but I have got a few thoughts that I can give them so that they can for a few hours longer probably practice their production a little safer. So that is our job, fellows, and I know that each and every one of you are doing it. I thank you. (Applause.)

Chairman Berkey: Mr. Walter Schneider as I told you yesterday, could not be here because he was in another very important meeting. He is here today and I doubt whether Walter misses very many of these sessions, and I think possibly he might have something to say at this time.

Mr. Walter Schneider: Mr. Berkey and Ladies and Gentlemen: I'm very happy to be here today. I enjoy these Congresses and I like to reminisce with Ernie Beck. Ernie is a favorite of mine and I don't mind telling him so; he knows it.

I think he has the proper aspect on this whole problem, and I think if we all used that method of approach in our attempt to solve this problem, we would be much further than we are today.

Chairman Berkey: Now there is another man here who has done a lot towards arranging for the rooms, the space, the tables, the blackboards and what have you. He's present in the room right now. I'd like to ask Mr. W. E. Perrine, Safety Advisor for Ashland, Wayne, Medina, Cuyahoga, Portage and Summit Counties, if he has something to say?

Mr. Wilbur Perrine: Gentlemen, Ladies: It's a pleasure to be here and arrange these rooms for you to meet, and it's very gratifying to see the advantage that is being taken by all of you because our attendance is much greater than it was two years ago.

I'm not going to say very much more, only that as Mr. Berkey stated, the counties which I represent for the Industrial Commission of Ohio, the Division of Safety and Hygiene, I'm at your service at any time you call on me; I'll be glad to come and see you, help you in any way I can with your safety.

I have been working with the rubber concerns lately and I've had very wonderful cooperation of the concerns which I have gone through.

I expect in the very near future to visit the rest of them in my territory, and I know that they're going to give me cooperation. I'll be glad to help them in any way I can.

Chairman Berkey: I take this opportunity to thank the speakers that gave us these wonderful talks, the Program Committee who helped to outline and make this program possible, and members of the Department of Safety and Hygiene. I can't name them all: Mr. Sain, Mr. Fluiter, and many others.

It has been a real pleasure to act as your Chairman and I know that I have gotten more out of this than possibly most of you have, but I think we all have gotten a great deal of good from these sessions.

I feel that they have been extremely interesting, and I feel that everyone who has attended these sessions will go home with something that he can use. If we get nothing more than an inspiration to do more, we will have spent our time well in these two sessions.

Chairman Berkey: The luncheon is in the Hall of Mirrors at 12:30. Mr. Jack Kidney is the toastmaster.

ten thousand people, the majority of them women and children, needlessly lose their lives every year, it seems to me that certainly here is a subject that is worthy of the best minds and best hearts and the best efforts in this entire nation. Our fire prevention efforts have been too hit-skip. We have had a fire prevention week. Somebody put up some posters and here was a beautiful display.

We need to have our hearts in that work more and more, and I want to pass that out to you. When you start a fire prevention program keep the human side of it in mind. Humanize those efforts and drive them home with every darn bit of energy you have.

I want to thank you for the attention you have given me. I want to tell you, too, I have certainly enjoyed being here at the Safety Conference and making the acquaintance of you men.

(Thereupon the session adjourned.)

OCCUPATIONAL DISEASE HAZARDS — THEIR CAUSE AND CONTROL SECTION

Thursday Morning Session, April 18, 1946

This session of Occupational Disease Hazards—Their Causes and Control of the All Ohio Safety Congress was called to order at 9:30 o'clock by Dr. A. L. Kefauver, Assistant Supervisor, Medical Section, Industrial Commission of Ohio.

Chairman Kefauver: Well, gentlemen, we will open our session on Occupational Diseases, Their Hazards, Cause and Control. Occupational diseases have existed ever since the time that man first began to work and as civilization became very complex the hazards and the incidents of these diseases as a result of their work became greater, until now we are confronted with the greatest array and variety of conditions mankind has ever experienced in his coming up from early civilization. Nothing was ever done much about occupational diseases until the near past. It was an accepted thing, and was considered as being inevitable. Every painter was supposed to have his bout with painter's colic and every miner, or certain percentage of miners, was supposed to have miners' asthma. Then there were some pioneers who started out and thought something should be done about this thing; that it wasn't necessary to have these things. They were alone in their field when they first started, and they were really pioneers, but they were persevering and much progress was made until now their efforts are just beginning to be felt.

New materials are being found from day to day and developed and are being used in industry, but even new materials often bring along new hazards to the individual working with them. Many materials were developed during the war which we are going to use in the postwar period in industry, and that is a new challenge to the industrial hygienist to see what if any effect these materials are going to have on the individual. It's this problem of postwar industrial hygiene that our first speaker is going to talk to us about today. Mr. F. S. Mallette has been associated with the Firestone Tire & Rubber Company for the past four years in charge of the industrial hygiene activities. He came to Akron from the Mellon Institute of Pittsburgh. Before that he did private consultation work in industrial hygiene. While at Firestone he pioneered in research on the health hazards of synthetic rubber materials as they were used in the manufacture of synthetic rubber. Until recently he was staff representative of the Medical Section of the National Safety Council. He did graduate work at the University of Michigan, Pittsburgh and Chicago. At the present time he is associated in special research progress in Industrial Toxicology at Ohio State University.

It gives me great pleasure to introduce to you Mr. F. S. Mallette, who will now speak on "Highlights of Postwar Industrial Hygiene." Mr. Mallette.

HIGHLIGHTS OF POSTWAR INDUSTRIAL HYGIENE

Mr. F. S. Mallette,
Industrial Hygienist and Toxicologist,
The Firestone Tire & Rubber Company,
Akron, Ohio

Well, since the war ended there have been changes brought about in industry which affect all of us in industrial hygiene. For instance, during the war there was a tremendous pressure for production—production was primary; everything else was secondary. Contracts were let by the Government, the Army and Navy, and companies just killed themselves to put out the first unit for that contract, and in that process, as I say, everything else was disregarded, and one of the things which caused a great deal of trouble was the disregard for the presence of the industrial health hazards. Many companies went into the development of products of which they had no experience at all. They had little knowledge of the technical aspects of the product, to say nothing of the presence of any health hazards that might be associated with it.

For instance, I know of an aviation company which landed very lucrative contracts for the production of barrage balloons, and it looked like a simple process. All you did was to cut up rubberized fabrics and stuff the seams with rubber cement. Just like doing dressmaking. Oh, it was easy to teach girls to do, and they turned them out at a very rapid rate, but unfortunately the cement they were using contained benzol. They never had any experience with it; they never thought anything might occur, and soon the girls began to feel weak, show signs of anemia, nausea, effects from using the cement containing benzol. This company had to stop production and install ventilation control methods and methods to keep track of the people's health while they were working with these materials, and in the long run, of course, they had lost ground because they had lost time in halting production while they caught up with some knowledge on the facts they should have had before they started the work. There should now be some ease in the face of that. Of course now we are changed over to reconstruction, but let us learn the lesson we did during the war, not rush into things too hastily. Let's study the process which our companies are going into in the reconstruction program. Much can be done if the plans and operations are studied ahead of time so that the presence of industrial health hazards and industrial injury hazards are foreseen and precautions taken against them.

Among the changes which the end of the war has brought about is the change in the type of personnel. We all know how the companies had to scrape the bottom of the barrel for people to fill their plants after the men had gone away to war, and, of course, there were many of the young, very young, many of the old, many who were poor in health and poor in mental equipment who had to be utilized, and exposing those people to industrial health hazards and poisons of course was an even greater danger than exposing people in the prime of health selected for their physical fitness, so we should begin to perhaps get away from some of that.

In addition we should get away from the problems which arose as a result of the large number of women in industry. I don't need to elaborate on the problems which women brought in. There have been speakers at previous meetings here and it's a subject which was worked over again and again, and I am sure you are all familiar with the problems which women brought into industry. Well, now women are beginning to drift out of industry again and each time, after each war and after the influx of women into industry there are always a number of them who are retained but it isn't anything like the problem it was four or five years ago when I know I had thousands of women to think about and whose health I had to consider, and for me, I had to have special regard because of their susceptibility to the industrial health hazards.

With the change brought about by the end of the war there have come many new developments. First of all I am going to speak about the legal developments which have appeared since then and first of all I want to say a little about the Ohio Industrial Health Code which was recently adopted by the Public Health Council and which will become effective January 1, 1947. This code has been discussed twice already at these meetings by engineer Joseph Flanagan, of the Division of Industrial Hygiene of the Health Department, but I do want to say a word in passing; if you haven't already seen the Code or heard about it, I suggest you get copies from the Health Department and study it, because there probably is no industry in Ohio which won't be affected by it in some manner or other. The standards which the Code contains are those which are accepted by authorities in the field and I urge your cooperation and support for the able people in whose hands the administration of this Code lies.

Another development in the same field is the proposed revision of the safety codes of specific requirements of the Ohio Industrial Commission which were petitioned for by several labor organizations but in particular by the steel workers and rubber workers' union. A hearing has already been held on this subject and the proposals have been taken into consideration. In general, the principles of the proposed rubber workers' code, the only one with which I am familiar—I am not familiar with the steel workers' code—but in general the principles refer to the prevention of accidental injury, but there are a few which relate to industrial health and sanitation, and I am going to call your attention to them.

The first part of the proposed Code deal with the purpose and scope, definition of terms; part four, for instance, deals with safety requirements. Section 1 is on "floors." Section 2, "Aisles, corridors, stairways." Part Five deals with "machinery" Section 1 with "Types of machinery", section 2, "Switches and other electrical apparatus", Section 3, "Mill roll height", Section 4, "Safety-trip controls and quick stop facilities", Section 5, "Safety-trip control calendars", Section 6, "Batch off conveyors", and Section 7, elevators. Part 6 deals with the determination of distance of travel; that is for brakes on mills and calendars. Part 7 deals with "Devices for protection", Section 1 of that with

"Guards", and then in Section 2 we begin to get into some of the parts which interest us in industrial health. Section 2 deals with "Clothing, respirators and goggles." All practicable means shall be used to eliminate conditions of exposure that might cause eye injury. Eye shields or suitable safety goggles shall be provided by the employer where there is any danger of eye injury from emery, flying chips, hot scale, hot liquid, flames or flashes. Employers shall furnish employees engaged in air or sand blasting with respirators, hoods or helmets adapted to the work to be done. This safety equipment shall bear the approval of the U. S. Bureau of Mines.

"The paramount duty of every employer to maintain the air of all work rooms and work places in a safe and healthy condition at all times is hereby recognized and affirmed. For operation in which this is not possible, suitable respiratory protective equipment shall be provided for all employees exposed thereto and it shall be worn by them. Such equipment shall bear the approval of the U. S. Bureau of Mines."

While this is the rubber workers' proposed revision I am sure that all other industries, the steel workers and foundry workers and so on will contain similar provisions for operations in which this is not possible; that is where it can be kept in a safe and healthy condition.

"Suitable gloves, boots, aprons and goggles and other protective clothing shall be furnished by the employer and worn by the employees engaged in the use of sulphuric, muriatic or other acids, or solvents, or pigments which may be injurious to the employee." The word "pigments" in the rubber industry refers to materials, in general that are used in compounding rubber.

Part 8 deals with the subject of Ventilation. Section 1, "Where smoke, steam, fumes, gases or dusts arising from any of the operations in a rubber shop may be injurious to the health or safety of the employees, there shall be installed and operated proper hoods, fans or other means of ventilation of sufficient capacity to remove such smoke, steam, fumes, gases or dust."

"Employees whose work exposes them or may expose them to substances of such hazardous nature that a close watch on their condition is advisable may be given regular or occasional physical examination as a check on the adequacy of the preventative measures used, provided, however, that the findings of such examination shall be available at all times for examination by a physician of the employee's choosing and any employee so examined may have a check examination made by a physician of his choice."

"All mixmills, banbury mixers, warm-up mills, tube machines, trainers and calendars shall be equipped with proper and sufficient ventilation."

"All spreader machines, dip units, and ironers, shall be equipped with proper and sufficient ventilation to safely remove all fumes and gases."

"All cement mixers used in the mixing of solvents and the department in which they are located shall be properly ventilated so as to remove all fumes and gases emitting therefrom."

"All spreader machines, calendars, dip units, or cement mixers shall have proper static control, humidification and fire equipment installed and operated."

"Where smoke, fumes, gases, or dust arising from any of the operations in a rubber shop may be injurious to the health of the employees, measurements shall be made by a competent ventilating engineer designated by the employers for that purpose, and all such measurements of air conditioning shall have the approval of the Ohio Industrial Commission. This shall apply also to installation and type of equipment used."

Part 9, "Maintenance and Inspection. A daily visual inspection of all machine units in which solvents or gases are used shall be made by a competent employee designated by the employer to do so. Such inspection shall cover static control, humidification, fire protection and ventilation."

"Chains, cables, tramrails, trolleys, straps, slings, electric hoists, spreader hooks, steel bars, and safeties shall, prior to their use, be inspected daily as to their safety by the men preparing and using the same, and in addition, a regular inspection as to their safety shall be made once a week by an employee designated by the employer for that purpose."

This goes on with further inspection of machines and equipment.

Part 10, "Heating and Lighting. Where light is insufficient to properly light the rubber shop, artificial light of sufficient power shall be provided. All aislesways, corridors, passageways and stairways shall be properly lighted at all times."

"Where light is insufficient to properly light the area in which work is performed, artificial light of sufficient power shall be provided."

"A minimum temperature of 65 degrees Fahrenheit shall be provided and maintained at all times in any section of shop where employers are required to be at work."

Now I don't think they thought that through very carefully, because obviously if it's

95 outside you have to go some to produce a temperature of 65 inside, and invariably—anyway, the change would be tremendous. 65 in the winter time is just about sufficient. They probably will work over that section.

Section 11. "Sanitation and comfort. Suitable facilities shall be provided employers for drying their clothing when necessary; such facilities shall be located in the washroom, locker room, or in a room used exclusively for that purpose.

"Inside sanitary water closets shall be provided in every rubber shop and for each sex according to the following table:—"
 "They give a table providing for the number of water closets which I believe follows the public health service code fairly closely. For instance, for one to eight persons you provide one and from 8 to 13, six. The ratios run one for eight, one for ten one for eleven, one for seventeen, and one for twenty-three.

"For every unit of 68 or fractional part thereof in excess of 138 persons employed, two additional water closets shall be provided. Most modern plants provide better facilities than this calls for.

"All toilet facilities shall be completely separate from locker and washrooms.

"All water closets and toilet seats shall be properly sterilized regularly one each shift. In every rubber shop there shall be provided one urinal. Where more than 30 or less than 80 males are employed, two urinals shall be provided and thereafter one additional urinal shall be provided for every 80 males employed or fractional part thereof. At least five linear of trough or slab urinals shall be considered equivalent of one urinal.

"Wash basins with an adequate supply of hot and cold water shall be supplied according to the following table.—" There again I believe it follows the Public Health Service Code. For instance, from 46 to 65 persons you provide five wash basins. That is a ratio of one for 13.

"For each additional 25 employees at least one additional wash basin shall be provided. Twenty linear inches of sink shall be considered equivalent of one wash basin. Soap and paper towels shall be supplied wherever there is a wash basin.

"Washrooms where 10 to 36 men are employed, shall be provided with at least three shower baths with an ample supply of hot and cold water, and for every additional 36 men, three additional shower baths shall be provided. Where men are employed in shifts the same ratio of shower baths shall be provided for each shift of employees.

"Employees in a rubber shop who come in contact with pigments, acids, lead or solvents shall be supplied with soap and turkish towels for shower baths.

"Individual type lockers at least six feet in height and 12 by 18 inches inside measurements, with hinged doors arranged for locking, shall be provided for employees and shall be placed in a room adjoining the opening into the washroom.

"All aiseways between the lockers shall be at least five feet wide between the rows of lockers, and shall be maintained at this distance at all times.

"Employees working with pigments, acids, lead or solvents shall have one locker for dirty clothes and one clean clothes.

"All washrooms and locker rooms shall be well lighted and ventilated and kept in a clean, sanitary condition at all times, and when in use shall be maintained at a temperature of not less than 70 degrees Fahrenheit.

"All washrooms and locker rooms shall have adequate mirrors for the use of the employees.

"All shower and washrooms shall be supplied with adequate hot and cold water.

"Sanitary drinking fountains shall be provided throughout the rubber shop by the employer.

"The general sanitary rule of the Industrial Commission of Ohio shall apply in all matters not specifically covered in this section.

Part 12 deals with the subject of First Aid. "The following provisions shall be made for First Aid, to be used in case of injury until a regular physician takes charge:

"In every rubber shop there shall be a First Aid dispensary, fully equipped with first aid supplies that shall meet the first aid requirements of the Ohio Industrial Commission.

"All such dispensaries shall be replenished, following an accident, according to the requirements of the Division of Safety and Hygiene of the Ohio Industrial Commission.

"All rubber shops shall have some competent person trained in first aid to work on all shifts for the purpose of administering first aid in case of accident, and they shall be acquainted with dispensary first aid supplies, and also provided with a list showing the names and telephone numbers of competent physicians, hospitals and ambulances in case of serious accident.

"The above mentioned provisions will not be required where a plant hospital dressing room or dispensary with supplies in excess of the above is maintained and where a competently trained person is regularly employed to supervise such plant hospital."

Now, for those who came in after I began to read this, this is a proposed revision which has been submitted to the Ohio Industrial Commission by the rubber workers' union and a meeting was held to consider it and it is now being considered and probably further hearings will be held.

Well, that pretty well covers the legal developments, at least in the state of Ohio. Of course there have been developments outside of Ohio. For instance, other states have passed Occupational Disease Compensation Laws and I think there was one of the last few states that didn't have it passed a workmen's compensation law, but of most interest to those in the protection of the workers' health were the technical developments which came out of the war, and like any other ill wind, the war blew some good.

One of the most interesting and striking developments came out of the development of the atom bomb. I don't suppose there is a meeting being held anywhere today which doesn't somehow or other get around to the atom bomb, and we are no different here, but before the development of the atom bomb—these things are beginning to leak out. There hasn't been any too much provided in the way of information yet. Of course, they knew there were dangerous radiations which would be present and for which protection must be provided. Probably there were no new types of radiation but there were compounds of neutrons for which control measures had to be provided. Now, if the promised development of atomic power, nuclear energy ever reaches a peace-time degree of development so that it can be used in industry, we may have to be faced with this very sort of thing, so we can profit by the things which they learned in the atomic bomb project. Well, in general, they found that if they built their buildings a little thicker that it took pretty good care of these increased and intensified radiations. They found that thicker concrete walls provided excellent protection. However, they had to train all of their personnel to recognize and understand these hazards to which they were exposed and to take advantage of the information which was developed to protect them against it. They also developed many new and extremely accurate instruments to detect these radiations and so far there has been very little divulged as to their character, but we can surmise that they probably operate on principles which were known before the atomic bomb was developed. In addition they had to develop methods of monitoring: that is detecting on a continuous basis the amount of radiation to which each of the workers was exposed, and there has been a little data coming out on that, but they used many of the methods which had previously been used in protection against X-ray. For instance, the badges which the workers wore for identification contains a small piece of photographic film and those were collected periodically and developed, and the amount of effect upon the film was measured and in that way they could tell just what his state of health might be, but that is probably pretty far in the future and it is more of interest in a sense of speculation than it is the fact that it will come up tomorrow and we will have to contend with the hazards of nuclear energy, but among the other tools which were greatly used and accelerated during the war period were those of the pneumatic type, and I think the one which is perhaps most important to all of us is the riveter.

Many years ago Dr. Louis Hamilton described the effects produced by the vibration of the jackhammer—I think it was 20 years ago or more, but today these few tools with their extremely high frequencies of vibration are producing these effects much more rapidly and to a much more marked degree. I don't have time to discuss, nor am I competent to, the pathology of the injuries produced. If you are interested in this I suggest that you read the original papers by Dr. Crajen and Dr. Dart which were presented at the meeting in Chicago last week of the American Association of Industrial Physicians and Surgeons. However, I did gather this much, and incidentally, much of the material which I described here was given in the papers which were given last week. I had quite a time because it was an enormous meeting. There were many papers, and they used split sessions, and I ran back and forth trying to cover both of them. I had quite a time, but I missed out on some of them, but so far as the effects of these highly vibrating tools are concerned, a paper was presented by the workers there and again at the meeting in Chicago last week in which they advocated the change in that procedure so that particles above five microns would be more or less disregarded so far as the counting of test samples was concerned. In addition, in studying this matter they found that the percentage of free silica in the particles of dust above five microns—well, that was quite a serious matter because it might alter somewhat the action of those tests. It was found to be especially true of tests collected in potteries, foundries and glass plants and some others. For these reasons these workers believe that particles larger than five microns in size should be eliminated from consideration both in the

counting and in the determination of the percentage of free silica in making test samples, and, incidentally, the new Ohio Health Code advocated the same proposals.

There were many instruments developed during the war coming out of various needs of the armed forces and one of them was a new and extremely accurate and sturdy carbon monoxide detector. It was developed for use in aircraft so it had to be able to stand very hard punishment and yet be extremely accurate. Well, now, we can begin to take these things over and employ them in peace-time industry. This particular instrument provides both a visual and auditory signal when the permissible limits of carbon monoxide is exceeded. This will find us, for instance, in the production of inert gas for atmosphere over explosive liquids and for the annealing of stainless steel and nickel and other metal units of a sensitive character. May be used, for instance, in solvent recovery systems, reducing economic loss and danger to personnel.

A portable apparatus for the determination of methylchloride was developed for use in the synthetic rubber industry. With refinements this can become useful in the determination of other chlorinated hydrocarbons.

A conspicuous oxygen indicator has been developed for use in process control. It is extremely accurate to one hundredth of one per cent. Further development of this instrument may result in the production of a portable oxygen deficiency indicator. At the present time it can only be used in fixed locations because the temperature has quite a marked effect on the detecting cell.

Among the other papers presented at the meeting in Chicago was one by Leslie Silverman, of Harvard, who reported extremely interesting findings on respiratory air flow characteristics and their relation to certain lung diseases. A study of records obtained by new instruments developed for recording instantaneous air flow during inspiration and expiration displays value in diagnosing asthma, emphysema and silicosis. Of particular interest is the fact that the method appears to be of value in differentiating between lung depositions which produce fibrosis, such as silica, and those which accentuate the X-ray appearance, such as iron fumes, but do not produce disabling fibrosis. Much attention has recently been paid to the occurrence of this pseudofibrosis in welders. So this new method may be of great value because X-ray pictures of workers who have been exposed to large quantities of iron fumes are extremely difficult to differentiate between that condition and one of true silicosis.

Well, the last paper that I heard at the meeting—unfortunately, I missed the first part of it—was the most interesting on the program. Dr. Machle who used to be down here in Cincinnati at the Kettering Laboratory discussed the physiology of work. I don't think I realized until I heard him how little we did on that subject. The Germans did quite a lot. They even had a journal on nothing but that subject. We haven't reached that point yet. Dr. Machle pointed out, for instance, that of necessity, probably, much of industrial equipment and machinery is standardized. No consideration, for instance, is given to the characteristic of the workers who will run the machines. They don't know anything about his height, weight, length of his arms or anything else, and yet that is an extremely important feature and should be studied. He feels that a great deal can be done to transfer the burden of work from man to machine, for instance, by the use of boosters which showed a marked reduction of oxygen consumption by the worker, resulting in better performance and reduction in energy output was true in these cases. He mentioned in particular the study of the adaptation of gyro-stability in tanks. They did a lot of work on tanks during the war down at Fort Knox. Dr. Machle was active in that work and it was desired to apply the principle of gyro-stabilization to the tanks so that firing could be done while the tank was in motion. Prior to that time the tank had to come to a stop, the gun aimed and then fired. A lot of time was lost. They wanted to develop the tank in such a way so it could be used to fire while in movement so they were gyro-stabilized. Unfortunately, in spite of this excellent mechanical equipment, the man was left entirely out of the picture, the factor of the reaction time, that is the time between when the man decides to make the move and when he does it, wasn't considered at all, so the first tanks developed along that line weren't very satisfactory because they resulted in a large number of misses, so they had to go back and start over again and consider the average reaction time of the soldier firing the gun and then they were more successful.

Well, this field of industrial physiology holds a great promise and we can look forward perhaps for great findings in the future.

Chairman Kefauver: I am sure that we are all thankful to Mr. Mallette for bringing us his message and especially the new work that is right up to the minute that he heard about at the Chicago meeting.

Does anyone have any questions they would like to ask? I was wondering when you

were speaking of silicosis, was the question of the aluminum test treatment brought up at the meeting?

Mr. Mallette: Yes. There was a paper given on it. I think, by Dr. Ruden, who did some fine work on it, but he didn't explain about it. Practically every morning you go to now you hear something about aluminum. I tried to choose some things which I felt might not be talked about, and perhaps you would not have heard before but there was a paper on aluminum there.

Chairman Kefauver: But there has been no change in opinion, still a disputed thing, I suppose?

Mr. Mallette: That is right. Of course they are gathering a great deal of evidence. I think the consensus of opinion so far as the aluminum test is concerned, as I hear it at the various meetings about the country, it's an extremely useful agent in the prevention of silicosis but it's very questionable whether it has any effect in the therapy, the cure or even in the relief of its symptoms.

Dr. Shafer, Medical Director, Frigidaire Division, General Motors Corporation, Dayton, Ohio: I listened to both papers at the meeting, the one on experiments with animals and the one in the treatment of silicosis. Comparing the two sets of animals over the short period of time, the paper given on the treatment of silicosis by the dusting method, and the opinion there based mostly on the quantitative experience is that it has kept these workmen that have definite silicosis from going too far in advance and being disabled at a more early period, but it hasn't cured the silicosis. The disability has been less marked in those cases wherever infection is present, but you still have your same old picture. There is no relief from dusting as indicated, but the dusting is given and they give the method of giving it. They showed the apparatus and the frequency. A woman from Pennsylvania has done a lot of work in the coal mines and the smoky industries in Pennsylvania and wrote a paper which is well worth reading.

Chairman Kefauver: I think we have another question.

Dr. (Barberton, Ohio): I would like to know if there is any hazard of neoprene on the skin.

Mr. Mallette: Well, that is very interesting because I had to check up recently on it so far as neoprene itself—I am speaking of the crude stock—is concerned, there are probably no hazards at all, possibly an occasional case of dermatitis occurs, but I feel that that is more due to the presence of other chemicals in the stock, for instance, antioxidants and so forth than it is the neoprene itself. Back in the middle thirties, a great deal of close study was made on neoprene by the DuPont people. It was duprene at that time, if you recall, but it is essentially the same thing. However, the material from which neoprene is made is an extremely toxic material and I think perhaps sometimes there is some confusion because of that fact. Chloroprene is extremely toxic, but after it has been processed and especially when the stock has been cured, there is no toxicity present. There may be occasionally a case of dermatitis, but that is more due to other chemicals in the stock.

Dr. : We have a type of spray.

Mr. Mallette: That is a different thing. I thought you referred to cured neoprene stock. Now, neoprene latex, of course, is a liquid and there are stock materials in it—the DuPont people informed me that they have been striving to lower the percentage of chloroprene in their latex. It has contained in the past something as high as four or five per cent. There is a possibility some one may absorb enough chloroprene so as to be hazardous. However, it is extremely irritating to the skin and practically every company which has used neoprene latex has had some difficulty with dermatitis. It is extremely irritating but their method of control to prevent the contact with the skin should be utilized. That is where the cardinal principle lies. You can't do much probably, to change the latex although the DuPont people are trying to get the chloroprene content down, but everywhere it is used there is quite a high incidence of dermatitis, but if you can—I don't know how—you say, "Spray"?

Dr. : Yes.

Mr. Mallette: Well, if you can of course provide local exhaust ventilation: If you can't protect the worker by means of sleeves and gloves, aprons. Protective garments are of value, and encourage them to use them frequently and to get it off his skin before it takes effect. Has it been dermatitis which has occurred?

Dr.

Mr. Mallette: I believe that is probably all it will do, although I am planning some studies right now on the amount of chloroprene in the air where neoprene is used because this question has come up.

Dr. W. E. Oletz, Medical adviser of Safety & Hygiene: How about rubber gloves out of neoprene?

Mr. Mallette: Well, there has been quite a lot of dermatitis, Dr. Oletz, but I think it is due in most cases to the antioxygen. We have been doing a lot of testing on young people who were affected by neoprene gloves. We purchased several hundred pairs and put them in our steel products department and we got a flood of dermatitis all of a sudden. We tested many people and we found that the gloves plus the caustics and things; we found the compounding ingredients in the gloves and came down to the antioxygen. Where it was put into the synthetic rubber, of course, it occurred in products which were made from the synthetic rubber itself.

Dr. Oletz: Does that apply to both kinds?

Mr. Mallette: Both the neoprene and the buna.

Dr. Oletz: The same antioxygen was not used but it produced the same effect?

Mr. Mallette: Yes.

Chairman Kefauver: Our next speaker needs no introduction. Dr. M. M. Shafer, Medical Director, Frigidaire Division, General Motors Corporation, Dayton, Ohio.

PERSONAL PROTECTIVE EQUIPMENT AND HOW TO USE IT

Dr. M. M. Shafer, Medical Director,
Frigidaire Division, General Motors Corporation,
Dayton, Ohio

Mr. Chairman, members of the Sixteenth All Ohio safety Congress: It's a pleasure to be here today. The subject that Dr. Oletz assigned to me is one that I think we are all more or less familiar with, and I hope our previous speaker, Mr. Mallette, will pardon me if I refer to this paper in several connections, because it was a very interesting paper and it touches, in several instances on the personal protective equipment that I am going to talk to you about.

It is obvious from the outset that such a vast subject could not be covered in detail in such a short time. Therefore I am taking the liberty of listing some of the personal protective equipment with which I am familiar and will attempt to discuss the proper use of some of these which have caused the greatest difficulty.

The following list, starting from the top of the head and going down to the feet, represents a part of the personal protective equipment in everyday use in a great many plants. It is obvious from the following list that no discussion is necessary in order to use some of this equipment correctly and properly. In my own company all personal protective equipment is furnished the employee free of charge.

I. Head Protection.

- A. Steel hats
- B. Guard-Ann or other type head protection for women

II. Goggles

- A. Various Types
 - a. Welders (shade of lens)
 - b. Acid free
 - c. Shatter proof
 - d. Shatter proof with side shields
 - e. Rx shatter proof
 - f. More goggles (several types)

III. Face Shield

- A. Welders
- B. Plastic shields

IV. Ear diaphragms

V. Respirators

- A. Various Types
 - a. Dust
 - b. Fumes
 - c. Gases
 - d. Acids
 - e. Alkalis
- VI. Salt tablets
- VII. Protective Creams
- VIII. Positive Pressure Air Hoods
 - A. Porcelain
 - B. Sand blast

IX. Coveralls—snecks—smock or dress

X. Aprons

- A. Rubber
- B. Leather
- C. Cloth
- D. Plastic
- E. Oiled silk

XI. Sleevelets

- A. Waterproof
 - a. Rubber
 - b. Plastic
- B. Leather
- C. Chamols
- D. Leather with rivets
- E. Asbestos

XII. Gloves

- A. Rubber
- B. Synthetic Rubber
- C. Canvas
- D. Leather palm
- E. Chrome leather
- F. Asbestos
- G. Heavy leather with staples

XIII. Leggings

XIV. Spats

- XV. Shoes or Boots
 - A. Steel toes—safety
 - B. Steel toe guards
 - C. Rubber boots
 - D. Wooden soled mop shoes

XVI. Electricians Chrome Leather Hood and Coat

XVII. Asbestos clothing

XVIII. Acid proof suits

XIX. Safety belts

In our plant we have very little use of steel hats, however, we have considerable use for the Guard-Ann safety caps for women that are working on revolving machinery. In passing, I would like to leave with you this one thought "that no matter what type of safety cap you choose for your women employees to wear, it will never satisfy them all". So, the best that you can do is secure a type of safety cap that does the work and insist upon its being worn when the operator is working on revolving machinery.

Goggles are one of the most important safety items used in protecting our employees. No one has, as yet, designed an all purpose safety goggle. In some areas it will be essential that the goggles be equipped with side shields. In others the plain goggles without side shields will give adequate protection. In other places the cup type goggles will be preferable. There will be hundreds of complaints as to why they cannot wear goggles on this or that particular operation and some of these complaints will be justified. During the war we had occasion to equip some eight thousand of our em-

playes with safety goggles and I feel I can speak with some experience as to how best to cope with the goggle situation.

First—it is essential that the goggles be of the proper type to give adequate protection for the job on which it is to be used.

Second—the goggles must be properly adjusted and fitted.

Third—this adjustment can only be done by someone thoroughly trained in the proper fitting and adjusting of goggles.

Fourth—goggles must be kept clean and when the lenses become pitted so that they hinder the vision of the employee, the lenses should be changed.

Fifth—once the above essentials have been met and the employee is still complaining about the wearing of the goggles he has either some eye difficulty for which prescription goggles must be ordered or he is just trying to get out of wearing the eye protection. We always think the former is correct and advise the employ to have an eye examination by an optometrist or preferably an oculist and a prescription secured. We then have the proper RX prescription lenses ground and placed in this employee's goggles. These are then checked by our goggle service man and the optician or oculist. By following the above simple procedure we have eliminated 99% of goggle complaints of any serious nature. The other 1% no one can satisfy and a job change or elimination is necessary.

Mono goggles can be worn over personal prescription glasses until proper RX safety lenses can be secured and employees needing prescription goggles can work on hazardous jobs with this type eye protection.

Obviously welders goggles are not covered under the above discussion and these special type goggles should be provided in the proper shade of lenses for the welding job that is to be done.

Protective face shields are some times used to protect the individual from flying particles and this material is satisfactory providing the flying particles are small and infrequent. However, our experience with protective shields was quite unsatisfactory and they were discarded almost entirely due to the fact that they were being used to protect against flying particles or the possibility of broken wheels or grinding discs which flew with such force that the protective shield did not protect from severe injury to the face or the danger of breaking personal glasses which were often worn under them.

Wherever possible, hazardous areas, in which eye protection is essential, should be set aside and plainly marked as "Goggle Areas" and no one should be permitted to enter without adequate and proper eye protection.

Ear plugs or rubber diaphragms are used in areas in which the noise is distressing and aggravating to the employee and which over a long period of exposure (such as the case of boiler makers) is likely to cause deafness.

Respirators—positive pressure air hoods, types used for dusts, fumes, gases, acids and alkalis.

One of the most hazardous of all occupations in industry is sand blasting in which the inhalation of fine particles of silica dust over long periods of time without adequate protection will cause the dread disease known as silicosis for which there is no known medical care. The Mine Safety Appliance has developed a sand blast hood with positive pressure air lines which if worn constantly while exposed to the silica blast operator. Instead of breathing the contaminated air in the area, he is supplied with purified compressed air at the rate of about six cubic feet per minute through a special air line connected directly with his mask. However, at times I have noted in sand blast operations that the operator wears the positive pressure air hood during the entire time that the sand blast is going on but that when the work is being changed and the area still quite contaminated with the fine silica particles floating in the air, the hood is removed and no protection is worn. I feel that it is essential that a Dust Foe or Wilson type respirator be worn while the work is being changed on the sand blast table. In order to avoid this exposure to silica dust, it is being recommended in all departments wherever possible that shot blasting should be substituted for sand blasting to avoid any possibility of exposure to large amounts of silica dust.

A very light type of positive pressure air mask is made by the Mine Safety Appliance which can be used on various dusty jobs or exposure to various fumes, mists, gases, etc., where adequate exhaust ventilation is impossible. This positive pressure air hood operates on exactly the same principle as the heavier sand blast hood but is made of impervious lighter materials and is not uncomfortable to wear. However, the air furnished to the operator is compressed air which has previously been purified of any contamination before being supplied to the mask. This mask is particularly applicable to such jobs as porcelain spray, paint spray, cleaning of acid and alkali tanks and other jobs where the exposure is such as to be hazardous without having adequate air supply. Cleaning the inside of tanks has caused a great many deaths and a positive

pressure air hoods supplied to the operator working inside the tank would not hinder the operation to any great extent but would give the workers purified air to breathe regardless of what the tank contains which is being cleaned. This mask is applicable to all hazardous occupation in which exposure is through the inhalation of dust, mists, fumes or gases.

There are many different types of masks in every day use which are applicable to the protection of the individual from the inhalation of various respiratory irritants and toxic agents. But it is essential that the right type of respirator be used on the particular operation for which it is designed and recommended. It would be as foolish to use a Martindale mask in the prevention of inhalation of chlorine or other highly irritating fumes as to use a pair of canvas gloves in a heat treatment operation. If the respirator is designed for a special usage it should be limited to that usage and not used for other purposes. On the cartridge type respirators the attached cartridge contains certain chemicals which are used particularly to filter out or neutralize the fumes to which the individual is being exposed at that particular time. Obviously again, if the wrong chemicals are in the cartridge and the exposure is to a type fume which they do not counteract, then the individual has little or no protection even though he is wearing a respirator.

Dr. Shafer: If there are any questions, I will try to answer them.

A Voice: What has been your experience with laminated goggles?

Dr. Shafer: Plastic.

A voice: Yes. They are laminated.

Dr. Shafer: Well, we haven't had any experience. We have used one Bausch & Lomb developed and there is a company in Dayton which develops a plastic goggle, but during the time of the war they had so much work they didn't do anything about it; that is the Univex Company. I imagine they will come out with their plastic molded goggle. I suppose it's all right. It was tested before and it gave adequate protection. There isn't any reason why it couldn't be used.

Mr. John N. Carr, The Lubridol Corporation, Wickliffe, Ohio: What experience have you had with complaints regarding the forging of various types of goggles where a man is doing hot work, for instance, and is required to wear a dust or fume resisting goggle?

Dr. Shafer: Well, you have that difficulty; there is no question about it. The solution isn't exactly clear. Some times the one that is made with the double lens in front with the water supply, they can brush it all down. It has given us the most successful use. You know the one I am talking about?

Mr. Carr: Yes.

Dr. Shafer: But you still have the same problem; the fog comes back again. There is no good anti-fog goggle I know about today.

Mr. Carr: I thought possibly you would say that these hoods would be good.

Dr. Shafer: The hood wouldn't give you much help.

Dr. Emery R. Hayhurst, Columbus, Ohio: Doctor, do you know any alarm signal or systems or concentrations that might occur of these toxic substances?

Dr. Shafer: Yes, we do have on sulphuric dioxide, Doctor. On the concentration of sulphuric dioxide it automatically sets off an alarm and opens the ventilators and it will start the exhaust fans only when there was a concentration developed, but that was the only one we had occasion for. With the newer gases used in refrigeration we don't have any hazardous exposure of that type.

A Voice: In the control of dermatitis did you try creams? You spoke about washing four to six times a day without applying creams. What type of subject did you use in your test?

Dr. Shafer: We tried every type of subject on the market and we finally ended up with one that is approved by the General Motors, a pulverized soap, one with cornmeal in it.

A Voice: Did you try the test without applying creams in controlling this dermatitis?

Dr. Shafer: No, we didn't.

A Voice: Just washing?

Dr. Shafer: I imagine it worked out just about as well, although applying cream does have some effect on the prevention of it getting into the pores, but in abrasive areas it will get through there frequently; there is no question about it. There is also involved the individual susceptibility to it in all dermatitis, because men have worked for years and years, side by side, doing the same work, handling the same compounds, and one fellow has the dermatitis and the other fellow who does exactly the same type of job, identical in all respects, doesn't have it.

Mr. Robin Beach, Engineer, Brooklyn, New York: Was I just plain lucky on this or not? I did work on static electricity at Goodyear Tire and Rubber, and on my first at Akron I got dermatitis on my hands and arms and it went down to my legs and feet, and I just felt like a leper. When I went back to the city I went to some skin specialists, and of course you know the old saying about them—it's quite a racket—the patient never dies, and neither do they get well. (Laughter.)

I spent six or seven hundred dollars while in the city, and then I went back to Akron again. I was pretty disappointed, so finally I talked to a calendar man. I said, "Do you ever get this sort of thing?" He said, "Oh, yes, about every six months I get a touch of it." I said, "What do you do?" He said, "I get a teacup full of lysol, pour it in a tub of water and crawl into it up to my neck, and that will clear it up." I went back to the hotel; I did it, and within a few days later I did it again, and a week later again, and I was completely over it. Does that sound reasonable to you? It that something that is really a treatment?

Mr. Shafer: Well, I have heard a lot of similar things along that line in which they used a very simple remedy. How much Lysol did you use?

Mr. Beach: A little teacup full in a tub of water.

Dr. Shafer: That is a mild antiseptic. To say whether or not that did it, I don't know. The next individual may try it and he may be a little sensitive and the phenol in it might make it a little worse, so he would give you the Dickens for it.

Mr. Carr: I had one more question. You may not be able to help me, but I thought possibly there was someone in the room who could. One of our divisions handles an acid which is a rather dangerous material from the standpoint of skin exposure, and a new plant manager brought us a formula called ferric chloride tincture, and a it was used during the war in the petroleum industry for first aid treatment of phenol burns. Everywhere I have asked in the Cleveland area they tell me that the first aid procedure is to use alcohol to wash off the phenol and then treat for burns, and he tells me that he has seen individuals pretty thoroughly sprayed with phenol given immediate attention with the ferric chloride solution and go back to work the same day, so I wondered whether anyone here ever had any experience with that particular kind of treatment?

Dr. Locksen, Columbus, Ohio: I can answer that question. I am practicing dermatologist. I can tell you ferric chloride will give a pigmentation of the skin to a fairly large number of persons and this will be permanent, so that if you apply ferric chloride on the face or on the hands it will show for years to come. That has been used in the treatment of poison ivy at times, and it isn't considered good therapy because of that fact. I think your alcohol treatment, that neutralization in your best treatment.

GENERAL SESSION SUPERVISION SAFETY IMPROVEMENT

Thursday Afternoon, April 18th, 1946

This session of the All Ohio Safety Congress, was called to order at 1:30 o'clock P.M. by Mr. Paul F. Ward, Secretary, Industrial Commission of Ohio.

Mr. Ward: May I have your attention, please? I see here that Will T. Blake, a member of the Industrial Commission, is scheduled for the introduction. Mr. Blake is out of the city on Industrial Commission business, and I am Paul Ward, Secretary of the Commission. Mr. Blake asked me to appear in his behalf and introduce to you people the men who will carry on with the meeting.

On the other page, you will see that the subject of this discussion is, "Is the Safety Director Passing the Buck to the Foreman?" I am going to give you a very practical demonstration of passing the buck, because Mr. Strobel, Joseph R. Strobel, who is State Director of Vocational Education of the Board of Education of the State of Ohio, is the General Chairman of this Session. I am sure he needs no further introduction, because I understand he has been here for four years in the past. He has been vitally interested and very closely connected with safety work throughout the State of Ohio for a number of years, and from his point of vantage, he has seen the needs and the problems of safety and Safety Engineers. I give you Mr. Strobel.

Mr. Joseph R. Strobel, Director of Vocational Education, Department of Education, Columbus, Ohio:

Friends of Supervisors and Friends of Safety, and Mr. Ward: We are happy that the Industrial Commission assigned you as a practical demonstration of passing the buck, and just so that you won't look as an expert in that position. I am going to award you First Pass Buckler, or Buck Passer, whichever you want to call it. (Laughter.)

You know, in planning arrangements for a General Session of this kind, when we are arriving at this last General Session of the Congress, the folks who are responsible for planning the program recognize that they have a terrific assignment. We know that there are two important factors in every program of this kind. One, that we should give the folks that attend the Congress an opportunity to discuss some of the specific problems that affect them in their particular occupation, and two, that we give them an opportunity to come together as a complete group so that they might enjoy, as a cross-section of all occupations in Ohio, and as all-safety people in Ohio, to give them an opportunity to enjoy, and let's call it a privilege today of hearing a problem that has come to all folks interested in safety. In planning our program for today, we attempted to do these things. We said this is a program that should interest the supervisor, and it should have a relationship to the supervisor, and that it must have some relationship to the safety problem. It should be primarily applicable. By that we mean we should not be discussing something that is old, or something that is ten years ahead of us. It should be interesting, interesting that it will cover the biggest percentage of safety problems in all areas and occupations. It ought to be one that would cause us to think.

We believe we have a controversy set up here today, the answer to which I do not believe any of you have right now. Most important, we believe we have a program set up here today that will enable you to carry home with you some of the ideas that our panel will discuss, which should help you in meeting the specific problems of this nature in your own particular plant.

In attempting to set up a program of this type, we wanted to get the viewpoint of supervision, and so, knowing that we had the best Foremen's Club in Ohio, right here in Columbus, and knowing that they have demonstrated year after year that they have the ability and that they are interested in the problems both of supervision and safety, we asked the Foremen's Club to sponsor this meeting. We wanted to insure and assure the meeting of the supervisors' viewpoint, and so when we sat down in our preliminary planning to see if we could not pick a topic that would cover the situation, it seemed there was complete agreement in the one that we selected for today. Where