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Annual Report

INDUSTRIAL HYGIENE FOUNDATION

For the year ending May 1, 1957

MELLON INSTITUTE · 4400 FIFTH AVENUE
PITTSBURGH 13, PA.

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Industrial Hygiene Foundation

Annual Report

For the year ended May 1, 1957



MELLON INSTITUTE - 4400 FIFTH AVENUE
PITTSBURGH 13, PA.

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To the Members of
INDUSTRIAL HYGIENE FOUNDATION:

A brief review of Industrial Hygiene Foundation's activities during the past year is presented in this report. Included is a summarization of the major survey and research projects conducted by the Foundation for member companies in many different categories. Such projects are held confidential, and the data pertaining to these specific services of the Foundation do not include identification of the companies involved.

These studies are indicative of the many ways in which the Foundation can assist its member companies in the solution of their specific occupational health problems.

The technical information services of the Foundation were likewise called upon frequently during the past year. Specific advice, as well as thousands of pieces of technical literature, was supplied to member companies. Listed in this report is the literature newly available to the membership during the past year. The Foundation maintains a stock of reprints on industrial health subjects which may be drawn upon by members when seeking information.

We hope that you will utilize the services of the Foundation and of its industrial health specialists often during the year ahead.

C. Richard Walmer

C. Richard Walmer, M.D.
Managing Director

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MEDICAL STUDIES

The value of cooperative projects is well illustrated in epidemiological studies. The relationship of certain diseases to occupation is more accurately established when the area of study is broadened. Practical information can then be developed on an industry-wide basis regarding prevention of harmful conditions.

A major epidemiolbgical study of industrial dermatitis for an association of industries was completed by the Foundation's medical staff. The pilot study was undertaken to determine the incidence of dermatitis in the manufacturing industries and the relative importance of their products in its causation. Companies selected to participate over a six-month period were selected by a purposive and random sampling within 13 manufacturing categories, and 5 geographical areas chosen to represent practically all climatic conditions in the United States. Separate analysis was made of records of State Health Departments in each of the five areas. Data were carefully processed, tabulated, and analyzed to derive the incidence rates and to make certain comparisons.

An epidemiological study of the health status of workers in a specific industry is well under way for a member association. The objectives are to determine whether there is relationship between environmental exposures and certain biologic effects. An intra-industry study was initiated, selecting a group of people which entered the industry from ten to twenty years ago and following their subsequent health status. A comparison will be made of this group with the general population.

Another major epidemiological study was begun for a group of companies to investigate the biologic effects of certain chemical compounds. The objective of the study is to determine the actual incidence of certain pathological conditions associated in the past with exposure to these compounds;a statistical evaluation of such association, if it exists;and the development of practical information regarding prevention of those conditions which may be found to have such association.

The Foundation is also engaged at the present time in designing a medical program, including an industrial dispensary, for a company handling nonferrous metals. The medical staff has been of advisory aid to numerous other companies with regard to health maintenance programs. Clinical pathology consultation service was also provided.

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TOXICOLOGICAL RESEARCH

A number of research investigations in the Foundation's toxicological laboratory were concerned with the development of fundamental information in appraising and controlling occupational disease hazards. Many such projects conducted by the Foundation are group-sponsored, particularly where toxicological research over a long period of time is involved. Toxicity studies were also made of a number of new chemical compounds to provide information on possible hazards in manufacture and use. The findings serve as a basis for evolving proper control measures to protect the health of workers and consumers.

A three-year program of research on the effects of abrasive dusts on normal lungs and on the evolution of pulmonary tuberculosis is nearing completion.

In line with the increasing practice of industries to seek advance determination of potential hazards of new products, I-H-F has been entrusted with a 30-month research project which includes pulmonary, gastrointestinal and eye irritation studies on which work is progressing in the toxicology laboratory.

A study of biological factors in air pollution is currently being conducted for an association of industries. The effects of solid respirable constituents of stack effluents upon the lungs of animals is being studies. The project is scheduled for an eighteen-month period.

A toxicological study involving acute oral administration and 30-day feeding tests of a chemical compound was conducted in the Foundation's laboratory for a chemical company.

Range-finding toxicity studies on a number of chemical compounds were made for an oil company. Effects on the eye, skin, and respiratory system as well as the ingestion toxicity of the compounds were determined.

Screening tests were done for a chemical company on evaluation of chloracne-producing potential of various chlorinated organic compounds.

Study of the possible irritating effect on the eye of a lubricating fluid which has been subjected to high temperatures is being made for a member company.

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ENVIRONMENTAL SURVEYS

During the past year, the Foundation's staff completed a number of important field studies to ascertain the degree of exposures to dusts and other atmospheric contaminants and to devise control measures.

A general survey of the magnitude of atmospheric contamination in the various departments of a steel company was conducted to obtain an inventory of potentially hazardous materials and operations. This included sampling and determination of airborne lead fume and dust, pickling acid mists and carbon monoxide. Inspection of other potentially hazardous operations was made, such as the use of carbon tetrachloride or degreasers.

A similar study is currently under way for another steel company. Control measures will be based upon this evaluation of the working environment.

A study was made for a company handling nonferrous metals on environmental health exposures at various operations. Another for the same company related to the investigation of volatile hydrides evolved during grinding of metal blocks.

Methods for control of lead fume and dust sources in the smelter, zinc plant and surface operations of another company were recommended.

Fume and dust control in glassbead-forming operations was a specific problem studied in a ceramic industry.

Six companies of a member association were visited and a report on dust conditions in the plants prepared.

A survey was made to evaluate the degree of hazard in the dust exposures of workmen while processing materials used in producing special cement products. Recommendations on methods for obtaining improved airborne dust control were made.

An environmental study is under way for another company to evaluate the degree of hazardous exposure to silicosis-producing dusts.

A report was made of dust exposures at a railroad diesel engine servicing shed.

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The problem of dust exposures from the packing and spraying of a substance in a manufacturing operation was evaluated. Operations using chlorinated hydrocarbons were also observed to evaluate potential exposures to the vapors.

A survey was made of specified air pollutants in the vicinity of two of the plants of a glass manufacturing company. For the same company a study of the fluoride content of dust fall in another vicinity was also made.

A report on stack dust measurements was made for a manufacturer of dust-collecting equipment.

A study is being made of the existing dust collecting system of the sinter plant of a company producing nonferrous metals.

An inspection was made of an electronic equipment manufacturing plant to determine the extent of the noise problem.

Seasonal surveys of sulfur dioxide in the community surrounding plants of two companies were again conducted.

Two surveys took Foundation personnel to other countries: One project involved the study of the air-pollution potential of a community, with a view to anticipating possible problems as industry in that area expands; the other required the services of an industrial hygienist from the staff to assist in conducting an industrial hygiene survey at foreign operations of the company.

The engineering staff of the Foundation was requested to give special training to an industrial hygienist from a chemical company. The company representative received individual instruction at the Foundation's headquarters and participated in laboratory work under direct supervision over a period of several weeks. An industrial hygiene engineer from the Foundation's staff also visited the plant to survey the working environment and to outline an industrial hygiene program to be followed by the company's industrial hygienists.

Special analytical work was performed for numerous members, including size separation, x-ray diffraction, and particle size measurement of atmospheric contaminants collected at specific plant operations.

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TECHNICAL ADVISORY SERVICE

In addition to work in the field and laboratory, the Foundation's technical staff prepared more than 100 detailed replies to inquiries from members. Information and advice was given on a host of subjects covering all aspects of industrial health problems. In many cases this ready information gave the inquirer the needed insight to eliminate a health hazard. Telephone calls and visits to the Foundation's offices and laboratories resolved innumerable other questions. The staff aided members in securing desired literature, and prepared bibliographies on specific subjects upon request.

SEMINAR HELD FOR SAND-PROCESSING COMPANIES

A three-day seminar on "The Silicosis Hazard and Design of Dust Control Measures" was sponsored and conducted by Industrial Hygiene Foundation for members of the National Industrial Sand Association in June, 1956. Some 30 representatives of sand-processing companies attended the sessions, held at Mellon Institute, at which members of the staff of the Foundation discussed problems relating to the control of dust exposures in the processing and handling of sand and pulverized silica.

Mr. Hatch lectured on various aspects of the subject, including principles of design of dust control systems, measures for reducing air motion, design of enclosures and local exhaust hoods, layout and design of exhaust ventilation systems; and types of dust collectors. Clinical aspects and x-ray diagnosis of silicosis were discussed by Dr. Braun. Dr. Gross gave a lecture on experimental silicosis. Dr. Schrenk and Mr. Schreibeis demonstrated methods of dust sampling.

Types and characteristics of fans were discussed by Mr. Lee Moore of the Pittsburgh office of the Buffalo Forge Company. This was followed by a general consideration of dust control problems in sand processing plants.

The conference was judged to be of great value to the participants, and arrangements are being made for another such program to be held in June, 1957.

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OTHER EDUCATIVE ACTIVITIES OF I-H-F STAFF MEMBERS

Dr. Schrenk addressed the staff of Crucible Steel Company of America's Research and Development Laboratory in Pittsburgh on the subject of industrial hygiene, with particular reference to toxicology.

He also participated as a lecturer in a course on "Fundamentals of Industrial Safety" sponsored by the Western Pennsylvania Safety Council for safety engineers from industry. The subject of Dr. Schrenk's lecture was "Industrial Health Hazards and Control." The course was given at the University of Pittsburgh.

Drs. Schrenk, Braun, Gross and Westrick all presented lectures on industrial health and medicine to students in the University of Pittsburgh School of Medicine. Lectures were also given at the University of Pittsburgh Graduate School of Public Health.

21st ANNUAL MEETING AND TECHNICAL CONFERENCES

The 21st Annual Meeting of Industrial Hygiene Foundation, held at Mellon Institute on November 14 and 15, 1956, was attended by 650 representatives of industrial management and the health professions. After separate Medical, Legal, Chemical-Toxicological and Engineering Conferences, the specialized groups assembled together to participate in a Joint Technical Conference at which health problems involved in the manufacture, sale, and use of toxic materials were discussed by a panel representing all of the groups, as well as the insurance field and industrial management. The resulting interchange of ideas and information fulfilled one of the primary aims of the Foundation's meetings, which is the promotion of higher standards of health maintenance in industry by providing opportunities to exchange valuable knowledge on accomplishments, trends and needs in the industrial health field.

The Management Conference on the second day also brought together the majority of the technical conference participants, along with a number of new registrants, for a program designed to open new channels of communication between management and technical personnel in matters of industrial health.

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PUBLICATIONS AND REPRINT SERVICE

The monthly Industrial Hygiene Digest was sent to approximately 2300 representatives of member companies and special subscribers. During the calendar year 1956, there were 1502 abstracts of the current world's literature on all phases of industrial health included in the Digest.

The Transactions of the 21st Annual Meeting, totaling 281 pages, were published under one cover and have been distributed to the membership.

A new bulletin describing the activities of Industrial Hygiene Foundation was published late in 1956. The many areas of service in the field of industrial health available from the Foundation were outlined and illustrated, and data on membership in the Foundation and on the Board and Committees brought up to date.

From the stock of reprints on technical literature maintained by the Foundation—currently numbering 218 different articles—over 3000 reprints were mailed upon request. As new reprints of literature on industrial health become available, they are announced in the Digest.

Reprints newly available during the past year are as follows:

"Health Maintenance in the Petroleum Industry," C. Richard Walmer, A. M. A. Archives of Industrial Health, April, 1957.

"Importance of Biological Research in Industrial Medicine," P. Gross, H. H. Schrenk, and C. Richard Walmer, J. American Medical Assn., June 16, 1956.

"Environmental Control in the Promotion of Better Working Conditions," H. H. Schrenk, Ind. & Eng. Chem., November, 1956.

"Analysis and Instrumentation—Basis of Industrial Hygiene," H. H. Schrenk, Analytical Chemistry, October, 1956.

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"Action of Detergents in White Mineral Oil Upon Rabbit Corneal Epithelium," C. William Weisser, Marian L. Westrick, and H. H. Schrenk, A. M. A. Archives of Industrial Health, September, 1956.

"Silicosis: The Topographic Relationship of Mineral Deposits to Histologic Structures," P. Gross, Marian L. Westrick, and J. McNerney, Am. J. of Pathology, No. 4, 1956.

"The Effects of a Synthetic Ceramic Fiber Dust upon the Lungs of Rats," P. Gross, Marian L. Westrick, H. H. Schrenk, and J. McNerney, A. M. A. Archives of Industrial Health, February, 1956.

Industrial Hygiene Column—Topic: "Compilation of toxicity data provides quick reference sources. Toxicity of fumigant mixtures," H. H. Schrenk, Ind. & Eng. Chem., June, 1956.

"Threshold Limit Values for 1956." Adopted at the 18th Annual Meeting of the American Conference of Governmental Industrial Hygienists, Philadelphia, April 21-24, 1956. A. M. A. Archives of Industrial Health, August, 1956.

"Industrial Health and the Noise Problem," C. Richard Walmer. Presented on May 14, 1956 at the Spring Meeting of the Portland Cement Association, held in Detroit, Michigan. (Duplimat copies available.)

"Quantitative Aspects of Air Pollution in Relation to Health," H. H. Schrenk. Presented at the American Chemical Society Symposium on Air Pollution in Atlantic City, September 17-19, 1956. (Duplimat copies available.)

Reprints of papers from the Transactions of the 20th Annual Meeting of the Foundation, November, 1955:

"Evaluating Industrial Medical Departments," D. C. Braun.

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"Fundamentals of Industrial Behavior: A Contribution from the Field of Mental Health," C. Leggo.

"The Presentation of Medical Testimony in Compensation Cases," J. Hill and H. H. Kessler.

"Recent Observations on Chronic Pulmonary Beryllium Disease," G. W. H. Schepers.

"Safety in the Use of Radioisotopes," H. Cember.

It is anticipated that the following papers which were presented at technical meetings will be published, in which event reprints will be ordered:

"The Growth and Progress in Industrial Hygiene," Cummings Memorial Lecture, H. H. Schrenk. Presented at the 18th Annual Meeting of the American Industrial Hygiene Association at the Industrial Health Conference in St. Louis, Missouri, April 25, 1957.

"The Topographic Relationship of Contaminating Iron to Experimental Modified Silicosis," Marian L. Westrick. Presented at 18th Annual Meeting of American Industrial Hygiene Association at the Industrial Health Conference in St. Louis, Missouri, April 25, 1957.

"Experimental Massive Progressive Pulmonary Fibrosis," P. Gross, Marian L. Westrick, and J. McNerney. Presented at the 54th Annual Meeting of the American Association of Pathologists and Bacteriologists held in Washington, D.C., April 12, 1957.

Contributions to special publications for which reprints are not available are:

An article on "Industrial Hygiene" by C. Richard Walmer; and one on "Industrial Hygiene Foundation" by H. H. Schrenk, published in the Encyclopedia of Chemistry by Reinhold Publishing Company early this year.

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A section on "Industrial Hygiene and Safety" prepared by H. H. Schrenk for the Americana Annual, 1957, which is an encyclopedia of events of 1956.

SPECIAL AWARDS

Dr. H. H. Schrenk, Research Director of the Foundation, received the Donald E. Cummings Memorial Award from the American Industrial Hygiene Association for outstanding contributions to the knowledge and practice of the profession of industrial hygiene. The award was made at the Association's 18th Annual Meeting at the Industrial Health Conference in St. Louis on April 24.

NEW APPOINTMENTS OF STAFF MEMBERS

Dr. Schrenk was appointed Chairman of the ASA Z-37 Committee. The Committee is charged with establishing acceptable concentrations of atmospheric contaminants in the atmosphere of work places.

He was also appointed to the Pennsylvania State Chamber of Commerce Committee on Pollution Abatement for the 1956-57 period.

Dr. Walmer and Dr. Schrenk were both invited to membership in the Royal Society of Health (England).

Dr. Braun was appointed Chairman of the Commission on Industrial Health and Hygiene of the Medical Society of the State of Pennsylvania.

APPOINTMENTS TO I-H-F BOARD AND TECHNICAL COMMITTEES

Elected to the Board of Trustees since the last spring meeting were Mr. A. Y. Gregory, President, Whitehead Brothers, who has since resigned because of ill health; Mr. George A. Jacoby, Director of Personnel Relations, General Motors Corporation; General Clinton F. Robinson, President of The Carborundum

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Company; and Mr. Robert B. Parker, Assistant to the President, American Brake Shoe Company.

Changes in the membership of the technical committees are as follows:

Dr. E. H. Carleton, Inland Steel Company, was moved from the Medical Committee to the Research Advisory Council. Dr. R. E. Eckardt of the Esso Research and Engineering Company was also appointed to the Council.

Three new appointees to the Preventive Engineering Committee are: Mr. A. V. Bender, National Lead Company; Dr. J. V. Grimaldi, General Electric Company; and Dr. E. G. Meiter, Employers Mutuals of Wausau.

Additions to the Legal Committee are: Mr. H. M. Jackson, Johns-Manville Corporation; and Mr. Douglas Soutar, American Smelting and Refining Company.

The Chemical-Toxicological Committee added four new members: Mr. James F. Morgan, Pennsylvania Railroad Company; Mr. L. E. Renes, Phillips Petroleum Company; Mr. E. D. Sallee, American Can Company; and Dr. Marian L. Westrick, of the Foundation's toxicological laboratory, who will act as Secretary.

New members on the Air-Pollution Control Committee are: Mr. Harry C. Ballman, Bituminous Coal Institute; Dr. C. A. Bishop, United States Steel Corporation; Dr. Lester V. Cralley, Aluminum Company of America; and Dr. G. M. Saunders, Socony Mobil Oil Company, Inc.

ADDITIONS TO TECHNICAL STAFF OF I-H-F

Added to the industrial engineering staff in June, 1956, was William J. Schreibeis, who is a Licensed Professional Engineer (New York) and holds a Master of Public Health Degree from the University of Pittsburgh Graduate School of Public Health. Mr. Schreibeis's previous experience included industrial health engineering with the Department of Health of the City of Pittsburgh for one year and service as a sanitary engineer with the United States Public Health Service for four years.

Dr. John Metschl was appointed to the staff of the Foundation in April, 1957, in the capacity of Technical Information Specialist. His activities will include compilation of bibliographies on technical subjects, literature searches requested by members, maintenance of technical literature in the Foundation's files, and assistance in preparation of Industrial Hygiene Digest material. Dr. Metschl is well-qualified for this work. He recently retired from Gulf Research and Development Company, where he was Director of Technical Information Services since 1938. From 1927 until that time he held various Research Fellowships at Mellon Institute. He received an A. B. degree from the University of Wisconsin in 1918 and his Ph. D. in Physical Chemistry in 1923. While carrying on graduate studies he was lecture assistant at the University and assistant anthropologist at the Milwaukee Public Museum. From 1923 to 1926 he was assistant curator, and his work in setting up an exhibit of firearms led to his authorship of two volumes on the subject, "The Rudolph J. Nunnemacher Collection of Projectile Arms." Dr. Metschl's addition to the Foundation's staff makes possible an expansion of the publication and technical literature services for the membership.

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