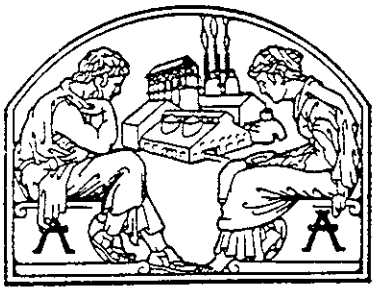

Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL - - - decisions and trends

OCTOBER, 1950
(Vol. 14, No. 10)

INDUSTRIAL HYGIENE FOUNDATION
4400 FIFTH AVENUE -:- PITTSBURGH 13, PA.

INDUSTRIAL HYGIENE FOUNDATION

FOUNDATION FACTS

Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a non-profit association of industries for the advancement of healthful working conditions.

Vol. 12 October, 1950 No. 10

The preliminary program for the Fifteenth Annual Meeting and Conferences of the Industrial Hygiene Foundation, at Mellon Institute, Pittsburgh, to be held on November 15 and 16, has been completed and sent to member organizations.

The four professional conferences: Medical, Legal, Chemical and Engineering, will be held November 15. The Medical Conference will be open to guests from the medical profession, and the other conferences will be limited to specialists from member companies. The agenda include a joint Medical-Legal session on Compensation Law, and a joint Chemical-Engineering Conference on Radiant Heat Control and Industrial Noise.

The General Meeting will be held on November 16. Its theme: THE HUMAN SIDE OF INDUSTRY.

- Program -

TRIBUTE TO JOHN F. McMAHON - - - - - - - - - - - - - Dr. Edward R. Weidlein, Director
Mellon Institute

FOUNDATION FACTS - - - - - - - - - - - - - - - - - - Andrew Fletcher, President,
St. Joseph Lead Co., and
Board Chairman, Industrial
Hygiene Foundation

THE HUMAN SIDE OF BUSINESS - - - - - - - - - - - - - Dr. Donald K. David, Dean
Graduate School of
Business Administration,
Harvard University

TEAMWORK FOR A BETTER WORKPLACE
Vincent P. Ahearn, Presiding

A. V. Murray, President
Scaife Company

Henry A. Maxon, Foreman,
American Brake Shoe Company

Tito A. Tarquinio, Foreman,
American Brake Shoe Company

Clinton S. Golden, Labor Adviser,
Economic Cooperation Administration

- P. M. -

THE COST OF EMPLOYEE DISABILITY TO THE EMPLOYER — James M. Gillen, Director,
Personnel Research Section,
General Motors Company

AUDITING INDUSTRY'S MEDICAL DEPARTMENTS, FACILITIES AND ADMINISTRATIONS — C. Richard Walmer, M.D.,
Medical Director,
Industrial Hygiene Foundation

PROTECTION OF PERSONNEL AND PLANTS IN AN ATOMIC EMERGENCY — Thomas L. Shipman, M.D., Health
Division Leader, Los Alamos
Scientific Laboratory

TABLE OF CONTENTS

October, 1950
Vol. XIV
No. 10

Industrial Hygiene Foundation
4400 Fifth Avenue
Pittsburgh 13, Pa.

INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

1092 Chemical Industries Committee of the I.L.O.

At the meeting at Geneva in April 1950 the Chemical Industries Committee of the International Labour Organisation adopted a resolution summarized as follows: A fundamental requirement for workers' safety and health is a system of enforceable legal provisions. The Governing Body is invited to instruct the Office as follows: (1) to study the Model Code of Safety Regulations for Industrial Establishments and all factual data on causes of accidents and injury in the chemical industries; (2) to submit to the Third Session of the Committee a report showing what modifications should be made in the Model Code as applying to the chemical industries; (3) to organize collection and dissemination of information on promotion of safety and hygiene; (4) to publish safe practice pamphlets on each hazardous chemical; and (5) to ask State Members of the I.L.O. for all helpful information. (The book reviewed in the Book section of this issue has been published as a preliminary step in the direction outlined.)

1093 I.L.O. Issues Model Safety Regulations.

The International Labour Office has issued a "Model Safety Regulations for Industrial Undertakings for the Use of Government and Industry," approved by a Tripartite Technical Conference which met at Geneva late in 1948. The publication will be reviewed in the Digest at an early date.

1094 American Standards.

American Standards Association, Inc., has issued a revised list of standards, dated August 1950, issued as Part II of Standardization. There are over 1000 entries, classified by general field. Safety standards are included but are also given alphabetically in another list.

1095 Maryland Surveys All Counties for Air Pollution Facts.

At the request of the Governor's Commission on Noxious Fumes, the Division of Health has been making a survey of the counties in Maryland to evaluate the sources, kinds, and extent of air pollution occurring in the State. It includes not only industrial plants but also dumps, incinerators, sewage disposal systems and industrial lagoons. The findings will be tabulated and a report issued about the end of the year.

-- Ind. Hyg. Newsletter (Oct. 1950).

1096 Lie Down, Dust.

Sulfite waste liquor, or "spent" liquor, as it is now termed officially, may find a volume outlet if an experiment being tried in Michigan proves out. Liquor, containing 12 per cent solids, from a paper mill at Munising is being deposited on a section of gravel highway to test its value as a dust layer and road surface binder. The results of previous tests on streets of Menominee, Wis., are already being examined. Success would benefit the paper mill, the highway department, and the stream into which the effluent was being deposited.

-- Chem. and Eng. News (Sept. 18, 1950).

1097 "Wise Owl" Eye-Safety Club Devoted to Eye Protection.

Secretary of Labor Maurice J. Tobin--stressing the need for reduced eye accidents on America's production lines--enrolled the 1,000th industrial worker in the Wise Owl Club of America, an eye-safety organization sponsored by the National Society for the Prevention of Blindness. To be eligible for membership, a worker must prove that his goggles saved him from partial or complete blindness when an accident occurred. After presenting a special certificate to the 1,000th Wise Owl, Secretary Tobin pointed out that an estimated 300,000 eye accidents occur each year in American plants and that the Wise Owl Club has an economic as well as a humanitarian value. Dr. Franklin M. Foote, executive director of the National Society, said that "of the 1,000 Wise Owl members, 330 would be completely blind today if they had not been wearing goggles when an accident occurred. The 670 others would have the sight of only one eye." Foote said the Wise Owl Club is enrolling an average of 70 new members a month and that there are now chapters in 223 plants in 34 States, Hawaii, and Canada.

-- Nat. Glass Budget (Sept. 16, 1950).

1098 Safety Engineering Changes Name.

Effective with the October 1950 issue, Safety Engineering, in its fiftieth year of publication, changes its name to Safety Maintenance and Production. The purpose of the change is to emphasize safety as a goal for all interested in maintenance and production, not merely of the "safety engineer"; to strike more forcefully at the fallacy that safety measures interfere with production; to encourage a wider public recognition of the kinship of safety and production maintenance; and to bring safety more forcefully to the men at the "grass roots" of safety.

-- Safety Eng. (Sept. 1950).

1099 Controlling Hazards at Atomic Research Reactor.

The nation's newest and largest atomic research reactor began operating August 22 at Brookhaven National Laboratory. Radiation hazards are handled in several ways. 300,000 cubic feet of air per minute is drawn through the pile cooling system and is discharged up a 320-foot stack, 32 feet in diameter at bottom and 19 feet at the top. Argon, which comprises about one per cent of the earth's atmosphere, becomes radioactive in passing through the cooling ducts of the reactor. However, the radioactivity begins to decay immediately; in addition, it is diluted many thousands of times in mixing with the natural atmosphere after leaving the stack. Together, decay and dilution render the radioactivity harmless. If particles or dust were carried in the cooling air they, too, might become radioactive; therefore the air is filtered before and after passing through the pile. If weather conditions threaten to cause a poorly diluted flow of reactor gases long enough to raise the radiation exposure above the permissible weekly limit at ground level, the reactor will be shut down. A Meteorology Group attached to the reactor operates a weather station and two towers, 420 and 160 feet high, to measure temperature and wind differences between ground and various altitudes. The laboratory's health physics and instrumentation department maintains a personnel monitoring and building survey program.
-- Chem. Eng. Prog. (Sept. 1950).

1100 Medical Services in Connecticut.

Currently in Connecticut there are 3,785 industrial plants employing 360,000 workers about half of whom are covered by full-time or part-time industrial medical services. The services are provided by 172 full or part-time plant physicians and 453 industrial nurses, employed by industry.
-- Conn. Health Bull.

1101 Movies.

"BCR Jets Help Smoke Abatement in Columbus" is one of three 16-mm. movie films available from Bituminous Coal Research, 488 W. Sixth Ave., Columbus 1, Ohio. It deals with the effectiveness of overfire jets on standing locomotives of four different railroads using Columbus Union Depot.

"Pattern for Survival" is a two-reel motion picture which considers the problem of survival under atomic attack. It is available from the Cornell Film Company, 1501 Broadway, New York, N. Y.

1102 German Scientific Accomplishments Catalogued.

A catalogue of titles in the American FIAT Review of German Science is available on request from local field offices of the U. S. Department of Commerce. This is a free descriptive catalogue of the titles available in the American FIAT (Field Information Agency Technical) Review of German Science. It is being made public to close the gap in scientific knowledge resulting from the six-year wartime barrier between German scientists and the rest of the world. The original German-language FIAT Review of German Science: Allied Edition, is an 88-volume, 22,000 page compendium of German accomplishments in biology, chemistry, mathematics, medicine, physics, and the earth sciences. -- Bull. of Commerce

OCCUPATIONAL DISEASE STATISTICS

1103 Occupational Disease Statistics.

	Conn.[2] Sept. 1950	Ind.[2] Sept. 1950	Mich.[2] Sept. 1950	Wisc.[2] Aug. 1950	Totals
Beryllium poisoning				1	1
Burns				4	4
Carbon tetrachloride poisoning				1	1
Chrome ulcer				1	1
Dermatitis	30*	50	22	38	140
Eye irritations				5	5
Hernia			3		3
Inflammatory conditions			1		1
Lead poisoning		1		3	4
Lung irritation				4**	4
Miscellaneous			2	1	3
Nephritis (fumes)				1	1
Pneumoconiosis			5	1	6
Pulmonary fibrosis				2	2
Silicosis			16	1	17
Silico-tuberculosis				1	1
Skin infections (N.O.C.)				10	10
Skin irritations (N.O.C.)				11	11
Tuberculosis and silicosis				1	1
Total	30	51	49	86	216

(2) Occupational Disease Cases Reported to the Health Department.

* Dyes and inks, Soap solution, glue, etc., and Synthetic resins and chemicals caused one each; Solvents (N.O.C.) caused three; Poisonous plants caused four; Oils, Fats and Waxes caused seventeen, and three were caused by undetermined hazards.

** One of the four cases was caused by propane fumes, one each by carbon dioxide and chlorine gas, and two by fumes.

LEGAL DEVELOPMENTS

1104 Lungs and Stomach Injured--Laborer--Exposure to Fumes While Operating Burner--Failure of Proof of Disability.

Where a laborer claimed injury to his lungs and stomach as the result of exposure to lead fumes while operating a burner, the court denied compensation on the theory that the claimant failed to establish his disability. The subjective symptoms asserted by the claimant were not consistent with the lack of objective evidence of injury testified to by the medical witnesses. That compensation had been paid to the extent of $280, was not to be considered as evidence of the employer's acceptance of the fact of the injury, but only to enable the attending physician to complete his examination and to remove any reasonable doubt of the existence of the injury. White v. Schuykill Products Co. Louisiana Court of Appeal, First Circuit. June 29, 1950. -- CCH

1105 Silicosis--Miner--Exposure to Silica Hazard--Statute of Limitations--Sufficiency of Evidence of Total Disability.

The court held that a coal miner had established sufficient evidence of total disability from silicosis to sustain an award under the Occupational Disease Statute. The Board inferred the presence of a silica hazard from the evidence and that the claimant had been exposed to it during four of the eight years immediately preceding the date on which he became totally disabled. The statute of limitations in a silicosis case does not begin to run until the date on which total disability from the disease is discovered. Segs v. Consumers Mining Co. Pennsylvania Superior Court. 167 Pa. Superior Ct. 308. July 20, 1950. -- CCH

1106 Silicosis--Coal Miner--Pre-Existing Condition--Statute of Limitations--Notice to Employer and Filing of Claim During Prescribed Period.

A denial of benefits under the occupational diseases section of the Workmen's Compensation Act was affirmed in an action by a coal miner against his employer. Although the claimant admittedly became silicotic in the course of and arising out of his employment, he had failed to meet the statutory requirements regarding notice. Salyer v. Clinchfield Coal Corp. Virginia Supreme Court of Appeals. No. 3692. September 6, 1950. -- CCH

1107 Silicosis--Miner--Burden of Proof on Claimant to Show Exposure to Silicon Dioxide.

An award of disability benefits under the Occupational Disease Law was denied to a miner who could not sustain the burden of proving that he had been exposed to silicon dioxide dust even though it was established that he was suffering from silico-tuberculosis and that he had been working in the mines for over ten years prior to his disablement. Orosco v. Poarch. Arizona Supreme Court. No. 5321. June 6, 1950. -- CCH

The present bulletin brings the review up-to-date by including the outstanding data on several aspects of the subject. The literature is so voluminous that no attempt has been made to include all published material or all types of dust diseases. Regarding silicosis, a statement made in 1935 emphasizing the general lack of knowledge is considered still applicable in spite of all the progress that has been made. The essentials of the knowledge of silicosis are summarized in 54 paragraphs, and in conclusion it is shown that it is difficult to set standards for dustiness in view of the uncertainties as to its harmfulness. In spite of the limitations imposed on the book it is a valuable storehouse of information on dust and its effects. -- F.F. Rupert

1112 Doctors in Oil. A.W. Schoenleber. Standard Oil Co. (N.J.). 30 Rockefeller Plaza, N. Y. 20, N.Y.

Although the subtitle is "A Study of Medical Pioneers in Oil Fields Round the World"this volume is largely autobiographical. It tells the story of the author's experiences from the time he resigned from the Army in 1919 to enter the medical service of Standard Oil of New Jersey. His first experience was inaugurating a medical department of a subsidiary in Oklahoma, beginning with practically nothing in medicine or sanitation. Later he went to many parts of the world, especially Mexico and South America, where he repeated again and again the establishing of adequate medical service. Between these extensive jobs there were briefer inspections of existing medical departments. In the first chapters these experiences are told mostly in chronological order; then follow a few more chapters of observations on doctors in various parts of the world and other incidental subjects, all told very interestingly. The book is good reading for anyone interested in medicine or industry. -- F.F. Rupert

1113 The Harvard School of Public Health. Dean's Annual Report, 1948-1949. Harvard University, Cambridge, Mass. 111pp. (1950).

The report covers the general background of public health education, and then recounts the activities of the Harvard School over the period. The fields of teaching and of community service are numerous and varied. Departmental reports and an account of the student body complete the volume. -- F.F. Rupert

1114 Preliminary Report on Investigations of Atmospheric Pollution. A.H.M. Andreasen and P. Gravesen. Trans. Danish Academy of Technical Sciences, No. 4. Copenhagen, Denmark. English Edition. 72pp. (1949) $1.09.

An extensive study of atmospheric pollution in Copenhagen was conducted from May, 1944 to June, 1948, and its results are presented here. The report is to be considered as preliminary, as the war caused the fuel situation during that period to be abnormal, and the study will be continued during normal conditions. Deposited solids were collected at 81 stations in the city and suburbs and analyzed for total insoluble, ash, soluble, sulfate, chloride, nitrate and pH. In addition, the

absorption of light was measured on glass plates exposed at vertical and inclined positions after exposure similar to the collection vessels. The results for total solids and each constituent are tabulated according to stations. The average total solids are 6.7 grams per square meter per month. Corresponding figures for London are 5.0, for New York 28.5, and for Pittsburgh 33.6 grams per square meter per month. Although the pollution thus measured is higher than that for London, on the basis of varied evidence the air in Copenhagen is cleaner. An explanation corroborated by experiments is that the higher percentage of carbon in London air causes more blackening. The sulfate (as SO_4) in Copenhagen averages 1.28 grams per square meter per month, compared with 2.65 in Essen, 4.14 in Pittsburgh, and 1.99 in St. Louis. No very definite conclusions can be drawn until experiments are conducted under normal conditions. -- F.F. Rupert

H15 Biological Studies with Polonium, Radium, and Plutonium. R.M. Fink. National Nuclear Energy Series Division VI, Vol. 3, McGraw-Hill Book Co., Inc., 330 W. 42nd St., N.Y. 18, N.Y. 411pp. (1950).

The general problem undertaken is a comparison of the biological effects of the three alpha particle emitters, polonium, plutonium, and radium. Part I deals with the distribution and excretion of polonium, Part II discusses the distribution and excretion of radium, and Part III deals with the comparative toxicities of polonium, plutonium, and radium. The book includes a critical survey of available literature concerning these elements. It also describes carefully controlled rat experiments designed to determine accurately the relative toxicity of single injections of radium, polonium, and plutonium over a very wide range of doses, and discusses further the probable correlations between the toxicity results and retention and distribution data.
-- Nuclear Sci. Abstr.

H16 New York University Third Annual Conference on Labor. Proceedings. Edited by Emanuel Stein. Matthew Bender & Co., Inc., Albany 1, N.Y. 689pp. (1950). $7.50.

A series of articles on "Trends in Collective Bargaining and Labor Law," which were the bases of the lectures delivered during the Third Annual Conference on Labor conducted jointly by the Law School, the Graduate Division of Public Service, the Graduate School of Arts and Science, and the Division of General Education of New York City cooperating as the Institute of Labor Relations and Social Security. The conference was held in New York City April 25-28, 1950. Many of the articles are expanded beyond their original lecture form and include footnote citations and other addenda. Two of the papers serve to provide background: Henry J. Meyer's "Collective Bargaining and the Community" focuses upon an increasingly vital aspect of industrial relations; and A.H. Raskin's "Trends in Collective Bargaining" contributes to an understanding of the current labor-relations scene. To increase understanding of significant data which are the tools of collective bargaining, Ewan Clague discusses the "Uses and Limitations of Cost-of-Living Data," Solomon Fabricant analyzes methods of "Productivity Measurement," and E.H. Van Delden deals with inter-plant and inter-industry wage differentials. Three papers, by Burton A. Zorn, G. Gilson Terriberry, and Robert Tilove, consider the central problems of health and welfare funds and pensions in collective gargaining. Arbitration and other recent developments in

bargaining are discussed by Emanuel Stein, Henry Clifton, Jr., M. Herbert Syme and Benjamin Werne. Labor law is discussed at length. The Amendments to the Fair Labor Standards Act in 1949, and the Taft-Hartley Law are given attention in several papers, and the jurisdiction of the NLRB and the unique administrative situation created by the independent office of its General Counsel are discussed with an up-to-date treatment of judicial interpretation of unfair labor practices under Section 8 of the Taft-Hartley Act. Other papers of legal aspect cover rights of individual workers under state law, and the intricate questions arising from the expulsion of several international unions from the CIO. The final paper is a lengthy case study of labor-management relations in the trucking industry. Index and Table of Statutory References. -- D. Beal

1117 Health Services for the Membership of the International Ladies' Garment Workers' Union. Health and Welfare Department, 1710 Broadway, New York 19, N.Y. 51pp. (1950).

This booklet is subtitled "Abstract and paraphrase of the report prepared by the Health and Welfare Committee of the General Executive Board, ILGWU, with special emphasis on the growth and functioning of the Union's Health Centers throughout the nation. Dedicated to the delegates, Golden Jubilee Convention, ILGWU, Atlantic City, New Jersey, May 23 through June 2, 1950." The health plan of this organization is fairly well known and has been mentioned several times in the Digest. Here the history and description of the plan are presented briefly, with attractive illustrations on every page, showing various medical tests and treatments and some of the branch medical departments of the organization. -- F.F. Rupert

1118 The Organization of Working Hours in the Chemical Industries. Chemical Industries Committee, International Labour Organisation, Second Session, Geneva, 1950, Report 3. International Labour Office, Geneva. 73pp. (1950).

This volume contains the results of investigation into the practices of the chemical industry in various countries in standard working hours, the normal work day, calculation and distribution of working hours, shift organization, dangerous and unhealthy work, overtime, and related problems. -- F.F. Rupert

Winning a Better World.

World health can play a vital and constructive role in shaping our destiny. As Surgeon-General Scheele said concerning the improvement of health on a world-wide basis ".....We shall be making a vital contribution to the cause of human liberty. We dare not fail. The very survival of our way of life may hinge upon our success. We can be confident that as we work for better health among freedom-loving people, we shall also be working for a better world. We shall truly be working for those great goals of human endeavor, peace, democracy, and the freedom and dignity of the individual." -- Illinois Health Messenger

1119 Annual Report of the Chief Inspector of Factories for the Year 1948. G.P. Barnett. Ministry of Labour and National Service: Factories. Cmd. 7839. H.M. Stationery Office, London, 158pp. (1949) 3 shillings.

The growth of the advisory side of the Factory Inspector's work in England is remarked. Types of work done by the Department are: (1) suggestions on designs for factories or plants; (2) sampling and examination of industrial dusts; (3) microscopic examinations in various investigations; (4) prevention of radiological hazards; (5) calling attention to safety methods in the use of mechanical-handling devices; (6) special surveys of working conditions in the cotton industry and iron foundries. Statistical tables concerning industrial accidents are given in the Report, as well as a tabulation of reported cases of industrial diseases. Interesting developments in factory heating and lighting are reported. -- Condensed from Bull. Hyg.

1120 Economic Policy For Rearmament. A Statement of the Program Committee of the Committee for Economic Development. 27pp. (August 1950). For sale by Committee for Economic Development, 444 Madison Ave., New York 22, N.Y.

The recommendations of this report are intended to apply specifically in a rearmament program of the approximate size that has so far been made public, although the underlying principles are thought to be basic to the general problem of rearmament. The strategy for economic mobilization rests upon three principles: Restraint of non-military demand; (2) in particular cases the invoking of industry cooperation and, if necessary, mandatory production or distribution controls; (3) a minimum use of direct controls. The key to success is adequate limitation of non-military demand. The program is organized around four areas of action: the Federal Budget, including reduction of non-military spending such as price supports, and increased taxation (with a coordinated use of income and excise taxes and a definitely limited use of excess profits taxes); a savings bond program; controls on consumer and housing credit; and general credit control and management of the debt. The last activity is largely a function of the Federal Research, and the technical complexities arising from the division of responsibility between Federal Reserve and the Treasury Department are commented upon briefly. The report concludes with a brief series of recommendations for expediting the military program. -- D. Beal

1121 United States Civil Defense. National Security Resources Board. 162pp. (1950). For sale by Supt. of Documents, U.S. Government Printing Office, Washington, D. C. 25 cents.

This pamphlet represents the basic plan for organization of civil defense presented to the President of the United States by the National Security Resources Board. The report provides an outline of the organization and techniques to be developed by State and local communities, on whom rests the primary responsibility for civil defense. Based upon wartime experience of England and Germany, as well as previous planning of the U.S. government, it particularly embraces material from the Hopley Report issued by the Department of Defense. The plan recommends a basic civil defense law, the establishment of a Civil Defense Administration, and the appointment of an Administrator. It considers in some detail legislation, organization, finance, and the role of the military, and then discusses air raid

warning and shelter services, fire and rescue, law enforcement and health services, communications, transportation and plant protection. It concludes with a hypothetical attack narrative. Appended are suggested organizational charts, and model legislation. -- D. Beal

INDUSTRIAL MEDICAL PRACTICE

1122 The Present Position and Future of British Industrial Medicine. A.R. Thompson. Ind. Med. & Surg. 19, 433-438 (Sept. 1950).

The National Health Service Act made no provision for industrial medical service for large sections of the working population; that is, for all private industry. The Government is now investigating the subject, and in the meantime a number of organizations have come forward with plans, varying from industrial medical service conducted by Government alone to extension of private service. The author discusses the various possibilities. The present situation is very unsatisfactory, because the National Health Service has decreased the already inadequate supply of physicians.

1123 Industrial Medicine Today. G.R. Rowntree, Kentucky Med. J. 48, 119, (March 1950).

The author states that 85 per cent of the medical care given to industrial workers is provided by private practitioners, who must have some knowledge of the various phases of the industrial health program. There is a discussion of the purpose of preplacement and periodic examinations and of emotional problems. The obligation to employ handicapped workers and people in the older age groups is stated.
-- Condensed from Arch. Ind. Hyg. & Occ. Med.

1124 Occupational Disease Manifestations in Dental Impairments. C.P. McCord. Ind. Med. & Surg. 19, 387-388 (Aug. 1950).

The effects of occupational diseases on the teeth and mouth are reviewed, beginning with tack spitters, glass blowers, brush bristle biters and pearl button shapers. "Phossy jaw" from phosphorus poisoning has long been known. Benzene, acids, trichlorethylene, and lead are especially noteworthy in their effect on teeth and gums. Bakers and confectioners usually have defective teeth. The early maker of artificial dentures lost his teeth from poisoning by carbon disulfide and mercury sulfide used in their manufacture.

1125 Dimercaprol in Acute Lead Poisoning. P. Bastrup-Madsen. Lancet 259, 171-172 (July 29, 1950).

Two patients with acute lead poisoning following ingestion of litharge were treated with dimercaprol (BAL). In both cases the amount of lead excreted in the urine was considerably increased immediately after the institution of dimercaprol therapy. The mobilization of lead did not seem to aggravate the symptoms of intoxication. -- Author's Summary

1126 Clinical Notes on the BAL Treatment of Lead Colic. C. Angeleri. Med. d. Lavoro 40, 265-268 (Nov. 1949) In Italian.

Five cases of lead poisoning in whom lead colic was actually present or had recently occurred were treated with BAL. Doses and length and other details of treatment varied from case to case because each reacted differently to the drug, and for other reasons. From his experience the author recommends that BAL treatment be given eight to ten days after the attack of colic has subsided and that initial doses be low (4.6 mgm. per kilogram of body weight each day). Still smaller doses (2.5 mgm. per kilogram daily) should be used if BAL is given during or immediately after the attack of colic. -- Condensed from Bull. Hyg.

1127 General Motors Medical Conference, La Grange, Illinois, April 24, 1950. Ind. Med. & Surg. 19, 397-432 (Sept. 1950).

Approximately half the papers are included in a panel discussion on "the experience of General Motors in developing new techniques for selection, placement and follow-up of employees," and deal with selective placement, interviewing techniques, employment testing, the foreman's role in selection and rating, and evaluation of employee attitudes. The additional papers were on unrelated subjects.

Antihistamine Chemicals in the Treatment of the Common Cold. W.L. Baughn. In the most extensive investigation of antihistamines as a cold remedy, some 8,000 colds were treated with antihistamine medication of seven different brands, while over 2,000 were treated with control medication. Out of those reporting, 66 per cent of the patients felt that they had achieved perfect results in 48 hours, against 27 per cent of the control group. However, mild side reactions appeared in an average of 23 per cent of the test group. Analysis of the results did not reveal evidence of the therapeutic efficiency which had been hoped for. In the discussion of the paper by two other physicians, some concern is shown over the number of cases of side reactions, and by the fact that absenteeism was 10 per cent higher than usual during the period. Results of another survey were reported in the discussion, agreeing in general results, but showing that side reactions could be greatly reduced by decreasing the dose to half.

Accident Proneness: A Serious Industrial Problem -- What Can the Industrial Physician Do About It? E.Wolff. An extensive study of accident proneness is reported. Of the 297 workers studied, 65 per cent showed evidence of unstable personality, only 2 per cent had defective vision and 4 per cent organic disease. Marked absenteeism was shown by 43.4 per cent, and 16 per cent were reprimanded for violation of plant rules and 6 per cent for safety rules. Check-ups were used on the jobs to eliminate physical causes of accidents, and when the accident-proneness was traced to the

employee himself, the foreman dealt with him according to instructions issued by the safety department. In 68 per cent of the cases this resulted in fewer accidents the next year. The problem of the minority unaffected by the treatment is still unsolved.

1128 Cardiovascular Reactions to Silicosis. 2. An X-Ray Study of the Heart. F. Lavenne and D.D. Belayew. Arch. Belges Med. Sociale, Hyg., Med. du Travail et Med. Legale 7, 283-300, (July 1949) French.

The shadows cast by the heart in cases of silicosis have not received close study, partly because an antero-postero view does not show any enlargement of the right heart. Side and oblique views should also be taken; such views were taken of 110 ambulant silicotics in various stages. Methods of measurement are explained. Heart dimensions were correlated with degree of silicosis and degree of emphysema. The heart diameters, especially the transverse diameter, are affected by the progress of emphysema rather than of silicosis. The transverse and longitudinal diameters may decrease as emphysema grows more pronounced; this may be due to rotation of the heart. At the same time the basal diameter may increase, indicating hypertrophy. A basal diameter greater than 11.2 cm., associated with a normal transverse diameter, seems to indicate advanced trouble. Another early indication of hypertrophy of the right ventricle is an alteration in the pulmonary arc, which tends in a pathological condition to have its convexity exaggerated, while the depression between the aortic arc and the ventricular arc on the left tends to be effaced. These signs, however, may be eclipsed by fibrotic masses or by emphysema. -- Condensed from Bull. Hyg.

1129 Cardiovascular Reactions to Silicosis. 4. Functional and Circulatory Indications. Rapidity of Circulation. Venous Pressure. Indication from Effort. F. Lavenne and D.D. Belayew. Arch. Belges Med. Sociale Hyg., Med. du Travail et Med. Legale 7, 439-452 (Nov. 1949).

The same group of miners as in the preceding paper and the authors' third (See I.H.F. Abst. 919, Aug. 1950) were given additional tests. An attempt to measure rate of circulation by injecting a bitter substance into an arm vein and taking the time when a bitter taste was noted did not give useful results. The circulation remained nearly normal until signs of a failing heart were present. Measurement of venous pressure likewise brought to light nothing of interest. Observation of the prominence of the jugular veins, and pulse measurement, with the patient in repose and again after effort, seemed to afford more valuable information. If the patients normally had pronounced dyspnea, measured effort was difficult to perform, and the functional signs were eloquent by themselves. Where there was only slight dyspnea, a prolongation of the period before the pulse rate returned to normal was the rule. This test needs to be more accurately standardized. -- Condensed from Bull. Hyg.

1130 A Comparison of the Radiological and Pathological Changes in Coalworkers' Pneumoconiosis. J. Gough, W.R.L. James, and J.E. Wentworth. J. Faculty Radiologists 1, 28-39 (July 1949).

In order to test the reliability of chest radiographs in the diagnosis of coalminers' pneumoconiosis, and their value in assessing the extent of

the lung damage produced by this disease, the authors compared lung sections obtained at autopsy of 76 South Wales coal miners with chest radiographs taken on the same patients during life. In most of the cases of moderate or severe pneumoconiosis the number of opacities seen in the radiographs corresponded fairly well with the number of coal nodules found in the lungs. In cases where there were only slight pathological changes and in many cases of focal emphysema there were often no recognizable changes in the radiographs. The authors conclude that the radiological appearances of coalminers' pneumoconiosis, though typical, are not diagnostic.

-- Condensed from Bull. Hyg.

1131 The Classification of Radiographic Appearances in Coalminers' Pneumoconiosis. C.M. Fletcher and others. J. Faculty Radiologists 1, 40-60 (July 1949).

An accurate method of classifying radiographs is essential in order to estimate the prevalence of the disease in an occupational group, the effectiveness of preventive or curative measures, and the progression in individual cases. The earlier radiological classifications failed to distinguish between the dual effects of dust accumulation and infection, which are the two main processes concerned in the evolution of coalminers' pneumoconiosis. In a chest radiograph the former are represented by relatively small generalized opacities and the latter by largely localized shadows. The new classification describes these two appearances separately. Four categories of increasing abnormality are defined for each disease process and a scheme for indicating the areas involved by the infected nodules is also given. The paper also contains reproductions of chest radiographs, a description of the radiographic technique involved, and a catalog of descriptive terms. The system could, doubtless, be applied to other types of dust disease. -- Condensed from Bull. Hyg.

1132 Tomography of Massive Silicotic Shadows. J. Leclercq, E. Balgairies, G. Bonte, and G. Declercq. Rev. Med. Miniere 4, 23-27 (Oct.-Nov.-Dec. 1948). In French.

The authors, who had become interested in the value of tomography of the chest applied this method to 20 subjects with pneumoconiotic lesions. They maintain that by means of frontal and transverse tomography it is possible to locate and break up into isolated shapes what by ordinary X-ray present as aggregated masses. By this method important modifications in the bronchi, which are an essential factor in the dyspnoea of silicosis, can be detected. Further, the presence of bullous emphysema which often accompanies silicosis can be demonstrated. These claims are supported by illustrations of X-ray films taken frontally and in profile. The evidence is in favor of multiple picture taken from different aspects in order to throw light on the exact position and size of doubtful shadows and their relation to surrounding organs and tissues. -- Bull. Hyg.

1133 Results Obtained in the Radiographic Control of Silicosis in the Industrial Clinic at Milan. E.C. Vigliani. Arch. Malad. Professionnelles 10, 479-481 (1949) In French.

In Italy since August, 1943, medical inspection and periodic radiographic examination have been compulsory for all workers exposed to the

risks of silicosis and asbestosis. The radiographs are all sent to the industrial clinic at Milan for examination--for the most part by the author. The findings from nearly 143,000 radiographs on persons employed in dusty occupations are analysed. Of the radiographs from steel foundries, 5.8 per cent showed silicosis and 1.5 per cent tuberculosis, and the comparable figures for iron foundries were 3.2 per cent and 2.2 per cent. Quarrymen showed a silicosis incidence of 12.8 per cent, with 3.1 per cent of tuberculosis; and mines gave 8.5 per cent with 1.1 per cent tuberculosis. Stone and granite workers had a silicosis incidence of 9.3 per cent, and cement workers 5.8 per cent. Of the workers in the refractories industry 10.2 per cent showed silicosis, and for the ceramic and abrasive workers the figures were 6.7 and 7.3 per cent. The incidence of silicosis in asbestos workers was 7.5 per cent. In foundries, about 10 per cent of sandblasters had silicosis. Mould preparers in the ceramic industry gave a silicosis incidence as high as 20 per cent. -- Bull. Hyg.

1134 Functional Exploration of the Lung in the Detection of Silicosis. L. Roche and J. Thivollet. Arch. Malad. Professionnelles 10, 448-461 (1949) In French.

The functional exploration of the silicotic lung is viewed from the clinical and medical-legal standpoints. Novel clinical methods used were pneumotachography and the measurement of the work of the lung. The medicl-legal consideration is based on about 60 cases. These cases were classed in three stages according to the results of radiological examination, and the patients in each stage were classified according to the estimated degree of their permanent incapacitation. Various clinical examinations were made and the results were compared with the stage of the disease and the degree of incapacity. Some correlation is shown with x-ray classification and even with the degree of disability within one x-ray grouping.
-- Condensed from Bull. Hyg.

1135 The Position of Silicosis Research and a Contribution on the Radiological and Clinical Relationship Between Silicosis and Tuberculosis. V. Reichmann. Beitrage z. Silikose-Forschung. No. 1, 27pp. (1949) German.

(See following abstract.)

1136 Results of Twelve Years' Investigation of Rock miners in the Westphalian Coalfield. O. Zorn. Beitrage z. Silikose Forschung. No. 2, 1-19 (1949) German.

These two papers include some general discussion of silicosis, present statistics on silicosis in the various stages, and complicating tuberculosis. The extent of silicosis and tuberculosis are in the same order of magnitude as in reports from others countries under similar conditions. The statistics are given in some detail in the Bulletin of Hygiene abstracts.
-- Bull. Hyg. 25, 380-381 (Apr. 1950).

1137 Consideration of Roentgen Diagnosis of Chronic Pulmonary Granulomatosis of Beryllium Workers. A.G. Robert. Am. J. Roentgenol. 63, 467 (April 1950).

According to Robert, the disorder is characterized primarily by exertional dyspnea, loss of weight, cyanosis and roentgenographically demonstrable changes within the lungs. Processes in which it has been reported to occur are: extraction of beryllium from the ore; the manufacture of fluorescent powders; fluorescent lamps and neon signs; various metallurgic operations, and certain projects categorized as research in the production of atomic energy. Roentgenographic manifestations of three types, the granular, the reticular and the nodular, are described. All three forms involve both lungs. The manifestations are extremely variable and it has not been possible to demonstrate a transition from one stage to another. The "stage" of development is less important than the nature of the lesion, the extensiveness of involvement and the patient's inherent ventilatory and circulatory capacities. It is possible that the recognized types are late manifestations and that a mild transitory form has escaped recognition. A definite diagnosis should not be made upon the roentgen manifestations alone, but these, together with the symptoms, physical and laboratory findings, and the occupational history must be subjected to critical correlation. More frequent serial roentgenograms of all exposed personnel and followup studies would be of value. -- Condensed from J. Am. Med. Assn.

1138 Sarcoidosis. R.W. Oblath and S.M. Farber. Diseases of the Chest 18, 198-214 (Sept. 1950).

Sarcoidosis is a chronic systemic granulomatous disease of unknown etiology which usually presents clinical findings so mild that these appear unrelated to the widely disseminated lesions which may be found on physical and laboratory examination. A representative group of cases is reviewed with emphasis placed on the problems encountered in diagnosis. The need is demonstrated for an overall plan of study to clarify the basic understanding of this disease process. -- Authors' Summary

1139 Boeck's Sarcoid. A Review Based Upon a Clinical Study of Fifty-two Cases. E.A. Riley. Am. Rev. Tuberc. 62, 231-285 (Sept. 1950).

This report details the experience gained in a clinical study of 52 cases of sarcoidosis, together with a review of the pertinent literature. Boeck's sarcoid is a chronic, infectious, granulomatous disease, showing a predilection in this country for young adults of the Negro race. The etiology of sarcoidosis remains obscure. There is a close relationship between sarcoidosis and tuberculosis, although the exact nature of this relationship is not clear at present. No direct evidence exists that Boeck's sarcoid is caused by the tubercle bacillus. While not denying the possibility that further investigative work may prove that the proponents of a tuberculous etiology are correct, at the present time the available evidence is too contradictory and inconclusive to warrant drawing any conclusions regarding etiology. Although in instances the disease may show complete regression, the benignity of sarcoidosis has been greatly overemphasized. The eventual outcome of this disease and the development of directly related complications are uninfluenced by any presently employed methods of therapy. The related mortality in this series has been

almost 20 per cent; an additional 13 per cent of the patients have developed clinically active tuberculosis during the period of follow-up. These figures do not include the high percentage of patients with irreversible ocular and pulmonary damage. The term "benign lymphogranulomatosis" is misleading by its implication and probably should be abandoned.

-- Author's Summary and Conclusions

1140 Management of Heart Disease in the Steel Industry. W.H. Rice. South Med. J. 43, 553 (June 1950).

The author believes that the working capacity of patients who have heart disease can be preserved if the industrial physician will outline to the patient and to the employer the work capacity of the patient. Most heart cripples make loyal, faithful and dependable workers. Their absentee rate is low. -- Condensed from Arch. Ind. Hyg. & Occ. Med.

1141 Disability Evaluation. E.D. McBride. Arch. Phys. Med. 31, 35 (Jan. 1950).

According to the author, evaluating disability is not solely a matter of determining the extent of the anatomic or physiologic alterations of the body. The alterations must be evaluated with respect to the duties of employment or the capacity for work. In cases involving a claim for disability, medical examination entails an exceptional investigation that will substantiate or disprove the symptoms described by the claimant. From the medical point of view the loss of function is the basis for disability evaluation. Practical functional tests that can be carried out without special apparatus are of value. A list of 40 such tests, for hands, fingers, wrist, elbow, shoulder, foot, ankle, knee, hip, and back are given. These tests are for the purpose of clarifying knowledge of the disabled person's ability to apply himself at work.

-- Condensed from Arch. Ind. Hyg. & Occ. Med.

Safety Through Teamwork.

At a large ordnance plant, each employee was assigned the responsibility of inspecting one particular aspect of safety within his working area. For example, an adjustor on draw presses was asked to report on the condition of all presses; another machine operator was assigned to check on the condition of floors and passageways and so on. Every worker had a special task relating to safety in his working area. It was the job of the foreman to supervise the whole program, which reduced accidents by 47.5 per cent within one year. At a steel fabricating plant, the various departments took turns sponsoring the company's safety program for one month. Prior to its period of "sponsorship" the department next in line planned the "strategy" of the campaign. Both companies reported "good results."

-- The Foreman's Letter (Sept. 6, 1950)

1142 Effects of the Inhalation of Oxygen. L.B. Berger and S.H. Davenport. U.S. Bur. Mines, Inf. Circ. 7575 36pp. (July 1950).

This circular summarizes briefly the effects upon the human body of the inhalation of oxygen in various concentrations and at various pressures and gives reference to other published information that deals in greater detail with the diverse phases of the subject. It is not intended to be a complete bibliography including the voluminous literature in the field, but a few of the references given contain extensive bibliographies. First the paper deals with the effects of oxygen under various conditions of pressure and admixture, and then describes applications of the inhalation of oxygen in the various types of breathing apparatus and in oxygen therapy.

1143 Plantation Medicine -- Symposium. Ind. Med. & Surg. 19, 341-382 (Aug. 1950).

In this symposium conducted by the Territorial Association of Plantation Physicians in Hawaii in November, 1949, 18 papers are presented dealing with phases of industrial medicine in the Hawaiian sugar industry. They are mostly brief and the majority are by physicians in the area, though a few well-known American industrial physicans have contributed papers. A few of the specific subjects included are: rheumatoid arthritis, an insurance plan, heart disease in relation to employment, effects of radiation, industrial eye programs, and superficial roentgen therapy. An editorial in the same issue (p. 359) referring to the Symposium emphasizes three points brought out in one or more of the papers: (1) the distinction between industrial and agricultural medicine is fading, and industrial medicine is needed in agriculture in the entire country; (2) pension plans with disability clauses tend to bring a number of strictly non-occupational diseases into the occupational category; and (3) one author makes a good suggestion that the company manager and the physician hold a conference once a day.

SKIN DISEASES AND BURNS

1144 Preventive Aspects of Occupational Dermatoses. C.G. Lane and B.C. Gray. Arch. Ind. Hyg. & Occ. Med. 2, 312-324 (Sept. 1950).

In the prevention of cutaneous disease due to occupation there is need for a careful survey of the individual industry and the adoption of a coordinated plan of prevention. Much can be done in the prevention of disease by attending to such details as the elimination of hazards, the selection of personnel, education of personnel, the provision of physical safeguards, routine inspections, an enforcement program, a safety committee, etc. Furthermore, much can be accomplished in the way of limiting the period of disability by early detection of cutaneous disturbances, by proper therapy, by prevention of complications of disease and of therapy and by follow-up of disabled personnel. -- Authors' Conclusions

1145 Industrial Sporotrichosis. L. Tulipan and E. Muskatblit. Compens. Med. 3, 36-38 (June 1950).

The case reported is the second in New York State since the inception of the compensation law. It is contracted mostly by agricultural workers, gardeners, florists, berry pickers, and workmen in grain mills, elevators, etc. The case reported concerns a sewer digger. There was quick response to combined aureomycin and potassium iodide. What part the aureomycin played is not known.

1146 Granulomata of the Skin Due to Asbestos. H. Ollivier, P. Morand, and R. Brun. Arch. Malad. Professionnelles. 10, 516-517 (1949) French.

A man who was working with asbestos sheets wounded the palm of his hand slightly. Two weeks later, at the site of the cut, a swelling which was increasing in size appeared. There was no inflammation and the swelling was hard at the center. The small white nucleous of this core was seen under the microscope to be composed of needles of asbestos together with a mass of crystalline matter. This matter was identified as cholesterol, which formation would seem to indicate a fundamental and biochemical defensive process of the body against aggression by asbestos.
-- Condensed from Bull. Hyg.

1147 Evaluations of Cold-wave Preparations Based on Thioglycolic Acid. I. Changes in Hair Keratin Caused by Thioglycolic Acid Solutions and Their Chemical Detection. K.E. Schulte and W. Weisskopf. Fette u. Seifen 52, 230-235 (1950) German.

Treatment of hair with buffered alkaline thioglycolate solutions of pH >10 attacked the peptide linkages of the keratin fibers. This action increased with increasing pH and time of application. The changes induced by treatment with 4-8 per cent thioglycolate solutions at pH 9.5 for 30 minutes were apparently no greater than those induced by heat waving. This conclusion, however, may have to be revised since it is not known whether all changes are detectable by chemical means. -- Chem. Absts.

1148 Evaluation of Cold-wave Preparations Based on Thioglycolic Acid. II. Pharmacology of Thioglycolic Acid and Thioglycolic Acid Preparations. K.E. Schulte and W. Weisskopf. Fette u. Seifen 52, 306-308 (1950) German.

Patch tests on humans with ammonium thioglycolate solutions containing up to 7.5 per cent ammonium thioglycolate with pH values from 7-10.4 showed no reaction in 24 hours. The literature is reviewed with 28 references.
-- Chem. Absts.

1149 Temporary Baldness Due to Cold Wave Thioglycolate Preparations. A.J. Reiches and C.W. Lane. J.Am. Med. Assn. 144, 305-306 (Sept. 23, 1950).

We are reporting two cases of temporary loss of hair in patients who had received ammonium thioglycolate cold wave permanents. There was no erythema, vesiculation or dermatitis visible when the patients were examined.

The ammonium thioglycolate may have been applied over a longer period than is customary in these cases, although both operators denied such an occurrence. The cold wave permanents were given in two different beauty parlors by different operators and were not "home" preparations. Regrowth of hair was definitely noticeable after three weeks on one patient, and there was also evidence of beginning regrowth in the second patient.

-- Authors' Summary

1150 Action of 1, 3-Butylene Glycol on the Skin. E. Husing, R. Kopf, and A. Loeser. Fette u. Seifen 52, 45-46 (1950) German.

Animal experiments and patch tests on human subjects showed no irritation or toxic reactions resulting from the use of 1, 3-butylene glycol on the skin or mucous membrane. The LD_{50} of the substance for the mouse per os was 23.31 ml. per kg. as compared to 20.71 ml. per kg. for glycerol.

-- Chem. Absts.

CHEMICAL HAZARDS

1151 Retention of Beryllium in Animal Tissues Following Inhalation of Its Salts. H.E. Stokinger, L.T. Steadman, and R.E. Root. Atomic Energy Commission Unclassified Documents--851, Atomic Energy Commission, Oak Ridge, Tenn. (Apr. 25-27, 1950). 2pp.

The document, in abstract form, is reproduced in its entirety. Data on beryllium deposition were obtained by spectrographic analysis of tissues of animals following inhalation of beryllium salts as dusts and mists. This information is basic to a better understanding of the action of beryllium in the body. Data from five animal species are offered regarding: (1) distribution in the body; (2) accumulation and retention; (3) elimination and biologic half-time in lung and (4) effect of atmospheric concentration and dietary restriction on distribution. A discussion of these points follows.

-- Condensed from Nuclear Sci. Absts.

1152 The Importance of Fluoride Elements in the Pathogenesis of Lung Disorders Produced by Beryllium Compound Dusts. A. Policard. Bull. Acad. Natl. Med. 134, 289-290 (Apr. 25, 1950) In French.

The author believes that the toxic effects of industrial beryllium compounds, in particular beryllia, are not entirely due to the beryllium, but to the sodium fluoride which is found in beryllia up to a proportion of about 5 per cent.

-- Nuclear Sci. Absts.

1153 Review of Literature on Health Hazards of Beryllium and Its Compounds. G.G. Morgis and J.J. Forbes. U.S. Bur. Mines, Inf. Circ. 7574, 23pp. (July 1950).

The object of this review is to present the results of the investigations of the hazards of beryllium obtained up to the present, without attempting to evaluate differences in the conclusions of various authors. "The addition of beryllium to the list of toxic industrial metals has been so recent that there is still some confusion in the clinical picture." Since there is no specific treatment for berylliosis, environmental controls should be of utmost importance. Certain symptoms should be watched for in physical examinations. With additional medical and engineering research and continued dissemination of knowledge, the fear and health hazards will diminish considerably.

1154 A Histochemical Study of Alkaline Phosphatase in the Lungs During Experimental Pneumopathy Caused by Beryllium. A. Policard and A. Fullenger. Compt. rend. soc. biol. 143, 1411-1412 (Nov. 1949) In French.

The inhibition of alkaline phosphatase by beryllium was tested in rat lungs 11 months after an induced berylliosis. The Gomori technique showed a positive reaction in bronchial and bronchiolar epithelial cells, large histiocytes adhering to the alveolar walls, and some large histiocytes of the periarterial, peribronchiolar, and peribronchial connective tissue and under the pleura. The author concludes that two structures of the lung contain alkaline phosphatase: bronchial and bronchiolar epithelium, and their immediately adjacent connective stroma. -- Nuclear Sci. Absts.

1155 Experimental Production of Malignant Tumors with Beryllium. J.M. Barnes, Lancet 1, 463 (March 1950).

A summary of the results of two sets of experiments is presented. In the first series a total of 28 rabbits survived a course of intravenous injections of zinc-beryllium silicate and beryllium silicate; of these, 7 have bone sarcoma and 5 remain alive 2.5 years after the injections. The tumors have all the histologic characteristics of the bone sarcoma seen in man and resemble tumors produced in rabbit bones by radium. In March of 1949 a water suspension of finely divided, washed beryllium metal was administered to a group of 24 young rabbits as the first of a series of intravenous injections, each animal receiving 40 mg. of the metal; within 7 days, 9 rabbits died of acute necrosis of the liver, and within the next month 10 more died. Of the remaining 5 rabbits, 2 have died of pulmonary infections, while 2 have characteristic bone sarcomas. The author concludes that there seems to be little doubt that beryllium is capable of producing neoplasms in the rabbit. -- Nuclear Sci. Absts.

1156 Delayed Subcutaneous Beryllium Granuloma. E.A. Shorten and H.K. Giffen. Arch. Surg. 60, 783 (April 1950).

A case of delayed subcutaneous beryllium granuloma developing about three years after the patient had been accidentally cut by a fluorescent

tube is presented. Magnesium tungstate was found in the part of the lesion excised; the absence of the component zinc-beryllium silicate in the lesion indicates to the authors that it disappeared in some manner after implantation. It is concluded that a knowledge of the lesion caused by fluorescent lamps is important and that the only way to make reasonably sure of a permanent cure is to make a wide excision of every cut caused by a beryllium-containing material. -- Nuclear Sci. Absts.

1157 Arsine Poisoning in the Smelting and Refining Industry. K.M. Morse and A.N. Setterlind. Arch. Ind. Hyg. and Occ. Med. 2, 148-169 (Aug. 1950).

Two deaths occurred in the smelting and refining industry where the process involved was the addition of aluminum to molten lead alloy to remove arsenic and antimony. Symptoms in these cases, which indicated acute arsine exposures, were vomiting, severe hemolysis, leukocytosis and anuria. Extensive field tests indicated arsine exposures of 300 parts of arsine per million parts of air directly over ingots of dross when these were wetted. Roasting of the sawdust concentrate dross for at least an hour at 1,800 F. will stabilize it in preventing the evolution of arsine. Use of the "saw dust concentrate" method and roasting of the dross are advised as safety measures. Other recommendations for control of the process are: (1) All sources of water should be removed from the aluminum treatment area; (2) Exhaust ventilation should be provided for the aluminum treatment kettle and for the skimming operation; (3) Workers should report any discoloration of urine or feeling of nausea immediately; (4) Periodic red and white blood cell counts should be made for all exposed workers.
-- Condensed from Authors' Summary and Recommendations

1158 Arsine Poisoning. E. Holstein. Ztschr. f. Arztl. Fortbildung 43, 316-319 (June 15, 1949) In German.

The author describes the symptomatology and pathology of acute and chronic poisoning by arsine, which is known to be formed in processes where metals containing arsenic as an impurity come into contact with acid, as in the cleaning of tanks with sulfuric acid, or when arsenides come into contact with water. Inhalation of very small amounts may be fatal. The principal toxic effect is hemolysis, with the conversion of hemoglobin to methemoglobin. A description is given of a fatal case, in which the initial diagnosis was doubtful because of the absence of a definite history of exposure to arsine. However, inspection of the man's working conditions revealed that he had cleaned out a vessel containing an arsenide, which on contact with water would give rise to a considerable amount of arsine.
-- Condensed from Bull. Hyg.

1159 The Toxicity of Sulfur Hexafluoride. D. Lester and L. A. Greenberg. Arch. Ind. Hyg. and Occ. Med. 2, 348-349 (Sept. 1950).

The effects of inhalation of sulfur hexafluoride have been studied. Rats exposed for many hours to an atmosphere containing 80 per cent sulfur hexafluoride showed no effects. Sulfur hexafluoride appears to be a physiologically inert gas. -- Authors' Summary

1160 The Toxicity of Sulfur Pentafluoride. L.A. Greenberg and D. Lester. Arch. Ind. Hyg. & Occ. Med. 2, 350-352 (Sept. 1950).

The toxic effects occurring in rats exposed to sulfur pentafluoride for short and long periods have been studied. In short exposures of one hour a concentration of sulfur pentafluoride of 10 p.p.m. causes corrosion of the lungs, one p.p.m. causes irritation of the lungs, and 0.1 p.p.m. has no discernible toxic action. In exposures of 16 to 18 hours death occurred at a concentration of one p.p.m., severe lesions of the lungs at a concentration of 0.5 p.p.m., irritation of the lungs at a concentration of 0.1 p.p.m. and no discernible effects were present at 0.01 p.p.m. The injury of the lungs resulting from inhalation of sulfur pentafluoride is explained by hydrolysis of the compound with formation of other compounds. Sulfur pentafluoride is therefore insidiously dangerous and appears to be more toxic than phosgene. -- Authors' Summary

1161 Coproporphyrinuria as an Index of Lead Absorption. W.S. Johnson and N.E. Whitman. Arch. Ind. Hyg. and Occ. Med. 2, 170-174 (August, 1950).

The method of de Langen and ten Berg for the determination of urinary coproporphyrin was modified to serve as a method for screening lead-urine specimens on the basis of the characteristic red fluorescence of coproporphyrin. Two hundred and ninety-four urine specimens from workers who had undergone various lead exposures were examined for both coproporphyrin and lead. A table of results is presented in which the data are divided into seven groups according to degrees of red fluorescence. There is good correlation between the mean and degrees of fluorescence. Of the entire group of specimens, 2 showed no red fluorescence when urinary lead concentrations exceeded 0.15 mg. per liter. It appears that at the beginning of a lead exposure, porphyrinuria is not established as quickly as elevation of urinary lead. It is stated that with further refinement the method can be made roughly quantitative for urinary lead. -- Authors' Summary

1162 Discussion Regarding the New Regulations Concerning Lead Poisoning. A. Hadengue. Arch. Malad. Professionnelles 10, 520-525 (1949) French.

The author considers the new regulations which came into force in France in December, 1948 unnecessary except where the lead risk is pronounced and impractical except in large industrial concerns. He states that means for minimizing the lead risk are so well understood today that lead poisoning ought seldom, if ever, to occur. He points out the danger of creating a veritable lead neurosis from too frequent and unnecessary medical examinations. Attention should be given to the risk of possible contamination of water supplies by new lead pipes installed to replace old pipes destroyed by war damage. -- Condensed from Bull. Hyg.

1163 The Distribution of Mercury in the Organs of Rabbits Poisoned with Mercury Vapor. L. Brigatti. Med. d. Lavoro 40, 240-250 (Oct. 1949) In Italian.

Four rabbits exposed to mercury vapor at a concentration of 15 micrograms per cu. m., for a period of two hours daily, died after 26, 27, 45 and 48 days. Histologically it was found that considerable damage was done to the

kidneys, but little to the liver and brain. The quantity of mercury contained in the kidneys was much greater than in any other organ. The liver showed the next greatest concentration of mercury.

-- Condensed from Bull. Hyg.

1164 The Mercury Content of Various Organs in Subjects with and without Previous Exposure to the Absorption of Mercury. L. Brigatti. Med. d. Lavoro 40, 233-239 (Oct. 1949) In Italian.

Subjects for the tests on persons without previous exposure to mercury were five patients with ages from 34 to 72 years, who had died from different diseases. The kidneys, liver, lungs, spleen, heart and brain were analyzed. Mercury, as is commonly believed, was found to be a normal constituent of the principal organs of the body. The wide variation between the figures found in patient and patient and in organ and organ is attributable to such factors as individual idiosyncrasy, acid-base equilibrium, or the state of the autonomic nervous system. Variation in the different organs depends upon their capability of fixing mercury in their tissues. The liver and the kidneys have the greatest mercury content. Then comes the spleen and at a much lower level the lungs, the brain, and the heart. In the cases of three patients who had been known to suffer from chronic mercurial poisoning and later died of intercurrent maladies the same variations in mercurial content were found in the various organs, but the mercury was found in greater amounts. The author believes that 50 mgm. per 100 g. of fresh substance is the highest figure that can be considered normal in any organ.

-- Condensed from Bull. Hyg.

1165 Pharmacologic Tools in the Study of the Mechanism of Uranium Poisoning. H.C. Hodge. Arch. Ind. Hyg. & Occ. Med. 2, 300-311 (Sept. 1950).

Some of the highlights of the mechanism of uranium poisoning have been presented; a brief recapitulation may be useful. When uranium as the uranyl ion enters the body, it is carried in the blood stream partly as a nondiffusible protein complex and partly as a diffusible bicarbonate complex. A substantial part of the uranium is deposited in bone through being exchanged with calcium ions at the surface of the bone mineral; each adsorbed uranyl ion apparently complexes with two adjacent phosphate groups. Most of the uranium is excreted in the urine; however, some of the uranium reacts with the cells lining the renal tubules and injures or kills these cells. With small or moderate doses, the distal portion of the proximal convoluted tubule receives the severest injury. If death ensues, it follows a typical uremia; if the animal survives, cellular regeneration restores much of the kidney tissue and function. A few of the pharmacologic tools that have been brought to bear on this problem are (a) fluorophotometric analysis for uranium, (b) ultrafiltration of bicarbonate complex, (c) protein precipitation, (d) radio isotopes in exchange adsorption studies of bone, (e) radioautographs of kidney, (f) renal clearance studies, (g) histopathology, (h) enzymic activity in the urine and (i) cell physiology, particularly the inhibition of metabolism as investigated in enzyme studies and kinetic studies. These studies of the mechanism of uranium poisoning provide a good illustration of the diversity of physical and chemical methods that are brought to bear in modern pharmacologic research. -- Author's Summary

1166 Some Requisites to Making LD_{50}s from Different Laboratories Comparable. B.N. Craver, W.E. Barrett, and A.E. Earl. Arch. Ind. Hyg. and Occ. Med. 2, 280-283 (Sept. 1950).

The more important variables affecting the intravenous LD_{50} of a new drug as determined in mice and rats are discussed. These variables are: (1) concentration of the drug; (2) rate of injection; (3) vein of administration; (4) species, strain, and diet of the animals employed; (5) the age and sex of the animals; (6) temperature of animals environment just prior to the test; (7) season of the year; (8) number of animals used at each stated dose level and the method of calculation. It has been suggested that such toxicological data will be more meaningful and more readily duplicable if the conditions under which they are secured are specified as essential qualifications of the final dose in milligrams per kilogram.

1167 Acute and Chronic Toxicity of Some Halogenated Derivatives of Methane and Ethane. D. Lester and L. A. Greenberg. Arch. Ind. Hyg. & Occ. Med. 2, 335-344 (Sept. 1950).

The effects of inhalation of dichlorodifluoromethane (CCl_2F_2), trichlorofluoromethane (CCl_3F), 1,1-difluoroethane (CH_3CHF_2), 1-chloro-1, 1-difluoroethane (CH_3CClF_2), 1,1-difluoroethylene ($CH_2 = CF_2$), fluoroethylene ($CH_2 = CHF$), and 1,1-difluoro-1,2-dibromoethane ($CH_2BrCBrF_2$) were studied in rats. All of the compounds with the exception of vinyl and vinylidene fluoride are anesthetic. 1,1-difluoroethane, 1-chloro-1,1-difluoroethane and 1,1-difluoro-1,2-dibromoethane are pulmonary irritants. No damage to the liver was observed from inhalation of these compounds. The toxic effects of the compounds are discussed in relation to their boiling points. -- Authors' Summary and Conclusions

1168 Toxicity of the Tetrachlorodifluoroethanes. L.A. Greenberg and D. Lester. Arch. Ind. Hyg. & Occ. Med. 2, 345-347 (Sept. 1950).

The tetrachlorodifluoroethanes show no toxicity when fed to rats in a dose of 2 gm./kg./day. The vapors of both tetrachlorodifluoroethanes are slightly intoxicating at a concentration of 1.0 per cent, anesthetic at 1.5 per cent, and rapidly fatal at 2.0 per cent and higher in exposures of short duration. The asymmetric compound, 1,1,1,2-tetrachloro-2,2-difluoroethane, does not cause any pulmonary irritation in animals exposed to a concentration of 0.1 per cent for 17 days, or 0.5 per cent or 1.0 per cent for 18 to 21 hours, or 2.0 per cent and 3.0 per cent for shorter periods. The symmetric compound, 1,1,2,2-tetrachloro-1,2-difluoroethane, is a pulmonary irritant at concentrations of 1.0 per cent or more even for short exposures, and at 0.5 per cent it is fatal for an exposure of 18 hours, owing to pulmonary damage. Animals exposed to 0.1 per cent for 16 days did not show any effects. -- Authors' Summary

1169 The Absorption and Excretion of a Liquid Polyethylene Glycol. C.B. Shaffer, Frances H. Critchfield and J.H. Nair III. J.Am. Pharm. Assn. 39, 340-344 (June 1950).

Three human subjects who received intravenously one gram each of polyethylene glycol 400 each day, excreted in the urine an average of 77 per cent within the next twelve hours. Because of the greater diffusibility of the smaller molecule, the rate of excretion is not as great as that of the higher molecular weight polyglycols under similar conditions. Three human subjects who received oral doses of polyethylene glycol 400 excreted in the urine 40 to 50 per cent of the dose within twenty-four hours. The total absorption of oral doses amounts to between 52 and 65 per cent, which agrees with results from animal experiments. Single oral doses of polyethylene glycol 400 were incompletely recovered from urine and feces of rabbits. The percentage of the material unaccounted for was greater in the case of the smaller dose. It is concluded that this deficit represents metabolic destruction, and certain experiments involving constant intravenous infusion of polyglycol solutions are cited in support of this conclusion. Evidence is offered that ethylene glycol is not formed as a metabolite of polyethylene glycol 400. -- Condensed from Authors' Summary

1170 Chemical and Physical Examination of Some Polyethylene Glycols. C.B. Shaffer, Frances H. Critchfield and J.H. Nair III. J.Am.Pharm. Assn. 39, 344-348 (June 1950).

Certain chemical and physical data are furnished on a series of polyglycols commencing with polyethylene glycol 200 and ending with "Carbowax" compound 10,000. Some of these compounds are distinguished by their precipitability by barium silicotungstate, and most of them exhibit an inverse relationship between ultrafilterability and mean molecular weight. Chemical and X-ray diffraction studies of the polyglycol-barium silicotungstate complex are presented, and a hypothesis as to its structure is advanced. Information is given on the presence of ethylene glycol in two polyglycols, and a comparison is made of these values with those calculated according to Flory's theory. -- Authors' Summary and Conclusions

1171 The Toxicology of the Polyethylene Glycols. H.F. Smyth, Jr., C.P. Carpenter, and C.S. Weil. J.Am. Pharm. Assn., Scientific Edition, 39, 349-354 (June 1950).

Previously published data on the toxicity of polyethylene glycols are discussed and slightly extended. A re-interpretation of two-year doses of 1941 production results in materially increasing the safe rat dose of "Carbowax" 1500 and slightly increasing that of "Carbowax" 4000. The new values are, respectively, 1.5 and 0.06 gm./kg. per day, but subacute doses of current production indicate without defining considerably greater safe rat doses. -- Authors' Summary

In the last ten years more than 100,000 people in this country have been killed by fire. Each year more than 10,000 Americans die by fire and more than twice that number are burned severely or are disfigured for life. 3,500 of the annual casualties occur on farms. About 70 per cent of the nation's fire casualties are women and children.

1172 Acceleration of Carbon Monoxide Elimination in Man by High Pressure Oxygen. N. Pace, E. Strajman and Elaine L. Walker. Science 111, 652, (1950).

Ten volunteer subjects, 5 men and 5 women, after mild acute carbon monoxide exposure, breathed pure oxygen in a compression chamber at a gage pressure of 22 lb. per square inch (1.5 kg. per square centimeter) or about 2 1/2 atmospheres of absolute pressure. Considerable speeding up to carbon monoxide elimination resulted from breathing the pure oxygen under pressure. Interestingly the women subjects lost their carbon monoxide considerably faster than the men. The authors suggest that one hour of such treatment will probably be enough to reduce carbon monoxide-hemoglobin levels and that the treatment could be given safely with or without appropriate resuscitation devices. -- Arch. Ind. Hyg. & Occ. Med.

1173 Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act. Interpretation No. 18 with Respect to Warning, Caution, and Antidote Statements Required to Appear on the Labels of Economic Poisons. U.S. Dept. Agric.: Production and Marketing Admin.; Livestock Branch - Insecticide Div. (Issued as 162.116 of Part 162, Title 7, Code of Federal Regulations) 6pp. (Nov. 14, 1949).

Four general categories of toxicity of economic poisons are recognized, ranging from highly toxic to a group which is comparatively free from danger, for which no cautionary label is demanded. Specifications for labels on the other three classes are given, and the manufacturer is called upon to use any added warning, caution, or antidote statement which may be considered to be indicated. Antidote statements must contain emergency first-aid instructions suitable for use by a layman and must require only materials which are readily available. A long list of materials, with suggested label forms is given. -- Condensed from Bull. Hyg.

1174 Efficient Insecticide Highly Poisonous to Man. Letter to Editor by D.O. Hamblin. Penna. Med. J. 53, 796, 798 (August 1950).

The writer calls attention to the high toxicity of parathion, which, in spite of warning labels, may cause poisoning which the physician may be called upon to treat. It is not a local irritant but it is a cholinesterase inhibitor. The most serious effect is constriction and filling of the bronchi with mucus. Fatalities appear to result from that cause and from arresting of the heart. However, recovery from the acute poisoning is usually complete and uneventful. Administration of atropine at once and frequently, clearing the bronchi by postural drainage, administration of oxygen, and artificial respiration in extreme cases, constitute proper treatment. Morphine is contraindicated. Additional exposure to parathion or similar materials should be avoided until cholinesterase regeneration is complete.

1175 Contribution to the Study of Occupational Cancers: Carcinogens of the Bladder. R. Truhart, Semain d. hop. Paris 75, 3078 (Oct. 10, 1949) French.

The main causative agents of occupational cancer of the bladder are now thought to be betanaphthyl amine and benzidine. Periodic urinalysis and

cystoscopic examination of workers are of value, as hematuria and alterations of the bladder epithelium usually precede the appearance of cancer. Ordinarily cancers due to the agents named do not develop until from 6 to 25 years after exposure. The results of animal experimentation reported by various workers are reviewed. The relationship of molecular structure and carcinogenic action is pointed out. These compounds are absorbed through the respiratory tract and through the skin. Two theories concerning the manner in which these substances are transported to the bladder are presented along with a review of the metabolism of the compounds. The article concludes with suggestions for prevention of exposure and for periodic physical examinations.

-- Arch. Ind. Hyg. & Occ. Med.

1176 Studies on Aerosols. IX. Enhancement of Irritating Effects of Various Substances on the Eye, Nose, and Throat by Particulate Matter and Liquid Aerosols in Connection with Pollution of the Atmosphere. L. Dautrebande, R. Capps, and Ellen Weaver. Arch. Intern. Pharmacodynamie 82, 505-528 (1950).

Particulate matter, such as fine carbon black particles, used motor oil (1 to 2 p.p.m.), Diesel oil (0.2 to 0.3 p.p.m.) or sodium chloride aerosols, is irritating to the human eye, nose, and throat, apart from the presence of gases such as sulfur dioxide and sulfur trioxide. These aerosols increase the irritating effect of such gases. Fresh mineral-oil aerosols (300 p.p.m.) were not irritating under the experimental conditions. These facts are discussed with reference to the "smog" over big cities.

-- Chem. Absts.

INDUSTRIAL DUSTS

1177 Effect of Intermittent Positive Pressure Breathing on Respiratory Gas Exchange. H.L. Motley, L.P. Lang, and B. Gordon. J. Aviation Med. 21, 14 (Feb. 1950).

The authors describe studies of the respiratory gas exchange, which were based on determinations of the oxygen tension of the arterial blood and analysis of expired air in 77 cases of emphysema and fibrosis. The patients were anthracite or bituminous coal miners who had long worked in the mines. Determinations were made during both ambient and intermittent positive pressure breathing of compressed air. In the patients in whom the mean oxygen pressure gradient from alveoli to arterial blood (transfer gradient) was abnormally elevated (20 mm. of mercury or more) the gradient was consistently reduced in a significant manner in the nonemphysematous group, and to less extent in the patients with emphysema. This effect appears to be the result of the inflation of those alveoli which have impaired circulation of air, which are mechanically obstructed by fibrosis with loss of elasticity and which are further hampered by bronchospasm. The studies indicate that in the fibrosis of anthracosilicosis the distribution factor is responsible for the increased oxygen gradient between the alveoli and the arterial blood rather than a true diffusion difficulty with an increased resistance of the pulmonary membrane.

-- Condensed from Arch. Ind. Hyg. & Occ. Med.

1178 New Tests for the Study of the Silicotic Lung. M. Hugh-Jones. Arch. Malad. Professionnelles 10, 430-436 (1949) In French.

New tests used by the British Medical Research Council's Pneumoconiosis Research Unit are described. An index of dyspnea is obtained from measurements of the minute-volume of respiration. A step-climbing test is used. The ratio of the minute-volume of air breathed after five minutes' exercise to the maximum respiratory capacity of the patient, expressed as a percentage, is the index of dyspnea. The results of the tests agree well with clinical judgments. Other tests which give good results are spirometer tests with electrical recording to determine the maximum respiratory capacity and a test which measures the ease of passage of alveolar carbon dioxide into the arterial blood. The author states some requirements of physical tests, which include precision, sensitivity, possibility of interpretation of results, and cooperation between patient and doctor. It is important that the test be simple and easy to apply. -- Condensed from Bull. Hyg.

1179 Explantation Experiments and Dust Phagocytosis in Relation to the Etiology of Silicosis. H. Buckup. Sonderbeilage z. Arbeitschutz., 3, 18-22 (1949) In German.

This article is a review of experiments and observations on tissue culture with special reference to the phagocytosis of dust particles. A short history is given of the study of tissue culture and a reference to a work on the subject. The author states that the part played by phagocytes in dealing with silica dust as compared with their effect on less harmful particles, such as coal, has not been conclusive. In vivo, however, there has been no such doubt. -- Condensed from Bull. Hyg.

1180 Dust in Industry. Papers Read at the Conference at Leeds, 28th-30th September, 1948, with the Discussions which Followed. Society of Chemical Industry, London, 175pp. (1949) 42 shillings.

The subjects considered at the several sessions of the conference were: (1) the physical characteristics and estimation of dust; (2) practical aspects of the dust problem; (3) dust problems in the chemical and cotton industries, in flour milling and in the photographic industry; (4) practical methods of industrial and atmospheric dust elimination; (5) aspects of fire and explosion hazards; and (6) health hazards.

-- Condensed from Bull. Hyg.

1181 Silicosis Among Pottery Workers in Limousin. de Leobardy, Picout-Laforest and Pasquet. Arch. Malad. Professionnelles 10, 483-486 (1949) In French.

Among the porcelain workers who were examined systematically, clinically, and radiologically, 34 of 180 who were exposed to silica dust had silicosis. In about 30 per cent of the silicotic ceramic workers tuberculosis was found. Preventive methods are enumerated.

-- Condensed from Bull. Hyg.

1182 Silicosis in Pottery Workers in England. P.K. Walker. Arch. Malad. Professionnelles 10, 486-492 (1949) In French.

The silicosis hazard in the manufacture of china and earthenware is described. Improvements in ventilation, the substitution of harmless materials for dangerous ones and improved methods of transporting tile dust have effected reductions in the dust concentration in the china and tile industries. More than one hundred cases of silicosis are receiving treatment at the center for aluminum therapy at Stoke-on-Trent. The incidence of silicosis is small compared with the number employed. The incidence is highest among the small number who have been exposed more than twenty years.

-- Condensed from Bull. Hyg.

1183 Anthracosilicosis in Bituminous Coal Miners -- Clinical and Pathological Manifestations. H.A. Slesinger. Arch. Ind. Hyg. & Occ. Med. 2, 284-299 (Sept. 1950).

(1) Anthracosilicosis occurs in soft coal miners. (2) Routine studies in diagnosis include: a carefully taken history; physical, roentgenographic and electrocardiographic examinations; the erythrocyte sedimentation rate, studies of vital capacity, maximal breathing capacity and pulmonary circulation time; venous pressure measurements; sputum examinations, and skin tests. (3) Dyspnea may be the only symptom. (4) Physical signs may be disappointing. (5) Pulmonary emphysema is a prominent finding in anthracosilicosis and is an important factor in causing disability. The disability may be out of proportion to the amount of nodulation seen in the roentgenogram. (6) Spontaneous pneumothorax may occur as a complication. (7) Chronic cor pulmonale is a common complication. (8) The characteristic lesion is that of pulmonary fibrosis. (9) Treatment with bronchodilators, positive pressure therapy, and aerosols may cause considerable symptomatic improvement.

-- Author's Conclusions

1184 Pulmonary Aspergillosis in Coal Workers. A.G. Heppleston and S.R. Gloyne. Thorax 4, 168 (Sept. 1949).

The association of fungous infection with dusty occupations is exceedingly rare. The source of the aspergillus infection of the two coal workers whose cases are presented is not known. Two cases from the literature are cited in which an underground origin of fungous infection was claimed. The authors believe that the evidence is against underground infection in the two cases which they studied, as the disease appeared to be of relatively short duration, whereas the men had ceased mining five and three years, respectively, before death. -- Condensed from Arch. Ind. Hyg. & Occ. Med.

1185 Mineralogical Aspects of Pneumoconiosis Research. G. Nagelschmidt. Research 2, 170-175 (1949); J.Am. Ceram. Soc. 32 No. 7, Ceram. Absts. 177 (1949).

A review of the literature. Three different fibrotic mineralogical groups are distinguished: (1) quartz and other forms of uncombined silica; (2) other silicate minerals with or without quartz, and (3) fibrous silicates, especially asbestos; the first two are discussed in more detail. There appears

to be a relation between silica solubility and fibrotic reaction. If the solubility is too high as in silicic acid sols and gels, the material is eliminated too fast to produce fibrosis; if it is too low, as in mixtures of quartz with aluminum or with siliceous minerals, the fibrotic reaction is retarded. Crystal structure appears to have little effect. Two conditions seem to be necessary: (a) there must be a certain surface capable of releasing silica to lung fluids; and (b) the supply of silica from this surface must be maintained for a considerable time. There is an optimum size of quartz for each animal. In inhalation, retention in man decreases from about 80 per cent for 2 micron particles to only about 25 per cent for 0.2 micron particles. 27 references. -- Chem. Absts.

1186 Research on Silicosis. E. Zanetti. Med. d. Lavoro 41, 1 (Jan. 1950).

The roentgenologic and clinical checking of the workers in a factory making abrasive soap, where such preventives as aspiration of dusts, job rotation and "plain" mask wearing are enforced, has shown that 5 out of 40 female workers were affected with silicosis: 2 in the nodular stage with initial conglomeration, 2 in the micronodular stage, and 1 with moderate reticulation. The investigator stresses the characteristics of the roentgenographic picture (small nodular shadows, unevenly distributed and of slight opaqueness, with generally shaded outlines and early tendency toward conglomeration) and the comparatively rapid appearance of the picture. According to the investigator, the factors responsible for the appeararance of silicosis were the 80 per cent quartz content of the soap, the fine grinding of the quartz and the insufficient protection of the workers. The remedial steps suggested include installation of machinery for mechanical handling of the abrasive powder or adoption of masks of greater filtering capacity. -- Condensed from Author's Summary by Arch. Ind. Hyg. & Occ. Med.

1187 The Determination of Particle Size Range in Silicosis-Producing Dust. H. Gessner, J.R. Ruttner and H. Buhler. Schweiz. Med. Woch. 79, 1241-1245 and 1258-1262 (Dec. 24 and 31, 1949).

The role of quartz as a cause of silicosis is discussed. A review of the literature revealed that most authorities agreed that particles smaller than ten microns in diameter are harmful, but diverse views were held regarding the exact upper limit. The experimental part of the work consisted of physical and chemical examination of dust isolated from human lungs. The methods used are given, with the size of the dust particles recovered, as shown by size distribution curves. The practical conclusion is that dust suppression must be effective for particles of the order of one micron in size. Wetting of materials before working is considered more effective in suppressing dust than spraying air-borne dust.

-- Condensed from Bull. Hyg.

1188 Experiments on Wetting Agents for Dust Suppression in Mines. H. Neu. Beitrage z. Silikose Forschung. No. 6. 35pp (1949) In German.

A description is given of a practical test for the wetting of coal dust by solutions of thirteen wetting agents. It was found that fine particles are more difficult to wet than coarse ones. Wetting time becomes

more rapid as the concentration rises, up to a certain point, after which no change occurs. The curves are similar to those of surface tension, but this becomes independent of concentration much sooner than the wetting time. Rock dust wets more easily than coal, between the different varieties of which little difference was found. High temperature favors wetting. Wetting agents are graded in order of concentration needed to give a wetting time of five minutes. Their cost is given. They are harmless to the skin and all possess fungicidal properties. They have no important influence on the ignition temperature of coal. -- Condensed from Bull. Hyg.

1189 Metal Dust Pneumonitis. S.G. Sjoberg.
Nordisk Med. 43, 117-120 (Jan. 20, 1950) In Norwegian.

Sjoberg is attached to a copper works in Sweden, the only industrial concern employing vanadium in the form of its acid, vanadium pentoxide, in this country. Of late years he has observed several cases of illness due to exposure to dust in this works, and in 1947 he observed as many as five cases of pneumonia in the staff of only 36, some of whom were only casual employees engaged on building operations. There were also two employees suffering from chronic laryngo-tracheitis followed by broncho-pneumonia after exposure to vanadium. All the five patients with pneumonia recovered. Sjoberg has also studied the effect of vanadium dust on experimental animals and has succeeded in demonstrating extensive changes in their lungs in which particles of vanadium and infiltration with leucocytes could be detected. He notes that certain diseases due to metal dust are not yet included in the Swedish Industrial Diseases Act. -- Bull. Hyg.

1190 Role of Trauma in Hernia of Nucleus Pulposus. E. Gunther.
Monatsschr. f. Unfallh. 52, 257 (Sept. 1949). In German.

The author feels that study of serial sections and clinical observation do not justify the assumption that certain occupations are predisposed to prolapse of the nucleus pulposus; on the contrary, they indicate that lesions of the invertebral disk are the result of natural degeneration incident to the process of aging. He rejects the theory that prolapse of the nucleus pulposus is caused chiefly by trauma.
-- Condensed from Arch. Ind. Hyg. & Occ. Med.

Driving Taught in High Schools.

Learning how to operate an automobile is now part of the regular curriculum for students in one out of every three U. S. high schools. Eight thousand high schools offer driver education courses, and the number increases every semester. In more than 2,500 of the schools both driver education in the class room and driver training in dual-control automobiles are given. -- Ethyl News

1191 Blood Sedimentation and Silicosis. P. Nadiras, L. Batique and R. Michot. Rev. Med. Miniere. No. 4, 32-38 (Oct.-Nov.-Dec. 1948) In French.

A description is given of the method used in estimating the rapidity of sedimentation of the blood, and the graphic representation of the sedimentation rates. It is suggested that rapidity of sedimentation may point to the presence or absence of infection not otherwise detectable by the usual clinical observations. A warning is given against relying too much on this idea, which should only be to raise a suspicion rather than to indicate a diagnosis. -- Condensed from Bull. Hyg.

1192 Dusts in Industrial Disease in Morocco. J. Rodier. Bull. Inst. Hyg. Maroc. 8, 103-120 (1948) In French.

The author quotes some observed concentrations of manganese in the air-borne dust of mines, and some calculated quantities of lead and manganese dusts that may be inhaled by a miner in the course of an eight-hour shift. He discusses the significance of the size of dust-particles, describes the available methods of dust sampling, and outlines methods of protecting workers. -- Condensed from Bull. Hyg.

1193 Studies on Plasma Components in Silicosis. E. Vigliani, A. Boselli and L. Pecchiai, Med. d. Lavoro 41, 33 (Feb. 1950) In Italian.

A study of the serum proteins of workers suffering from silicosis was performed with electrophoresis and turbidity or flocculation tests. The observations were: The serum proteins are altered in almost every case of silicosis, showing an increase in globulins. When silicosis is associated with active infection (usually tuberculosis), alpha globulins increase; in silicosis without infection only gamma euglobulins, generally speaking, increase. The alpha globulin increase is supposed to be due to the presence of exudative or necrotic inflammatory phenomena (very often caused by the associated tuberculosis), and the gamma euglobulin increase is supposed to be due to the activity of the proliferative fibrous process of silicosis. Histologic examination of the organs of workmen dying of silicosis revealed: (1) an abnormal cellular proliferation, partly plasmocytic in type, of reticulum in bone marrow, lymph nodes, lungs, spleen, liver and the submucosa of the gastrointestinal tract; (2) an accumulation of protein-hyalin material in vascular walls and next to the reticular fibers; (3) alterations of kidneys ("nephro-protidolipidosis") which may be considered as a reaction of the kidneys to the accumulation and elimination of pathologic proteins and lipids. The histologic observations and the alterations of serum proteins suggest the hypothesis that in silicosis some blood and tissue proteins are involved. The behavior of the serum proteins may be of some value in the diagnosis and prognosis of the disease, for silicosis with scarce or no alterations of serum globulin means stabilized silicosis (nonevolving at the time of the examination), whereas silicosis with prevailing increase of alpha globulins means silicosis associated with exudative or necrotic inflammatory processes and silicosis with prevailing increase of gamma globulins means silicosis in active fibroproliferative evolution. Silicosis with increases of alpha and gamma globulins means silicosis with coexistence of proliferative and exudative processes.
-- Condensed from the Authors' Summary in Arch. Ind. Hyg. & Occ. Med.

PHYSICAL ASPECTS OF THE ENVIRONMENT

1194 Compressed Air Tools as Cause of Springfinger. R. Sheidt. Monatsschr. f. Unfallh. 52, 106 (April 1949).

The case is reported of inflamed tendons and tendon sheaths in the palm of a man who worked with a compressed air hammer of 30 kilograms weight for four to six hours daily, breaking up concrete. The man had never before done heavy work with his hands. The second, third, and fourth fingers were also involved, but not the thumbs. Since the percentage of workers with compressed air tools who present lesions of the hand is only 0.15 per cent it is suggested that lack of training of the hands in the case reported may have caused the trouble. The author's opinion is that springfinger must be considered as an occupational disease. Recovery will result from discontinuation of the work.
-- Condensed from Arch. Ind. Hyg. & Occ. Med.

1195 Methods of Expressing the Effects of Thermal Environment on Man. C.H. Wyndham. J. Chem. Metallurg. & Mining Soc., South Africa 50, 211, (March 1950).

This is a critical review of physical, biophysical, sensory and physiologic methods developed during the last 30 years for evaluating the effects of thermal environments on man. Much of the review is devoted to the calorimetric methods developed by the John B. Pierce Laboratory of Yale University, including advantages, limitations, possibilities, etc. In the author's opinion, all methods are open to criticism and should be regarded as only interim until more precise biophysical methods become available.
-- Arch. Ind. Hyg. & Occ. Med.

1196 Industrial Noise and Deafness. S.R. Guild. J. Insur. Med. 5, 32 (March-April-May, 1950).

According to the author, the degree of deafness caused by noise varies with the intensity of the sounds and the length of exposure. There is also a personal factor, as the ears of some persons seem to be less resistant to injury by sounds than are the ears of most persons. Industrial noises have never caused total deafness, but the deafness is often severe. Data from human and animal subjects exposed for relatively short periods under laboratory conditions suggest that about 90 decibels above the threshold of hearing (or a billion-fold the energy) is the upper limit of safety for factory conditions. Hearing tests of a large number of persons are suggested to determine the upper limit of safety. Testing of new employees before they start work and repeating the tests often during the first weeks and months on the job is recommended as a preventive measure. The placing of sound-absorbing material on walls, ceilings, and pillars may be of value when the noise level is only slightly in excess of the safe upper limit. The use of ear plugs, ear muffs or helmets will be necessary in many industrial situations. -- Condensed from Arch. Ind. Hyg. & Occ. Med.

1197 Noise and Occupational Deafness in an Industrial Plant. H.F. Fabritius, H. Stenwig and E. Thiis-Evensen. Nordisk Hygienisk Tidskrift 31, 157 (1950). Norwegian.

The authors examined 179 workers having a noisy occupation - 155 miners, 15 platers, and 9 machine house workers. Of the miners, 51 were examined both in 1943 and 1947. 21 workers having been subject to alterations of the drum membrane are not included in this material. The noise, mostly produced in closed rooms, was measured to be 90--109 phon. 41 per cent of the workers had ringing of the ears in connection with their work. 11 per cent had constant ringing of the ears. 36 per cent found themselves that their audition was bad. The auditory examination showed that almost one half of the workers had a definite decline of their sense of hearing after the first five years of work in noise, and no one had a normal audition after 20 years. The comparative examination also showed that the decline of auditory sense distinctly appeared during the first years. The authors, therefore, emphasize that beginners should be given special attention, and that systematic auditory examinations should be included in the prophylactic work. Noise preventing precautions are discussed, as well as the necessity of noise measurements and protective arrangements for the workers. Finally it is emphasized that all precautions against noise, and injuries resulting from noise, is good economy for the plant, and that information is necessary in order to incite the workers to active cooperation. -- English Summary

RADIOACTIVITY AND X-RADIATION

1198 Some Medical Aspects of Atomic Warfare. A. Lundie. J. Roy. Army Med. Corps. 94, 246-258 (May 1950).

Mechanical, thermal, and radiation injuries caused by an atomic bomb explosion are discussed. After exposure to acute total body irradiation, lymphocytes, erythroblasts, germinal epithelium of the testis, myeloblasts, the epithelium lining the base of the gastrointestinal crypts, the germinal cells of the ovary, the basal layer of the skin, and the connective tissue are likely to be injured; bone, liver, pancreas, kidney, nerve, brain, and muscle are less susceptible to the ionizing effects. The acute and moderate radiation syndromes are described in detail, and the histological appearance of the different organs and cells are outlined. The collection and treatment of the atomic casualties, decontamination, hygiene, and other closely related topics are discussed in their relation to the atomic bomb. -- Nuclear Sci. Absts.

1199 Some Public Health Aspects of an Atomic Explosion. W.H. Sullivan Naval Radiological Defense Laboratory Report No. AD-223 (L). Atomic Energy Commission, Oak Ridge, Tenn., 14pp. (June 3, 1950).

This lecture was delivered at the Basic Training Course for Physicians on the Medical Aspects of Atomic Warfare at Birmingham,

Alabama, May 5, 1950. In summary, the primary problem of concern to the public health officials at the present time is that of education. Well defined operational plans must be implemented to make the best use of the available physicians and their corps of assistants. Also, studies must be made of the various other facets of public health relief, such as inadequate supplies of potable water and food, the bacteriological problems, and the toxicological problems, which are secondary to the immediate effects but nevertheless potential destroyers of life. There must be more training courses to give all physicians who might be called upon, sound, practical, down-to-earth information, which will enable them to handle the casualties with more than a smattering of ignorance concerning radiation damage effects. -- Nuclear Sci. Absts.

1200 Body Radium Content of Individuals with No Known Occupational Exposure. J.B. Hursh and A.A. Gates. Nucleonics 7, 46-59 (July 1950).

The radium content of the body of 25 adult individuals with no known occupational exposure to radium has been measured. The average value is believed to be 1.18×10^{-10} g. radium per whole body. This agrees qualitatively with predictions based on the radium content of the water supply and known constants for radium metabolism by the body. The radium content of the body, as derived from measurements reported in this paper, is about 1/100 as great as analogous figures previously existing in the literature and about 1/50,000 of the radium content known to produce neoplastic bone changes. It is, therefore, concluded that to the extent to which the present measurements are representative, it is unlikely that irradiation of the bone by body-radium will be an important factor in the production of osteogenic sarcoma in individuals not occupationally exposed to radium. -- Authors' Summary

1201 Some Aspect of the Mechanism of Action of Ionizing Radiation on Living Cells. L.G. Grimmett. Texas Repts. Biol. Med. 8 134-146 (1950).

This article discusses some of the theories advanced to account for the effect of radiation on cells and the sensitivity of cells to varying intensities of radiation. The author emphasizes the role radiochemistry can play in explaining the mechanism of cell damage such as the production of free radicals from water by radiation. 11 references.

-- Nuclear Sci. Absts.

1202 Some Measurements of Gamma-Ray Doses Received by a Radiotherapist During Radium Operations. J.L. Howarth, H. Miller, and J. Walter. Brit. J. Radiol. 23 245-255 (April 1950).

Measurements were made over a period of 18 months of the doses of radiation actually received by a radium therapist during operations, (a) by the fingers and hands, and (b) by the body as a whole (integral dose); the doses to the gonads were also estimated. These results are given in a series of tables. The significance of the findings is discussed, with special reference to the permissible tolerance doses, both local and general.

-- Authors' Summary

1203 Vitamin P Protection Against Radiation. B. Sokoloff, J.B. Redd, and R. Dutcher. Science 112, 112-113 (July 28, 1950).

Rats were fed vitamin P (CVP compound), isolated from citrus waste, both before and after a total-body radiation of 800 roentgens of x-rays. Considerable protection against the near-lethal dose was observed, probably due to the prevention, by the flavanoids present, of an increase in capillary fragility. -- Nuclear Sci. Absts.

1204 The Economic Integration of Radiological Safety into the Industrial Safety Program. J. Hannoch. AECU-850, Atomic Energy Commission, Oak Ridge, Tenn., 19pp. (Mar. 29, 1950).

This paper given at the 20th annual safety convention and exposition of the Greater New York Safety Council, discusses background for the problem, industrial application of radioisotopes, permissible dose, and radiomaterials and the safety program. -- Nuclear Sci. Absts.

1205 Working Drawings of Tools for Handling Radioactive Sources. A. Morrison and K.J. Parry. National Research Council of Canada Report No. NRC-2025, 50pp. (nd.)

Detailed working drawings are given for tools, the purpose of which is to use distance as a protective factor in handling radioactive materials which emit beta and gamma rays. Each tool provides for about a meter of separation between the active source and the hand carrying the tool. The mechanical design has been kept as simple, reliable, and positive, as seemed possible. These were designed for the handling of Co^{60} sources enclosed in aluminum cylinders about 0.75 in. in diameter and 1.71 in. long. -- Nuclear Sci. Absts.

1206 Disposal of Radioactive Wastes from Massachusetts General Hospital. F.A. Butrico. Massachusetts Institute of Technology (AEC File No. NP-1623.) 51pp. (May 19, 1950).

A thesis on an investigation of the disposal of radioactive wastes of I^{131}, P^{32}, and C^{14} is presented. Quantitative study is limited to I^{131}. An estimate of the radioactivity contributed by C^{14} and P^{32} is included. The information obtained indicates that the quantity of P^{32} and C^{14} being discharged did not constitute a hazard. I^{131} was being discharged in concentrations exceeding recommended specifications. 20 references. -- Nuclear Sci. Absts.

1207 Atomic Energy and Insurance. S.C. Rothmann. Best's Fire & Casualty News 24-26, 118 (May 1950).

This paper is the first of a series covering phases of the effects of atomic energy on insurance problems. This article introduces the beginner to the elementary principles of atomic energy in order to prepare for the succeeding articles which will describe the peacetime applications of the atom, possible coverages affected, hazards involved, types of disabilities anticipated, and preventive measures.

1208 Atomic Energy and Insurance. Casualty Coverage Implications. S.C. Rothmann. Best's Fire & Casualty News 37-38, 79-88 (July 1950).

In this paper the author points out some of the more important questions relating to atomic energy use which should receive the attention of the casualty and liability insurer. First the major potential hazards involved and the precautions necessary for proper handling of isotopes are considered. The discussion of those factors shows that radiation injuries to humans may fall well within our modern concepts of occupational disease. All types of radiation appear to have the same final effect, the death of the unit tissue or cell, and in most cases and in the usual doses, the effect may be delayed for days to years. This fact raises complications in compensation problems, especially in adapting present laws to cover the additional diseases, without including diseases of ordinary life. Special legislation will be necessary on the time of notice, the statute of limitations, and methods of determining whether an injury is occupational. Psychological effects from fear of exposure and malpractice suits resulting from ignorant misuse of isotopes, are also to be considered. As with other occupational diseases, prevention becomes far more important than compensation. In order to ensure an adequate degree of prevention, the casualty insurer must be thoroughly familiar with the process involved; proper monitoring of personnel; safe practices; detection, diagnosis, prevention and treatment of radiation illnesses; and proper waste disposal. Plenty of information on these points is now available. Also to be considered are public liability, products liability, and boiler and machinery contamination.

1209 Will We Be Poisoned by Atomic Wastes? M.E. Nahmias. Science et Vie 89-92 (Feb. 1950) In French.

The author describes the problems involved in protecting personnel and local communities from the radioactive materials and wastes handled in large-scale nuclear research establishments. In particular he discusses methods of determining safe dosages of various types of radiation, methods of shielding nuclear piles, and the difficulties which may eventually arise from the disposal of diluted atomic wastes in underground containers.

-- Nuclear Sci. Absts.

1210 Decontamination of Buildings by Flame. R.C. Heatherton. NYO-1513, Atomic Energy Commission, Oak Ridge, Tenn. 5pp. (May 1, 1950).

An oxygen-acetylene blow torch was found to have certain advantages in the radioactive decontamination of structural concrete (principally floors) in a dismantled uranium processing plant. It was tried on other building materials with varying degrees of success. -- Author's Summary

1211 The Medical Aspects of Atomic Weapons. I.M. Pochapin. Pennsylvania Med. J. 53, 703-707 (July 1950).

The types of injuries due to an atomic bomb blast are described with emphases placed on the casualties due to exposure to the nuclear radiation. First aid and hospital care and the selection of casualties for treatment based on the nature and extension of their injuries are discussed.

-- Nuclear Sci. Absts.

ENVIRONMENTAL MEASUREMENTS
(Analytical Procedures and Methods)

1212 Spectographic Determination of Beryllium in Air Dust Samples. G. Peterson, G. Welford and J. Harley. Anal. Chem. 22, 507 (March 1950).

A spectrographic method of determining beryllium in air dust collected on filter paper has been developed. The procedure may be used with all types of filters, including pleated gas mask filters which contain about 150 mg. of ash. The range covered is from 0.0025 to 10 micrograms of beryllium on the electrode, and aliquots of one twentieth of the total sample were used. Details of the method are given. The advantages of the method over those previously published are: a more uniform matrix; regardless of the type of filter; the large useful range; the use of triplicates, with the possibility of diluting the remainder of the solution if necessary; freedom from background on the plate; and satisfactory sensitivity, even with a slow spectrograph.

1213 Determination of Traces of Beryllium in Biological Material. F.W. Klemperer and A.P. Martin. Anal. Chem. 22, 828-831 (June 1950).

This article describes a procedure for the detection of minute traces of beryllium in biological material. After destruction of organic material, the excess of calcium is precipitated as sulfate and beryllium is separated from the solution by precipitation with ammonia, together with iron phosphate which is added as a collector. Iron and other interfering cations are removed by electrolysis with a mercury cathode, and beryllium phosphate is then separated from the solution by ammonia precipitation using aluminum as a collector. Beryllium is estimated quantitatively by a fluorimetric method with morin. The smallest amount of beryllium that can be detected reliably by this method is 0.05 micrograms. Because beryllium can be isolated from large samples, it can be determined quantitatively in concentrations of less than one part in 10^{10} parts of urine. -- Authors' Summary

1214 The Histochemical Detection of Beryllium. F.A. Denz. Quart. J. Microscop. Sci. 90, 317-321 (Sept. 1949).

The colored lakes (pigments) formed by beryllium and dyes of the naphthochrome series are suitable for the detection of beryllium in histological sections. The dyestuff naphthochrome green B at pH5 forms with beryllium an apple-green lake, in which the color is maximal. In the case of iron and aluminum, using the same dyestuff, the color changes are slight. Instructions for preparing the sections and for dyeing them are given. Acridine red is used as a counterstain. The dyestuff does not react with all beryllium compounds. The refractory oxide and the silicate react only feebly after a long period following injection. The LD_{50} for mice is 20 micrograms of beryllium; but the optimum dose for the test was 200 micrograms of beryllium; with 50 micrograms staining is slight and

disappears within an hour of injection. Considerable care must be exerted in applying the test in order to avoid contamination.

-- Condensed from Bull. Hyg.

1215 Rapid Measurement of Pollution Rate in an Atmosphere of Dust--Application to Mines. E. Leclerc and A. Jorissen. Chimie & Industrie. 63, 363-368 (1950) French.

Known and original methods for treatment of mine dusts are described. The methods vary with size of dust and speed of air current. A granulometric method of measuring dusts is described as well as the apparatus. There are two types of measurement: those relating to total weight of grains in suspension in an air current, and those concerned with the number of grains per cc.

Chem. Abstr.

1216 Comparison of Poisonous Gases from Permissible Explosives as Obtained in Bichel-Gage and Coal-Mine Tests. J.E. Tiffany, E.J. Murphy, and N.E. Hanna. Bur. Mines Rept. Invest. 4663 12pp. (March 1950).

The principal constituent of poisonous gases from explosives is carbon monoxide. The ratio of amounts of carbon monoxide generated in mine shots of class A and class B explosives was found to be the same as in Bichel-gage tests with the same explosives. Therefore, the Bichel-gage remains a valid test for the evaluation of fume classification of explosives.

-- Authors' Conclusions

1217 The Estimation of Ventilation Air Temperatures in Deep Mines. J. de V. Lambrechts, Metallurg. & Mining Soc., South Africa 50, 184 (Feb. 1950).

This paper deals with a purely empiric approach to the subject of wet bulb temperature changes in mines where operations are conducted or are to be conducted mainly in quartzitic rock, as on the Witwatersrand and in the Orange Free State gold mines. Numerous temperature changes observed in shafts, other airways and stopes are analyzed and discussed and correlated with the corresponding natural rock temperature, initial wet bulb temperature, distance, air velocity and condition of airway (i.e., "wet" or "dry"). The working hypothesis on which the analyses are based is really an oversimplification of the fundamental laws governing heat flow and is, namely, this, that the difference between the natural rock temperature and the wet bulb temperature at the entrance to an airway provides, on an average, a measure of the rate at which wet bulb temperature will increase in that airway for a given air velocity and moisture condition; smoothed graphs for such correlations are evolved. The analyses are based on a total of about 140,000 ft. of vertical shaft, 230,000 ft. of other airway and 30,000 ft. of stope. All observations were made in Witwatersrand gold mines under normal working conditions and at vertical depths below surface covered by the range zero to 8,000 ft. The data presented are intended to fill a gap between the correct scientific approach and what might be called a purely "rule of thumb" approach to the subject of heat or temperature changes in mines.

-- Author's Abstract

1218 Application of the Cascade Impactor to Studies of Bacterial Aerosols. L.S. Sonkin, Am. J. Hyg. 5, 319 (May 1950).

A 5 stage cascade impactor is described and illustrated. This device was found to be practical for determining the concentration and distribution of bacteria in air-borne particles of different sizes. The cascade impactor was found to have the same efficiency as the Folin bubbler sampler, which traps about 90 per cent of air-borne bacteria. A method of calculating the relationship between distribution of bacteria and mass in particles of different sizes is presented. -- Arch. Ind. Hyg. & Occ. Med.

PREVENTIVE ENGINEERING

1219 Testing Your Exhaust System. Anon. Tenn. Ind. Hyg. News 4-6 (July 1950).

Simple directions are given for routine checking of the operating efficiency of exhaust systems. The steps given are: (1) clean the system; (2) repair the system; (3) obtain a manometer; (4) drill test holes; (5) measure static pressure in the system; (6) record the static pressure; and (7) analyze the data and perform maintenance indicated. Several common sources of trouble are illustrated.

1220 Kick the Fumes and Dust Out, but -- Save the Heat! W.W. Gaylord. Plant Eng. 4, 46-47 (Mar. 1950).

In many plants the removal of large quantities of dust or fume-laden air means that equally large quantities of outside, unheated air will rush in to replace it. Heating the additional air in cold weather often entails a cost that is large in proportion to the ordinary heating cost. The author here presents several schemes for the introduction of outside air without straining the heating plant. Recirculation can be used when dust is the only contaminant. When the contaminants cannot be filtered out, the solution is to introduce cold air around the source of fumes so that it goes directly into the exhaust as a large part of the exhaust air. One variation of this method is to pass the cool air between the walls of a double overhead hood so that it blows on the edge of the tank or other fume source and in and up through the inner hood. The small additional warm air to the building should enter through a thermostatically heated duct. Another method is that of heat exchange, but it is rarely practicable because of the large heat exchange surface necessary. The article is illustrated with drawings.

1221 Tailpipe Exhaust Systems for Garage Ventilation. M. Sheinbaum and A.C. Stern. Monthly Rev., New York State Dept. Labor 29, 25-28 (July 1950).

Experimental work leading to the establishment of design factors for tailpipe exhaust systems for automobile, truck and bus garages is described and a design procedure recommended. -- Editor's Summary

COMMUNITY AIR HYGIENE

1222 Repcal Brass Installs Unique Fume Control System. Anon. Western Metals 8 32-33 (March 1950).

The Repcal Brass Manufacturing Co. of Los Angeles maintains ten Fisher furnaces. Although it apparently was not in violation of the Los Angeles regulations the margin of safety was not large and improvements were sought. A slag cover method gave some improvement but did not provide a sufficiently large safety factor. The method adopted utilized a hooding system attached to the furnace, and operating only during pouring. The damper is opened and closed automatically by the tilting of the furnace. The oxides are collected in an ordinary bag system. The particulate matter has been reduced to 0.125 lb. per hr. per furnace, and worker efficiency has been increased.

1223 Los Angeles Foundrymen Test Air Pollution Control Equipment. T.L. Harsell, Jr. Western Metals 8, 25-27 (March 1950).

The Los Angeles air pollution regulations as amended April 1949 call for a "mass rate" standard of air pollution according to which the total allowable discharge should in no case exceed 40 lbs. per hour (from 30 or more tons processed per hour), and is graduated from there down to 4.14 lbs. allowable discharge from one ton processed. The gray iron foundry industry consists of 54 small operating foundries. Three tests were made on typical cupolas, with the following results:

RESULTS OF TESTS TAKEN DURING THE MELTING PERIOD

	Cupola A	Cupola B	Cupola C
Inside diameter at melting zone--inches	48	37	48
Vol. of emissions--cu ft/min--stack cond.	65,000	20,400	37,000
Temperature of stack--°F.	1188	1656	775
Particulate matter--lb/hr	196	69	107
Allowable loss--lb/hr	12.1	9.5	15.3
Zinc oxide--grains/std. cu ft	0.008	0.009	0.003
Lead--grains/std. cu ft	0.006	0.010	0.003
Sulfur content (SO_2)--% by volume	0.002	0.012	0.013
Blast volume--cu ft/min	4600	2300	3600
Melting rate--tons/hr	5.52	3.9	8.3
Particulate size--above 50 microns--%	86.30	46.88	72.32
Particulate size--below 50 microns--%	13.70	53.12	27.68
Particulate size--below 10 microns--%	5.50	23.85	12.46

It is apparent from the above table that the loss of particulate matter is in every case much greater than the total allowed loss, although the harmful constituents listed are well below their respective m.a.c's. To attempt to remedy this condition, several types of air cleaning apparatus embodying the

best recommendations of their manufacturers were applied. They included wet scrubbers and bag collectors, and an electrical precipitator preceded by a wet scrubber was to be tried at the time of publication. Other processes are to be tried as they develop, but the conclusion is that at present there is no known collector which will solve the problem and still be within the economical limits of the foundries.

1224 Contamination of the Atmosphere by Sulfur Dioxide from Mineral Piles at the Coal Mines. D.N. Kalyuzknyi, S.A. Davydov, L.G. Dukarskaya and M.B. Aksel'rod. Gigiena i Sanit. No. 5, 19-24 (1950) Russian.

Sulfur dioxide which evolves from the mineral by-product piles from the reactions which take place in such aggregations under the influence of air and moisture (as well as ozone) may reach 2 - 11 mg. per cu. m. proportion in the vicinity of such piles. Pyrites is responsible for the greater fraction of such sulfur dioxide. The concentration drops off rapidly with distance but the sulfur dioxide may still be detectable at several hundred meters from the site. The location of living quarters, etc.,must be governed by these considerations.
Chem. Absts.

1225 Respiratory Tract Allergic Effects from Chemical Air Pollution. F.W. Wittich. Arch. Ind. Hyg. & Occ. Med. 2, 329-334 (Sept. 1950).

The author calls attention to the fact that air-pollution producing allergenic effects on the respiratory tract is not confined to chemical contaminants which may be partially controlled by local measures. The organic material disseminated as fumes and particulate matter from the manufacture of linseed oil, lead pencils, paper and a number of other products, as well as the dust from cotton gins, flour mills, or where there is storage or handling of grains, are common causes of respiratory allergies. The smuts, which infest grains and other vegetable products are found in numerous quantities in the Northwest grain belt area. The author has found from long, systematic study that the common atmospheric mold fungi, smuts, rusts, and other allergens infesting the grains, and grain and feed mill dusts, including insects, are partially responsible for respiratory allergies in the Northwest area. Other offending allergenic agents are: the haptens, which consist of conjugated proteins; and numerous insecticides in common use. Other substances which have been known to cause asthma are listed. The author's investigations, which included consultations with botanists, plant pathologists, physiologists, immunologists, and chemists lead to the opinion that it is the complex combination of chemicals and proteins in the organic dusts which is responsible for the symptoms in the allergic patient. A plan for controlling the increasing pollution of the air is outlined.

More than ten per cent of the nation's population is concentrated within the city limits of New York, Chicago, Philadelphia, Los Angeles and Detroit. The greatest density of population among the 48 states in 1950 is in Rhode Island, with 743 persons per square mile.

ACCIDENTS AND PREVENTION
(Fire and Explosion Hazards, Etc.)

1233 Extinguishing Fire with Carbon Dioxide in the Valier Mine, Valier Coal Co., Valier, Franklin County, Ill. J. Westfield. H.C. Brumbaugh, and R.W. Whittaker. Bur. Mines Inf. Circ. 7563 10pp. (April 1950).

Attempts to extinguish a mine fire of electrical origin by sealing the fire area and also by flooding the fire area with water were unsuccessful. The seals were rebuilt and carbon dioxide was introduced into the fire area. Within approximately one hour, the south seal had cooled and only a small volume of smoke issued from the fire. The authors believe that the fire was extinguished approximately eleven hours after the first carbon dioxide was admitted. -- Condensed from Authors' Summary and Conclusions

1234 Recent Rock Dusting Experiments for Arresting Coal-Mine Explosions. I. Hartmann, J. Nagy, H.C. Howarth and A. Sachs. U.S. Bur. Mines. Rept. Invest. 4688, 16pp. (April 1950).

Two methods of rock dusting, other than mechanical or hand distribution at the desired locations, have been in limited use in mines for some time, and the results of investigations of these methods are presented in this Report. Both are more economical and convenient in small mines and in thin beds. The first method is to distribute the dust by use of a permissible explosive; for instance, to cover a stick of explosive on a room floor with two opened bags and to fire the explosive. The procedure is repeated at desired intervals until the entire area is dusted. The study indicates that under properly controlled conditions, bags of rock dust can be dispersed comparatively effectively by that means without igniting gas or coal dust. However, gas explosions can result from improper placement of explosives. This method is not recommended officially. The second method is to place bags of rock dust at intervals along the wall, equipped with a device that will burst the bags and scatter the contents when an explosion occurs. A limited number of tests indicate that a properly designed system of this kind can suppress coal dust explosions; however, the study has not progressed far enough to permit proposal of the system for practical use.
-- Condensed from Introduction

1235 Observations of Safety Practices and Conditions in Japanese Coal Mines. R.S. Warncke. U.S. Bur. Mines, Inf. Circ. 7542. 38pp. (Dec. 1949).

This report is based primarily on a study of safety conditions and practices followed in the coal mines in Japan. The fatal and nonfatal injury rates are high, although all mines visited were attempting to prevent accidents and explosions. Commendable safety innovations were observed at several mines. Safety in all cases is management's responsibility alone; collaboration between management and worker does not exist in Japan. The Japanese worker is fatalistic by nature and has little, if any, noticeable safety consciousness. Training in accident prevention is the greatest need.
-- Condensed from Author's Summary

MISCELLANEOUS

1236 You Breathe Too Much for Your Own Good. B.F. McDonald. Safety Eng. 100, 18-20, 47. (Sept. 1950).

The author interprets this eye-catching title to mean that the lungs are too efficient; that dusts, fumes and mists are inhaled with the air. The fundamentals of the effects of dust and of the use of respirators are presented briefly.

1237 Paracelsus. The 1950 Ramazzini Oration. A.J. Lanza. Ind. Med. & Surg. 19, 441-443 (Sept. 1950).

This is an account of the life of Paracelsus, who in the 16th century had a good knowledge of diseases of miners and of the industrial conditions causing them. He was opinionated and quarrelsome and out of step with his times, and did not recognize the importance of environment as did his contemporary Agricola, but he helped to establish industrial medicine as a branch of medical science, and his influence persisted for many years.

1238 Industrial Safety Gloves. Brit. Standards Inst., London, S.W. 1. Brit. Standard 1651 (1950) 36pp. 4 shillings.

This booklet gives a description of seventeen types of safety gloves, made of leather, rubber, felt, polyvinyl chloride, and cotton, and the purposes for which they are used. The size, materials, and manufacture of each are specified. Methods of test and recommendations for storage of rubber gloves are given. -- Chem. Absts.

Steel is Literally Cheaper than Dirt!

If you lived among the cliff dwellers of New York City, and if you wanted a little potting soil to put around your geranium plants on your window sill, you could buy it at your neighboring seed store for seven cents a pound -- and that's twice as much as some finished steels would cost you. Eggs, butter and meat? Heavens, No! They cost from twenty to thirty times as much as steel. There is literally nothing in the grocery store at home that can be bought for as little as 3 1/2 cents a pound -- not even the commonest garden vegetables, nor flour, nor sugar, nor potatoes, nor anything else on the shelves.

-- Benjamin F. Fairless

INDEX

INDEX (Cont'd)

Document Review For Confidentiality

300

IN RE: ABRAMS

November 1992