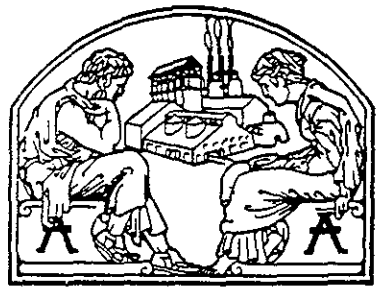

Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL --- decisions and trends

JUNE, 1952
(Vol. 16, No. 6)

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

FOUNDATION FACTS

INDUSTRIAL HYGIENE FOUNDATION

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

Volume 14 June, 1952 No. 6

DR. WEIDLEIN HONORED

Dr. Edward R. Weidlein, President of Mellon Institute, was the recipient of an honorary doctor of science degree from the Philadelphia College of Pharmacy and Science at the annual commencement on June 9. The degree was conferred upon Dr. Weidlein "in appreciation of his life-long services in scientific research implemented to industry."

TALKS BY STAFF MEMBERS

Dr. C. Richard Walmer, Managing Director, participated in a panel discussion on medical and health services for the small industrial plant at the annual meeting of the Ohio State Medical Association, held in Cleveland, Ohio, on May 21.

Dr. H. H. Schrenk, Research Director, gave an address entitled "A Scientist Views the Problem of Air Pollution" at the second National Air Pollution Symposium held in Pasadena, Calif., May 5 and 6. Mr. W. C. L. Hemeon, Engineering Director, presented a paper on air pollution at the New England Health Institute held at the University of Connecticut at Storrs, Conn., on June 19.

PRESIDENT'S CONFERENCE ON INDUSTRIAL SAFETY

Mr. Harry K. Anderson, Vice President of General Motors Corporation, and a member of the Board of Trustees of the Foundation, made a talk on "Safety Is Good Business" at the President's Conference on Industrial Safety held in Washington, June 2-4. Staff members in attendance at the Conference were Drs. C. R. Walmer and H. H. Schrenk.

ADDITIONS TO FOUNDATION'S STAFF

Dr. John F. Osterritter has joined the staff of the Foundation as assistant to the Medical Director for the next two years while working for his doctorate in industrial medicine at the Graduate School of Public Health, University of Pittsburgh. Dr. Osterritter graduated from the University of Pittsburgh School of Medicine in 1950 and received his Master's Degree in Public Health last month. Mr. Harold Ide, who received his B.S. from the University of Pittsburgh, has been added to the staff as a research assistant and will work in the field of air pollution. William Crawford, graduate of Thiel College, will be with us as a summer assistant and will also work on air pollution. Michael Cerreta, who was on military leave and served with the Marine Corps in Korea, has recently returned to the Foundation as a laboratory assistant.

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Industrial Hygiene Foundation
4400 Fifth Avenue
Pittsburgh 13, Pennsylvania

INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

601 Residency Program--Medicine in Industry.

The inauguration of a residency training program in Medicine in Industry was recently announced by the Medical Department of the Standard Oil Co. (N. J.). The program has two major objectives: first, to provide practical experience and training for qualified graduate physicians to fit them for practice in industrial medicine; and second, to help qualify the candidate for specialist certification or degree. At least one, or preferably two, years' internship in an approved hospital is required. The resident will be considered a temporary employee and will receive a liberal compensation. The residency will include 6 months in the medical departments of the company and 12 months in the medical department of the Lago Oil and Transport Company in Aruba, Netherlands, West Indies. The first physician to participate in the program left recently for Aruba.

-- Ind. Med. & Surg., May, 1952.

602 AEC Sets Up Industrial Hygiene Training Program.

The Atomic Energy Commission has inaugurated a one-year fellowship training program for industrial hygienists, starting in the fall of 1952. If qualified candidates can be obtained, up to four will be selected. The stipend will be $1,500 per annum if single, with additional allowances for wife and children. The Commission will not be obligated to provide the applicant with employment upon completing the training, nor will the applicant be obligated to seek employment with the Commission. All candidates would be required to have a security investigation. Applicants must have a degree in engineering (preferably chemical), chemistry or physics. Application blanks may be obtained from Mr. Eisenbud, New York Operations Office, U.S. Atomic Energy Commission, P.O. Box 30, Ansonia Station, New York 23, N. Y.

603 Knudsen Award to Dr. Burnell.

The Industrial Medical Association presented its 14th Annual Knudsen Award to Dr. Max R. Burnell of Detroit, Michigan, Medical Director of the General Motors Corporation, at the recent Industrial Health Conference.

in Cincinnati. The award is given for the year's outstanding contribution to industrial medicine. Dr. Burnell was cited for the part he played in General Motors' contribution of over $1,500,000 to the University of Michigan for the establishment of the Institute of Industrial Health.

604 Dr. Greenburg Wins Cummings Award.

Dr. Leonard Greenburg, Director of the Division of Industrial Hygiene and Labor Standards, New York State Department of Labor, was presented the Cummings Award, highest honor of the American Industrial Hygiene Association, at the Industrial Health Conference in April at Cincinnati. Dr. Greenburg was selected for the award because of his "great work on the medical, engineering, and administrative aspects of industrial hygiene."

The Strongest Loyalty.

The motivating effect of loyalty was discovered by Army psychologists during the last war. They learned that in battle a man's motivations are stripped away, one by one, until a hard core, transcending patriotism, hatred of the enemy, or personal pride, is reached. This hard core, the Army says, is loyalty to a particular individual--an officer or a buddy--or to the men in the platoon. When nothing else is left, a soldier will still fight and face death rather than suffer the feeling that he let "the other guys" down.

The executive who really gets results shows a personal interest in the people working under him and makes them feel secure. Their loyalty to him makes them want to take responsibility rather than let him carry the whole load. He enables them to see the opportunities ahead, and as a result key men give completely of themselves in making reality out of possibilities.

--D. H. Sunderlin in Supervision, Sept., 1951

OCCUPATIONAL DISEASE STATISTICS

605 Occupational Disease Statistics.

	Conn.[1] May 1952	Ind.[1] May 1952	Mich.[1] April 1952	Wisc.[1] April 1952	Total
Allergy				6	6
Asbestosis (Dust-asbestos)	1				1
Bronchitis (Acids)	1				1
Burns				2	2
Carbon monoxide poisoning				1	1
Chlorine gas poisoning				1	1
Dermatitis	87*	16**	19	35	157
Hernia			2		2
Lead poisoning				1	1
Lymphangitis				1	1
Miscellaneous				2	2
Miscellaneous (Caisson disease)			19		19
Nitroglycerin poisoning				1	1
Pneumoconiosis		1	5		6
Poisoning (Lead and compounds)	1				1
Silicosis		1	10		11
Silicosis (Dust-Free Silica)	1				1
Silico-Tuberculosis				1	1
Skin Infection				5	5
Skin Irritation				4	4
Upper respiratory infections				2	2
Total	91	18	55	62	226

1. Occupational disease cases reported to the Board of Health.

* Abnormalities of Humidity, Chlorinated Hydrocarbons, Dust-inorganic, Dust-metals and compounds, Friction, tension and repeated motion, Infection, Lead and compounds, and Synthetic resins and chemicals caused one each; Phenol and phenolic compounds, and Poisonous plants caused two each; Alkalies caused three; Chromium and compounds, Oil and solvent (combination exposure), and Soap solutions, glue, etc. caused four each; Solvents(N.O.C.) caused nine; Nitro and amino compounds caused nineteen; and Oils, fats and waxes caused thirty-two.

** Leather, Penicillin, and Wood caused one each; Oil and Rubber caused two each; Mica caused three; and Synthetic resins caused six.

LEGAL DEVELOPMENTS

606 Industrial Hygiene. Supplement to Regulations of the West Virginia Board of Health, Chapter 6. 8 pp. (1952).

The regulations published here were adopted by the West Virginia Board of Health in December and become effective July 1, 1952. They include the general rule that employees shall not be exposed to atmospheric contaminants in concentrations hazardous to health, and specify the usual methods of avoiding such exposure. Threshold limit values for about 100 contaminants are given in an appendix as a guide in evaluation and control. Other subjects covered are protection from infectious or skin irritating agents, illumination, housekeeping, sanitation, and other physical conditions. General specifications for local exhaust ventilation and personal protective equipment are given. It is recognized that the threshold limit values are subject to revision, and interested and responsible parties are asked to contact the Board of Health to ascertain the most recently accepted values.

607 Molder Struck by Flying Piece of Machinery--Causal Connection Between Accident and Tuberculosis and Silicosis--Findings of Fact--Substantial Evidence Test.

The Board's finding of fact and resulting award will be reversed where there is no substantial evidence to support them. Here, the Board had after extended litigation covering a period of years accepted the claimant's contention that a silicotic and tubercular condition was the result of a 1943 industrial accident although the weight of the medical testimony was clearly contradictory to such a finding. Upon a rationality review of the evidence the lower court's judgment reversing the Board and dismissing the claim is affirmed. Substantial evidence means such evidence as reasonable minds might accept as adequate to support a conclusion. Matter of Kopec v. Buffalo Brake Beam-Acme Steel & Malleable Iron Works., New York Court of Appeals. April 17, 1952.--CCH

608 Asbestosis--Total Disability--Higher Wage Earned as Policeman than Earned in Prior Employment--Statute Construed.

The occupational disease statute is construed as entitling an employee to total disability compensation where the employee is disabled and incapacitated as a result of asbestosis from performing normal labor in the last occupation in which remuneratively employed although he is subsequently able to earn a greater wage as a policeman than he did in his last occupation. Honeycutt v. Carolina Asbestos Company, N.C. Supreme Court. No. 523. April 30, 1952. --CCH

609 Silicosis--Statute of Limitations--Notice of Disease from Medical Authority--Proof of Disability.

A claim for disability based upon the occupational disease of silicosis which was filed in 1949 was not barred by the statute of limitations although the employment terminated in 1944 where the evidence showed that the claimant was not informed by medical authority of his affliction until 1949 and where the disability occurred within two years of the termination of the employment. Non-medical testimony is admissible to show the claimant was disabled where the presence of the disease is shown by medical testimony. Singleton v. D. T. Vance Mica Co., N.C. Supreme Court. No. 239. March 26, 1952. -- CCH

610 Death Benefits--Silicosis--Effect of Amendment Changing the Time Following Last Exposure in which Death must Occur.

The dependents of an employee who was last exposed to silica dust in 1942, and died from silicosis in 1948, are not entitled to death benefits by virtue of a 1945 amendment to the Act changing the time following the last exposure in which death must occur from two years to eight years. The amendment has no retroactive effect and therefore the claimant's cause of action matured two years after the last exposure which preceded the date of the amending provision. State ex rel. Bessler v. Industrial Commission of Ohio. Ohio Supreme Court. No. 32,768. April 2, 1952. -- CCH

BOOKS, PAMPHLETS AND NOTICES

611 Poisoning. A Guide to Clinical Diagnosis and Treatment. W. E. von Oettingen. P. B. Hoeber, Inc., Med. Dept. of Harper Bros., 49 E. 33rd St. New York 16, N.Y., 524 pp. $10.00 (1952).

The unique arrangement of the book is designed to save the physician's time. In the first main section, on clinical and laboratory diagnosis, signs and symptoms are classified by body systems and discussed one by one as they present themselves in the course of a clinical examination; and laboratory tests for numerous poisons in the body are described. Under each sign or symptom the physician will find a list of toxicants which may be responsible for the change he has observed. The largest section of the book then offers an alphabetical index of 461 poisons. Under each poison is a concise synopsis of the clinical picture and the treatment required. An introduction deals briefly with classification and diagnosis of poisoning, medico-legal responsibilities, and emergency measures and equipment. Another chapter discusses management of the patient, including removal and detoxification of the offending substance, and symptomatic treatment. -- FFR

512 Engineering in Public Health. H. E. Babbitt. Civil Engineering Series, McGraw-Hill Book Co., 330 W. 42nd St., N. Y. 36, N. Y., 582 pp. $8.00(1952).

This book emphasizes the breadth of knowledge required by the engineer in public health, showing that it entails a knowledge of civil and mechanical engineering, as well as the specialized knowledge required in control of environment. Early chapters are devoted to an introduction to the entire field of public health work. Diseases and their control are discussed with emphasis on the duties of the engineer. Food, milk, water, sewage and other wastes, animals and other factors in causing and conveying disease are discussed in detail. Ventilation and heating, light, sound and odor, sanitation of city air, industrial hygiene and air disinfection, are each given a chapter which includes up-to-date knowledge of the subjects. Other chapters are devoted to phases of public sanitation. The final chapter discusses sanitary engineering in disasters, in time of peace and in atomic warfare. -- FFR

513 Air Pollution and Smoke Prevention Association of America, Inc., Proceedings, 44th Annual Convention, Roanoke, Va. (1951) Available through Association, Mellon Institute, 4400 Fifth Ave., Pgh. 13, Pa.

The papers presented at this convention and the discussion following are published in this report. They include: High Temperature Gas Cleaning, by J. M. Kane: Achieving Good Combustion in Incinerators, by J. K. Blum: Economics of Fly Ash Collection, by G. A. Gallaer; Application of Electrical Precipitation Equipment, by L. M. Roberts and C. E. Weaver: Engineering, Not Emotion, Will Correct the Smoke Problem, by A. L. Brown; Consulting Service for Small Plants, by E. C. Payne; Factors Affecting Dust Emission from Boiler Furnaces, by E. R. Kaiser: Controlling Fluoride Emissions from Acidulation of Phosphate Rock, by A. B. Pettit: Smelter Fume Control, by J. P. Jenny; Air Pollution Abatement Activities, by R. F. Schultz; The Atmospheric Concentrations of Sulfur Dioxide in St. Louis, by J. J. Schueneman (see IHF abstract 107, Jan. 1951); Automatic Instruments for Air Pollution Measurements, by W. C. L. Hemeon; Instrumentation for the Recording of Air Pollution Levels, by S. R. Hall; Recent Identification of Atmospheric Contaminants in the Los Angeles Basin, by G. P. Larson (see IHF abstracts 1303 and 1304, Dec. 1951); Supply of Solid Fuels in Defense Emergency, by C. W. Connor; What a Power Plant Stack is Required to Do, by E. L. Wolf; Studies of Stack Discharge under Various Conditions, by W. F. Davidson; and Design of a Large Modern Stack, by C. V. Williamson. Panel discussions were also held on railroad smoke abatement programs, and handling of air pollution complaints.

INDUSTRIAL MEDICAL PRACTICE

614 Correlation of the Occupational and Environmental History with the Clinical Findings. R. F. Schneider. Med. Bull. (Stand. Oil N.J.) 12, 207-214 (April, 1952).

An important part of the work of the modern industrial physician is the investigation of the occupational histories of individuals and their correlation with clinical findings. In the field of accidents, this task is simple, except the study of the accident-prone worker. It is also comparatively simple where the exposures and the toxicity of the materials in the environment are known. However, the correlation is much more involved and time consuming when the type of exposure is unknown or when the toxicity of known materials has not been established. A group of cases is described in which the usual physical and laboratory examinations gave no evidence of lead poisoning, but more elaborate tests showed increased lead absorption which would have led to clinical intoxication if not detected. Another case concerns an office worker who was found on thorough examination to have a myeofibrosis of the bone marrow which was traced to occasional exposure to benzene which he did not mention or realize in the routine examination. The health of executives and office workers should be studied carefully, not only on account of exposures like that just mentioned, but also in regard to psychosomatic conditions arising from mental strain and changes of jobs and responsibilities. The first physical examination should be thorough, including a complete occupational history. Subsequent changes of jobs or environment should be recorded in addition to the results of the first examination.

615 Constructive Medicine. V. D. L. Schrader and F. F. Albornoz. Med. Bull. (Stand. Oil N.J.) 12, 235-256 (April, 1952).

The authors define constructive medicine as follows: "The application to the individual of medical science as a whole which, by carrying out complete studies, brings to light the presence of disease in its potential stage, diagnoses the incipient or fully developed conditions and carries out treatments with the object of obtaining an optimum health condition; maintaining this through permanent medical supervision so as to prevent the appearance of, or stop, or slow down the evolution of degenerative diseases, and consequently increasing the individual's capacity to work and prolonging his intellectual and physical life." Principles and practice of constructive medicine are discussed. The program described is being conducted on a small development scale by branches of the Esso Medical Department.

616 Relationships between Industrial and Private Physicians. Code of Ethics. Lake County (Indiana) Medical Society. Ind. Med. & Surg. 21, 243-244 (May, 1952).

This suggested code covers the respective duties of the industrial physician and the private practitioner in connection with pre-employment examinations, occupational diseases and injuries, health supervisory programs, medical testimony before the State Industrial Board, and related subjects.

617 First Aid Guide for the Small Plant. The Detroit Plan Manual. Detroit Ind. First Aid Advisory Committee. Ind. Med. & Surg. 21, 229-242 (May, 1952)

The guide designed by the Detroit Industrial First Aid Advisory Committee is reproduced here in full. The outline is based on the American Red Cross "First Aid Instructor's Manual" with changes made where a different first aid procedure is indicated for industry. It is the basis of a course taught by the Adult Education Department of the Detroit Public Schools. All phases of first aid work are presented in outline form with illustration. It includes not only first aid for injuries, but also deals with common medical emergencies, miscellaneous medical conditions (boils, colds, hernia, toothache, simple headache), effects of excessive heat, poisons and civil disaster.

618 Industrial Sickness Absenteeism, First Two Quarters, 1951. W. M. Gafafer. Pub. Health Repts. 67, 450 (May, 1952).

A review of the respiratory group of diseases by corresponding quarters for 10 years, 1942-51, shows the 1951 first- quarter rate 15% above its 10-year mean and the second-quarter rate 8% below its mean. The absenteeism rate for all diseases for the first quarter of 1951 is 168.4 absences per 1000 male workers, representing a 29% increase over 1950. The increase in respiratory diseases is largely responsible for the difference. The rate for the second quarter for all diseases is about the same in 1950 and 1951. Data for classes of diseases and industries are tabulated.

619 Clinical Ballistocardiography. Value and Limitations of the Portable Ballistocardiograph in the Detection of Heart Disease. S. C. Franco. Ind. Med. & Surg. 21, 197-205 (May, 1952).

In the presence of cardiovascular disease, nearly 90% of the tracings may be abnormal. However, the presence of an abnormal tracing is not cause for acute alarm, because such tracings occur in persons

45 to 50 years of age, especially in those who are overweight. The combination of an abnormal ballistocardiogram and an abnormal exercise test is an indication for definite health counseling including weight reduction.

-- Cond. from Author's Summary

620 A Comparison of Working and Nonworking Cardiac Patients.
L. J. Goldwater L. H. Bronstein, Beatrice Kresky et al.
Arch. Ind. Hyg. & Occ. Med. 5, 485-489 (May, 1952).

In a group of 580 cardiac clinic patients whose cardiac lesions had been present from 5 to 15 years, 81% continued working and 19% stopped work permanently after heart disease was diagnosed. The individuals who did not work were considerably older and had had heart disease for a shorter period than those who continued working. A majority of this group has been employed as domestics or unskilled laborers, and some of them might have continued working if their occupations had been in keeping with their cardiac capacity. The functional capacity of the heart at the time of diagnosis was diminished to a greater extent in the nonworking than in the working group. Observations on a number of factors led to the conclusion that there is no evidence that continued employment has an adverse effect on the course of heart disease.

-- Cond. from Authors' Summary

621 Comments on Death and Resuscitation after Electric Shock in New Zealand.
T. O. Garland. New Zealand Med. J. 50, 579-584 (Dec. 1951)

Numerous cases are cited from various reports, in which electric shock victims were revived by artificial respiration. In one case 8 hours were required; in the others the maximum was 90 minutes. A fatal shock does not always produce death or even unconsciousness immediately. The author believes it is possible that a man who is able to talk and then vomits and becomes unconscious is the victim of a heat stroke caused by resistance of the tissues, with paralysis of the respiratory center. When electric shock acts directly on the heart it may produce fibrillation or complete arrest. Stopping of the heart beat does not necessarily indicate death. It is advisable to continue artificial respiration two hours after all signs of life have ceased. It would add to our knowledge if an electrocardiogram were taken in any case of apparent death from electric shock when the patient is admitted to the hospital.

-- Cond. from J. Am. Med. Assn.

622 The Influence of Heat and Nutrition on Fatigue in Industry. L. Brouha. Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 63-74 (1951).

The author first shows the effect of work on oxygen consumption and on the pulse rate, with the aid of a number of charts. The marked effect of environmental temperature on the pulse rate during work is shown in another chart. The results point to the need of ventilation, rest periods, arranging the work in relation to the shift, and mechanization of jobs. The effect of vitamins is next discussed. It has been shown that adequate vitamin B supply is essential in hard work, and that a large supply of vitamin C is beneficial. Finally, salt loss is considered. The author does not advocate the use of salt tablets, but rather the addition of plenty of salt to the food, and has found that practice successful.

623 Influenza - Virus Vaccination in Industry. C. F. Yeager. Arch. Ind. Hyg. & Occ. Med. 5, 365-367 (April, 1952).

An outbreak of respiratory infection resembling clinical influenza was observed in late February and March, 1951, among workers at the Remington Arms Company, Inc., Bridgeport, Conn. Reports from other industries in Bridgeport indicated similar observations, and there was an exceptionally high incidence of absenteeism.

If it can be presumed, in the absence of a laboratory diagnosis designating the specific virus, that the outbreak was due to the A-prime influenza virus as was found in other communities during this period, the results obtained in this series of cases strongly indicate that the subcutaneous injection of 1 cc. of influenza virus vaccine containing 22.22% FM-1 significantly reduced the incidence and exerted a striking protective effect against the disease. -- Author's Summary

624 Occupational Injuries of the Eye and Their Treatment: Medications. W. B. Matthew. J. Internat. Coll. Surgeons 17, 187 (Feb., 1952).

Matthew outlines the experience he has had in the treatment of occupational ocular injuries, with emphasis on the fact that when surgical treatment is necessary it should be handled by the simplest possible technique, one that requires a minimum of manipulation, either of the eye or of its adnexa. Similarly, that form of medication should be used which is mildest and gives the patient as little discomfort as possible. Two lists of drugs are given, one containing the medications preferred by the author and the other made up of alternative but less applicable preparations. The dangers associated with conjunctival allergic reactions to certain drugs are pointed out.

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

625 Problems of Asthma in Industry. W. C. Spain and V. J. Fontana. Arch. Ind. Hyg. & Occ. Med. 5, 478-484 (May, 1952).

There is no difference between industrial and nonoccupational asthma, except in its origin. Industrial types of occupational asthma may be classified according to etiology: (1) from inhaled substances, such as dusts, foods with allergenic odors, and chemical fumes or gas (the most common type); (2) from ingested foods; (3) from substances absorbed through the unbroken skin; (4) from infection, often a secondary factor. The workers most often subject to the industrial hazard of bronchial asthma are furriers, hat makers, rag sorters, barbers, workers in beauty shops, and groups who work with grains and grain dusts, such as bakers and millers. Asthma in these groups is discussed, and many other occupations involving exposure are listed. Diagnosis depends largely on a carefully obtained and complete history. The diagnostic skin-testing procedure should be employed to verify suspected factors and to search out undetermined causes. Drugs, dyes, chemicals, fumes, or odors do not lend themselves to this procedure. In specific treatment, the most important step is to break the contact between the patient and the specific causes established by diagnosis. This includes ventilation, isolation of the process, air-conditioning and exhaust systems, wet methods, and the use of protective masks if other methods fail. Methods of immunization are rarely successful. Nonspecific or symptomatic treatment of occupational asthma differs in no way from that of other types. A number of methods are mentioned. The use of steroid hormones, cortisone, and ACTH, sometimes gives dramatic relief.

626 Personality Appraisal of the Injured. H. Monheimer. Ind. Med. & Surg. 21, 206-212 (May, 1952).

A number of cases of personality disorders, such as narcissism, dependency, aggression, and anxiety, are discussed, with results of treatment and suggestions for similar cases. "Effective therapeutic efforts to promote recovery and restoration of normal functioning require a type of management based on a competent understanding of the psychological as well as the physical factors."

627 The Physician in Industry and the "Alcoholic" Worker. L. J. Wade. Arch. Ind. Hyg. & Occ. Med. 5, 368-374 (April, 1952).

Most industries are probably unaware of the magnitude and the cost of the problems among their "alcoholic" employees. The evaluation and treatment of such workmen is primarily a medical problem, which should be approached in the same calm, unbiased, and helpful manner as any other health problem. On the basis of a careful medical evaluation, guidance can be provided to both employee and management in the handling of individual problems. Each medical department in industry should acquaint itself with the local resources for dealing with the problem.

-- Author's Summary

628 Patissier's Occupational Diseases. F. Ronchese.
Arch. Ind. Hyg. & Occ. Med. 5, 347-353 (April, 1952).

The author reviews a 493-page book on occupational diseases, published by P. Patissier in 1822. It includes large portions of the text of Ramazzini's "De Morbis artificium diatriba" with additional material based on Patissier's observations.

SKIN DISEASES AND BURNS

629 The Therapeutic Management of Occuaptional Dermatitis.
Frances Pascher. Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 45-50(1951)

The author first discusses prevention by protective clothing and barrier creams, proper methods of cleansing the skin, and the immunological approach. In therapy, a cardinal principle is that the more severe the eruption, the milder should be the treatment. Complex prescriptions and potent sensitizers should be avoided. Patients should be instructed carefully in methods of applying the treatment. Formulas for remedies for various forms of dermatitis are recommended, and cases are described.

630 Therapeutic Dermatitis. C. G. Lane.
New Engl. J. Med. 246, 77-81 (Jan. 17, 1952).

Therapeutic or overtreatment dermatitis is becoming a major problem. It is generally due to sensitization. Sulfonamides and mercury have been responsible for a number of such cases, but they are now less frequently used for local application. Skin that has been injured is more sensitive than normal skin, and agents or vehicles that alter the normal pH of the skin change or remove the lipoid coating, damage the horny layer or react with each other may enchance the sensitization. Many cases of ivy poisoning, athlete's foot, (and industrial dermatitis), have been made worse by treatment. The first factor in treatment is identification and elimination of the causal chemicals. A fixed formula often fails, and it is essential to consider the age and type of skin, the location, the severity of manifestations, and previous applications.

-- Cond. from J. Am. Med. Assn.

631 Dermatitis Caused by Organic Compounds in Shower Water Supply. G. M. Hama. Occ. Health 12, 73 (May, 1952). (USPHS)

Cases of dermatitis in an industrial plant were traced to a shower in which live steam was mixed with cold water. It was found that a number of salts and some organic material, including cyclohexamine, had been introduced into the boiler, and cyclohexamine, a skin irritant, was found in the shower water. The condition was corrected by using an indirect steam coil hot water tank.

632 Chrome Ulcers of the Skin and Nasal Septum and Their Relation to Patch Testing. Walter F. Edmundson. J. Invest. Dermatol. 17, 17-19 (1951).

Of 285 workers in a chrome ore-processing plant, 69.5% had chrome ulcers or scars, and 61.4% perforated septa; there seems to be a direct relationship between severity of exposure to chromate dusts and the rate of attack upon the septum. Patch tests showed no evidence that chrome ulcers or perforated septa have a tendency to sensitize the individual to potassium dichromate. -- Chem. Absts.

633 Industrial Dermatitis Due to Contact with Brass. G. E. Morris. New Engl. J. Med. 246, 366-368 (March 6, 1952).

Five cases of dermatitis from contact with brass are reported as the first instances of such a condition. The source was confirmed by patch tests, using carefully cleaned brass, also copper and zinc. The reaction to copper was positive in all cases, and positive to zinc in one case. The dermatologist should consider brass as a cause of some of the unusual dermatoses.

634 Eczema of the Hands. F. E. Cormia. Canad. Med. Assn. J. 66, 451-457 (May, 1952).

The author discusses the diagnosis and treatment of dermatoses of the hands, on the basis of the study of 150 patients. A classification of types of eczema of the hands is presented, including as one class contact dermatitis, both from hypersensitivity and from chemical irritation. The author considers the diagnosis of contact dermatitis simpler than some of the others, which may present a complex interplay of etiologic factors.

CHEMICAL HAZARDS

635 Carbon Monoxide. Data Sheet D-Gen. 50. National Safety Council. Nat. Safety News 65, 40-41, 130-136 (May, 1952).

This data sheet concerns carbon monoxide as a poison only. The physiological effects and symptoms are described. The industries in which greatest exposure occurs are listed. Protection includes: (1) prevention of formation of the gas; (2) destruction of the gas as it is generated; and (3) use of protective equipment for workers. The concentration of carbon monoxide should never exceed 100 ppm for an eight-hour exposure, or 400 ppm for a one-hour exposure, in an atmosphere containing at least 19 % of oxygen. Monitoring devices are available and should be installed where carbon monoxide production is variable and likely to become excessive. Selection of suitable gas masks is important. First aid includes artificial respiration, inhalation of oxygen, removal to fresh air, and rest until the arrival of a physician. First-aid rooms should be equipped for blood testing. Education of employees is important.

636 The Health Hazards of Carbon Monoxide. H. L. Williams. Penna. Dept. of Health, Bur. of Ind. Hyg., Harrisburg, Pa. 4 pp. (1952).

Carbon monoxide is a hazard in many industries and in the home, garage, and on the streets. Its physiological action is described briefly. The principal means of prevention of exposure is adequate exhaust ventilation. Brief directions for first aid are given (see preceding abstract). A list of occupations in which exposure may occur is included.

637 Nitrite and Thiosulfate Therapy in Cyanide Poisoning. K. K. Chen and C. L. Rose. J. Am. Med. Assn. 149, 113-119 (May 10, 1952).

Experiments on dogs show that amyl or sodium nitrite and sodium thiosulfate have a potentiating action in detoxifying cyanides. The mechanism depends on (1) the successful competition for cyanide ions by methemoglobin with the respiratory enzyme, ferrocytochrome oxidase, and (2) the conversion of cyanide to thiocyanate. Results of clinical trials substantiate the efficacy of the nitrite and thiosulfate therapy in cyanide poisoning. Successful treatment in 16 cases is reported. To date this method of treatment has been used in a total of 44 cases, with 43 recoveries. The mortality statistics of cyanide poisoning in the continental United States, New York City, Los Angeles, and San Francisco, have been reviewed. The incidence is decreasing. -- Authors' Summary

638 Phosphorus Sesquisulfide Poisoning. J. F. Burgess Canad. Med. Assn. J. 65, 567-568 (1951).

Two cases of poisoning attributable to the use of friction matches are described. The toxic reaction is considered to be due to the inhalation of incomplete oxidation forms of phosphorus. -- Chem. Absts.

639 Toxicity of Sulfuric Acid Mist to Guinea Pigs. Mary O. Amdur, R. Z. Schulz, and Philip Drinker. Arch. Ind. Hyg. & Occ. Med. 5, 318-329 (April, 1952).

Guinea pigs were exposed to sulfuric acid mist for periods of from 8 to 72 hours. In the eight-hour exposures for animals a year and a half old the LD_{50} was 50 mg. per cu. m. and LD_0 was 20 mg. per cu. m. For animals 1 to 2 months old the figures were 18 and 8 mg. per cu. m. respectively. For exposures extended to 72 hours, the mortality did not increase with time when the concentration was below the LD_{50} level of 18 mg. per cu. m. Sulfuric acid mist has two distinct toxic actions: it produces laryngeal spasms and also causes deep-seated damage of the lungs. The first action depends upon the concentration of the acid much more than on the time of exposure. The severity of the lung damage is dependent on total dosage rather than on concentration alone. The lung damage is observed as long as a month after exposure.

-- Cond. from Authors' Summary

640 Diffuse Pulmonary Granulomatosis in Young Women Following Exposure to Beryllium Compounds in the Manufacture of Radio Tubes. Further Observations and Report of Nine Additional Cases. P. Slavin. Am. Rev. Tuberc. 65, 142-158 (1952).

The author has previously reported a number of cases of beryllium granulomatosis (see IHF Abst. 103, Jan. 1950). In this paper he reports 9 additional cases with postmortem examinations in 4 cases. Additional details of exposure are given.

641 The Health Hazards of Cadmium. E. J. Baier. Penna. Dept. of Health, Bur. of Ind. Hyg., Harrisburg, Pa., 3 pp. (1952).

The use of cadmium in industry and its toxic effects are discussed briefly. Preventive measures, including plant surveys and medical examinations, are recommended. A list of occupations which may offer exposure to cadmium and its compounds is presented.

642 Ammonium Dichromate. Chemical Safety Data Sheet SD-45. Manufacturing Chemists' Association, Inc., 246 Woodward Bldg., 15th and H Sts., N.W., Washington 5, D. C. 12 pp. (1952). 25 cents.

Ammonium dichromate is classed as a flammable solid. It decomposes at elevated temperatures, with self-sustaining decomposition at 225 °C. It will ignite if exposed to open flames or sparks, even at ordinary temperatures. In solution it may react slowly with certain organic materials; it can attack and weaken wool fibers. Its action on the skin, eyes, mucous membranes, and the respiratory system and its effect when ingested are much the same as those of chromic acid (see IHF Abst. 519, May 1951). This data sheet gives full directions for handling and storage, use of protective equipment, control of health hazards, and first aid measures. Ammonium dichromate can be handled safely if these directions are followed.

643 The Prophylactic and Curative Action of BAL in Experimental Chrome Ulcers. G. Farris and V. Sicca. Rass. med. ind. 20, 169-182 (March - June 1951). Italian.

BAL was chosen as an antidote of blister gas because it can fix the harmful arsenic compounds before they can combine with the tissue protein. It is hoped, therefore, that by an analogous action BAL will fix chromic acid and its derivatives before they can produce chrome ulcers. By a series of experiments on rabbits and on volunteers, described in this paper, the authors have been led to recommend a barrier cream of the water-insoluble type, with BAL added, for use by workmen who are exposed to the risk of chrome ulceration. -- Bull. Hyg.

644 Frequency and Types of Lead Poisoning in Neapolitan Industry. F. Iafanti. Folia Med. 34, 495-501 (1951) Italian.

The incidence of intoxication during 3 years was 7.1 per 1000. The symptoms were anemia, gastrointestinal disturbances with colic, neuropsychic reactions, various types of arteriosclerosis, and kidney disorders. Inability to work varied from 1 to 7 months. Treatment consisted in vitamins, hypotensor substances, nicotinic acid, and often in administration of BAL. The latter seems to be quite efficacious. -- Chem. Absts.

645 Riveters on Railroad Bridge Exposed to Lead Fumes. W. E. Park. Occ. Health (USPHS) 12, 66, 78-79 (May, 1952).

Riveters working on a railroad bridge were found to be exposed to lead fumes with a concentration of 8.2 mg. lead per cu. m., the allowable limit being 0.15 mg. per cu. m. Although the work was outdoors, the men were working in a confined space open only at the bottom. The lead came from the paint on the beams, which was burned off for about an inch on each rivet. No clinical studies were made, but a case of lead poisoning had occurred under similar circumstances. Respirators were impracticable in cold weather because of frosting. Portable blowers supplying heated air were recommended.

646 Peripheral Blood and Bone Marrow Studies in Experimental Osmium Poisoning. A. Masturzo. Folia med. 34, 27-41 (1951) Italian.

Osmium poisoning produced by inhalation of osmium tetroxide causes normochromic anemia in guinea pigs and is shown principally by the lowering of the erythrocyte count and an increased activity of the bone marrow during the intoxication. Extensive data on blood and bone-marrow analyses are presented. -- Chem. Absts.

647 Asthma and Dermatitis Caused by Chloroplatinic Acid. J. Marshall. S. African Med. J. 26, 8-9 (1952).

Chloroplatinic acid caused respiratory and cutaneous symptoms in a person in daily contact with the acid.

-- Chem. Absts.

648 Experimental Investigation into the Toxic Action of Cyclohexanone. C. Ceresa and C. Grazioli. Med. lavoro 42, 253-257 (Aug.-Sept. 1951) Italian with English summary.

Cyclohexanone ($C_6H_{10}O$) is used widely as a solvent in the manufacture of synthetic rubber and plastics and in other industries. Experiments have been carried out on guinea pigs to investigate its toxicity. Eight guinea pigs injected subcutaneously with 0.75 g. per kg. body weight died in 8 to 40 hours, with severe digestive disturbances. Six other guinea pigs given subcutaneous injections progressively increasing from 0.01 to 0.05 g. per kg. over a period of 80 to 100 days showed a hyperchromic type of anemia with a number of degenerative changes. Appropriate safeguards, therefore, are necessary against the risk of poisoning by this chemical wherever it is used in industry.

-- Cond. from Bull. Hyg.

649 Chronic Exposure to Nitroglycerin. Queries and Minor Notes. J. Am. Med. Assn. 149, 315 (May 17, 1952).

A brief note calls attention to the possible irritant effect of nitroglycerin on the skin, as well as systemic effects that may be caused by skin absorption. It can work under the nails and explode there.

650 An Unusual Case of Lower-Nephron Nephrosis Following Exposure to Carbon Tetrachloride. R. C. Partenheimer, W. J. Boyer, and D. S. Citron. New Engl. J. Med. 246, 325-328 (1952).

A seaman who had spent approximately two hours in a small enclosed room cleaning a generator with carbon tetrachloride sprayed from a 5-gallon can developed acute carbon tetrachloride poisoning followed by lower-nephron nephrosis. He had ingested whiskey immediately before and after the exposure. The oliguric phase of the poisoning was accompanied by rising non-protein nitrogen (of the serum), acidosis, and rising serum potassium (indicated by serum electrocardiographic changes). The specific gravity of the urine was high during the oliguric phase, and lower during the diuretic phase. The hyperkalemia was controlled by gastric lavage. The peak value of nonprotein nitrogen was 500 mg. per cc., a level exceeding that of any nonfatal case of lower-nephron nephrosis known to the authors. Recovery occurred within about two months after poisoning.

-- Chem. Absts.

651 Polymer-Fume Fever. D. K. Harris. Lancet 261, 1008-1011 (Dec. 1, 1951).

A brief description is given of polytetrafluroethylene, a new polymer with unusual properties and capable of producing a toxic fume at high temperatures (above 300°C.). Inhalation of this fume produces clinical features closely resembling those of metal-fume fever. Two cases in Britain are described, and two cases in America are noted. Exposure of rats to the vapor of the polymer caused respiratory irritation and subsequent pulmonary hemorrhage, which were confirmed histologically. Investigations so far have failed to reveal the exact nature of the toxic substance. The minute amount of copper present does not explain the clinical findings. The condition can be prevented by adequate exhaust ventilation. Treatment is mainly symptomatic, but the administration of oxygen is recommended.

-- Cond. from Author's Summary

652 Cutaneous Absorption of Phenol. M. V. Freeman, J. H. Draize, and Elsie Alvarez. J. Lab. Clin. Med. 38, 262-266 (Aug. 1951).

Phenol is rapidly absorbed and excreted following topical application. A single application of a 2.3% phenol in corn oil does not appear to affect the skin's ability to absorb phenol. Animals whose skin was irradiated with ultraviolet rays to a point of erythema and slight edema formation exhibited a retarded excretion of phenol. In the phenol-camphor and phenol-corn oil mixtures studied, urinary phenol values were in direct ratio to the phenol content of the respective mixtures. After treatment, animals with severely burned skin exhibited much higher values of urinary phenol than animals with intact skin, indicating a potential danger in the indiscriminate use of phenol compresses in severe burns.

-- Authors' Summary

653 Action of Dinitrophenol on the Organism at a Low Atmospheric Pressure. T. Terranova. Riv. ecol. 1, 279-289 (1950) Italian

The effects are described of the subcutaneous injection of 1 cc. of dinitrophenol solution (0.1 cc. dinitrophenol, 18 cc. 1% potassium hydroxide, 100 cc. 1.7% sodium chloride, and 82 cc. water) on the respiration, body temperature, and resistance to hypoxia of 6 guinea pigs. Dinitrophenol acted unfavorably on the autonomic system regulating the reactivity to hypoxia. -- Chem. Absts.

654 Chronic Oral Toxicity Tests of Methoxychlor in Rats and Dogs. H. C. Hodge, E. A. Maynard, and H. J. Blanchet, Jr. J. Pharmacol. Exptl. Therap. 104, 60-66 (1952).

Male and female rats were maintained on diets containing 0.0025, 0.02, and 0.16%, respectively, of the compound for two years without ill effects except that the highest dosage slightly retarded growth. Dogs were fed 20 to 300 mg. per kg. per day without apparent ill effects or tissue damage. -- Chem. Absts.

655 Poisonous Gases in a Plant Processing Scrap Aluminum. A Hunold. Chem. Ztg. 75, 146-147 (1951) German.

In a Berlin plant processing scrap aluminum into pure aluminum, the dross gave off gases that smelled like ammonia and hydrogen sulfide. The melting process was conducted in a rotary furnace using oil from brown coal as fuel. The fluxing materials were sodium and potassium chlorides. Chemical analysis of the dross showed it to consist essentially

of aluminum and iron; also present in smaller amounts were copper, magnesium, calcium, and manganese, chiefly as oxides. If the metal drosses are treated with hot water, or, as occurs in practice, the hot drosses are quenched with water, ammonia and hydrogen sulfide are evolved. By the action of acidified water, acetylene and a small amount of phosphine are produced. Chemical proof of the formation of the gases was then established by treating the dross in experimental apparatus. A theoretical discussion is included. -- Chem. Absts.

656 Hazards from Thermal Decomposition of Motor-Insulating Materials. J. Sendroy, J. D. O'Neal, and G. C. Pitts. Arch. Ind. Hyg. & Occ. Med. 5, 330-343 (April, 1952).

Three electric motors, one insulated with phenolic resin CNSV, the other two with a plastic fluorocarbon polymer, PTFE, were tested under conditions simulating submarine operation. The chamber air was analyzed for oxygen, carbon dioxide, and carbon monoxide, also for phenol, formaldehyde, and ammonia in the CNSV test and for fluroide in the PTFE test. The extent of the carbon monoxide uptake of the blood was directly measured for rats and indirectly calculated for man. The following evaluations were made: (1) at insulation temperatures over 150°C., maintained for periods of 96 hours, carbon monoxide is produced by CNSV-insulated motors in concentrations injurious to health; (2) insulation temperatures in excess of 250°C. maintained under similar conditions of operation of PTFE-insulated motors do not constitute a health hazard in respect to carbon monoxide production. However, the possibility of injury from fluorine-containing gases, especially at 250° or above, is not ruled out by these tests, and no final or unequivocal conclusion as to the medical acceptability of this equipment operating under these conditions can be made at this time. Cond. from Authors' Summary

657 Studies on the Toxicity and Skin Effects of Compounds Used in the Rubber and Plastics Industries. F. S. Mallette and E. von Haam. Arch. Ind. Hyg. & Occ. Med. 5, 311-317 (April, 1952).

The industrial aspects and the important toxicological literature of compounds used as accelerators, activators, and antioxidants in the rubber industry are reviewed. Twelve compounds at present used widely in the industry were studied toxicologically for their skin-irritating and skin-sensitizing properties. Wide ranges of toxicity, which could not be predicted by the chemical composition of the various compounds, were found by animal experiments. Skin tests showed that compounds of all three groups were mild to severe skin irritants and that many compounds,

especially in the group of antioxidants, were moderately sensitizing. The results of these investigations do not measure industrial health hazard but point to the potentialities of these compounds and emphasize the importance of testing all new materials before they are introduced into the industry. Based on these data, industrial-hygiene studies can be directed toward determining the actual health hazard and designing controls therefor.

658 The Pathogenesis of Acute Renal Failure Associated with Traumatic and Toxic Injury: Renal Ischemia, Nephrotoxic Damage, and the Ischemuric Episode. Jean Oliver, Muriel MacDowell and Ann Tracy. J. Clin. Invest. 30, 1307-1440 (Dec., 1951).

This paper presents a thorough study of acute renal failure caused by either trauma or toxic materials, with 23 full pages of photomicrographs. The toxic causes of abnormalities illustrated include mercury, potassium chlorate, ethylene glycol, and sulfonamide. One of the principal conclusions is that the currently prevailing concept of a "kidney disease" with the unique pathological characteristics described as "lower nephron nephrosis" is not confirmed, but that there are several distinguishable types of damage.

659 Health Hazards of Electric Vaporizing Devices for Insecticides. Report of the A.M.A. Committee on Pesticides. J. Am. Med. Assn. 149, 367-368 (May 24, 1952).

Small smoke generators for insecticides are being widely marketed by several manufacturers for home and industrial use, with the claim that they cause no health hazard. They employ DDT, lindane, or a mixture of both in an inert base. The Interdepartmental Committee on Pest Control has approved such devices for industrial use under definite specifications for preventing undue exposure. The committee cautioned against continuous exposure to the devices and advised against their use in homes and sleeping quarters. Since the issuance of this statement, the Committee on Pesticides has been advised of a number of reports of poisoning. A summary of the pertinent facts in several representative cases is presented. Most of them occurred in industrial establishments. One was a case of urticaria, in which the reaction was allergic, but the others involved systemic effects, although they ceased after termination of exposure. Few of the generators used have the protective devices that have been specified, and many do not even have thermostatic control. The continued operation of these generators violates accepted health practice and therefore they should be supplanted by more acceptable methods of pest control.

INDUSTRIAL DUSTS

660 Silicosis Encountered among Automobile Workers. I. D. Fagin and H. Balberor. J. Mich. Med. Soc. 50, 1248 (Nov., 1951).

This is a report on 100 consecutive cases of silicosis involving automobile workers in Detroit. About half the patients gave histories of mining exposure, but 79 received additional or sole exposure in some branch of the automobile industry, such as foundry shops, metal polishing and finishing, grinding, and core-making. At the time of examination 37 of the 100 patients were still employed in what was probably a silica atmosphere. Ninety-one had nodulation indicating stages 1 or 2 of silicosis, but it is possible that some patients with only foundry exposure may have siderosis rather than silicosis. The remaining patients presented massive fibrotic areas or pronounced coalescent nodulation and were classified as stage 3. Some of these patients had no symptoms or physical findings. Only 16 patients out of the 100 knew that they had silicosis before the examination. The roentgenograms of 20 patients were considered to be compatible with silicotuberculosis. Diagnosis, estimation of disability, and desirability of periodic examinations are discussed briefly.

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

661 Importance of Determination of Pulmonary Circulation Time and of Venous Pressure in Silicotics. L. Parmeggiani, Med. lavoro 42, 15, (Oct., 1951). Italian.

In 59 silicotics, pulmonary-time circulation was repeatedly determined by means of ether and sodium dehydrochlorate. This research may give useful indications in a certain number of cases. Only pathological times are of significance, and permit one to control the evolution of singular cases. The time for total pulmonary circulation is modified in the more advanced cases, with the establishment of heart insufficiency. Determination of the time by means of ether is useful; its value depends both on the conditions of the pulmonary arterial circulation as well as on the condition of the alveolar wall. In 14 silicotics, venous pressure was determined with the method of Alestra and Ruffini. This research demands accurate technical execution. Results depend on various factors, partly independent of endocardial pressure, and for this reason the research does not give useful indications in the functional examination of silicotics.

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

662 Angiocardiopneumography in Pulmonary Silicosis. A. Nunziante Cesaro, P. Fazzi, M. Sossai, and E. Pozza. Med. lavoro 42, 355 (Dec. 1951). Italian with English summary.

Angiocardiopneumographic studies made on 14 silicotics at various stages of evolution of the disease provided the following findings; scanty morphological changes and alterations of the blood vessels in the reticular stage; retarded circulation in the nodular stage, especially in the lungs which showed intense perihilar nodulation; retarded arterial circulation and at times marked acceleration of the pulmonary arterial circulation due to abnormal arteriovenous anastomosis, in massive silicosis. The authors compare these data with the results of research revealing histological lesions of the pulmonary vessels, with a view to the interpretation of the pathology of the circulatory impairment above referred to. In conclusion the hypothesis is advanced that vascular lesions may constitute fundamental factors in causing respiratory impairment in silicotics.

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

663 The Angiopneumographic Study of the Silicotic Lung. O. Scarinci. Med. lavoro 42, 365 (Dec. 1951). Italian with English summary.

In some cases of second- and third-stage silicosis the author has used the angiopneumographic method to show in vivo the organic vascular lesions, (mainly arterial) always present in silicotics, which exert an undoubted effect on hematosis, and also to demonstrate circulatory impairment, permitting interpretation of functional clinical symptoms. In his opinion, in such cases angiopneumographic investigation may usefully serve to complete data furnished by other methods in the study of pulmonary function.

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

664 Determination of Androgens in the Urine of Silicotics. A. Raule and R. Grisler. Med. lavoro 42, 337 (Nov. 1951). Italian with English summary.

The level of the neutral 17-ketosteroids excreted in the urine was determined in 41 cases of silicosis; in 23 cases hypoandrogenuria was found. According to the results of the Thorn test, in silicotics hypoandrogenuria may be considered a symptom of adrenal cortex insufficiency. It may arise from specific causes, viz., hypo-oxemia during effort, chronic fatigue, and perhaps a toxic action of silica. These causes would first stimulate and then depress the activity of the adrenal cortex.

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

665 Pathogenesis of Experimental Leucoencephalitis from Inhalation of Silica Dust. G. Gomirato and A. Masoero. Med. lavoro 42, 370 (Dec. 1951) Italian.

The authors report findings in leucoencephalitis of rabbits resulting from inhalation of silica dust. They point out that their findings were achieved in the case of groups of rabbits exposed to the dust during two periods with an interval of one month's rest. On the other hand, no results were obtained in the case of a control group subjected to uninterrupted treatment. Other organs also, apart from the central nervous system, especially the liver and the spleen, showed a picture which differed in the case of the control group from that of animals subjected to two periods of treatment. The authors therefore interpret the disseminated leucoencephalitis as of allergic origin, the disturbance taking the form of a diffuse reaction of the mesenchymal apparatus, which affects various organs (and hence also the central nervous system); this reaction is most evident in the arterial and venous capillary system. -- Arch. Ind. Hyg. & Occ. Med.

666 Some Colloidal Properties of Inert Dusts. R. F. Hounam. Arch. Ind. Hyg. & Occ. Med. 5, 375-385 (April, 1952).

Dye-adsorption and sedimentation experiments were conducted with various inert mineral dusts which are considered to give rise to silicosis or pneumoconiosis, and also with dusts which are considered to be nontoxic. The results lead to the following conclusions: (1) dusts that give rise to silicosis and pneumoconiosis form negatively charged hydrophobic sols when suspended in water or in a 50% solution of ethyl alcohol and water; (2) the more toxic the dust, the greater the negative charge carried by the particle; and (3) nontoxic dusts may carry a very small negative charge but more generally become positively charged on suspension in the same solvents. The toxic action of silica, which acquires a negative charge on being suspended in water, has been modified by the prophylactic use of aluminum powder, which dissolves in water to form a positively charged sol of colloidal alumina. There is probably a close correlation between the solubility and the stability of suspensions of silica. These conclusions are subject to the reservation that the potential of the particles rather than the total charge on the particles may be the deciding factor; therefore a more fundamental approach, perhaps using sized dusts, may be desirable. -- Adapted from Author's Summary

667 Physicochemical Studies on Dusts. I. A High-Solubility Layer on Siliceous Dust Surfaces. D. W. Clelland, W. M. Cumming, and P. D. Ritchie. J. Appl. Chem. 2, 31-41 (Jan. 1952).

The existence of a high-solubility layer on the surface of siliceous dust particles has been demonstrated by extractive solubility methods

applied to several forms of silica (rock crystal, silica sand, and amorphous silica), olivine, and orthoclase feldspar. The authors state that a siliceous dust particle may be considered as a relatively insoluble core covered with a layer which exhibits a higher solubility rate. The solubility rates decrease gradually, indicating that there is a gradual change from the surface inward. The high-solubility layer was removed by agitation in aqueous media buffered to pH 7.5 for all dusts examined. The effect of acid treatment varies with the type of dust. Colloidal silicic acid is liberated by the extracting solution only during the initial solution periods. The presence of metallic aluminum decreases the total amount of silica liberated from all five dusts, but the ratio of colloidal silica to total silica in the extract is increased. These results are of interest in connection with the solubility theory of silicosis.

668 Physicochemical Studies on Dusts. II. Nature and Regeneration of the High-Solubility Layer on Siliceous Dusts. D. W. Clelland and P. D. Ritchie. J. Appl. Chem. 2, 42-48 (Jan. 1952).

Several possible mechanisms to account for the presence of the high-solubility layer demonstrated in the preceding paper are considered. It is concluded that the most probable explanation is that a considerable amount of vitreous silica forms on the crystalline surfaces during grinding. An important factor in the evidence is a decrease in density during prolonged grinding. No conversion to other crystalline modifications of silica could be detected.

669 Examination Procedures for Silicosis as Practised by the Workmen's Compensation Commission in Quebec, Canada. J. A. Vidal. Read before Fourth Conference of McIntyre Research Foundation on Silicosis 3 pp. (Jan. 1952).

In Quebec, compensation awards are made for silicosis only when symptoms are established. These symptoms cannot be evaluated except by a careful clinical examination. This examination is conducted by the Workmen's Compensation Commission, on application by the patient after his family physician has diagnosed silicosis. The procedures of the physical examination are described briefly. The laboratory and functional tests are conducted at Lavoisier Institute (see following abstract).

670 Pulmonary Function Studies. F. Gregoire. Read before Fourth Conference of McIntyre Research Foundation on Silicosis. 7 pp. (Jan. 1952)

The methods of testing pulmonary function of silicotic patients used by the Lavoisier Institute for the Quebec Silicosis Commission are described, with a typical example. The tests included maximum breathing

capacity, lung volume, ventilation efficiency, arterial blood studies, progressive work on a treadmill, response to pure oxygen, metabolism, and circulation time, in addition to the usual complete physical examination.

671 Examination, Practice, and Experience Regarding Compensation and Certification. R. S. M. Fisher. Read before Fourth Conference of McIntyre Research Foundation on Silicosis. 3 pp. (Jan. 1952).

Certification for employment in mines has been required in Quebec since July, 1950. The examination and issuance of certificates is under the authority of the Workmen's Compensation Commission. The author discusses some difficulties connected with preparing certificates, especially where the procedure is in conflict with that used before certification was compulsory.

672 Mine Ventilation and Dust Control in Quebec Mines. M. Lachance. Read before Fourth Conference of McIntyre Research Foundation on Silicosis. 3 pp. (Jan. 1952).

The author presents notes on dust hazards in underground workings, crushing rooms, cyanide and flotation mills, asbestos mills, and assay offices, based on 500 dust samples, many taken under experimental conditions. The results emphasize the importance of ventilation and show that wet methods are generally effective. In crushing rooms water sprays are not completely effective, and dust collecting equipment should be used.

673 Pulmonary Talcosis with Involvement of the Stomach and Heart. Report of a Case. W. E. Jaques and K. Benirschke. Arch. Ind. Hyg. & Occ. Med. 5, 451-463 (May 1952).

A case of talc pneumoconiosis is presented in which unique pathologic findings were demonstrated. There were extensive pulmonary fibrosis and granulomatosis in which talc crystals were positively identified. Cardiac and gastric lesions were present and were interpreted to represent a direct reaction to talc or an altered capacity to react on the part of the host. A review of the available literature is presented. -- Author's Summary

674 Asbestosis. A. J. Lanza. Read before Fourth Conference of McIntyre Research Foundation on Silicosis. 2 pp (Jan. 1952).

The action of asbestosis on the body is briefly reviewed. It is pointed out that asbestosis is regarded much more seriously in Great Britain than in Canada or the United States; the British believe it is worse than silicosis and often leads to cancer, while in America cancer resulting from asbestosis is practically non-existent.

PHYSICAL ASPECTS OF THE ENVIRONMENT

675 Changes in the Masticatory Apparatus of Caisson Workers.
F. de Michelis. Rass. med. ind. 20, 151-158 (Mar.-June 1951) Italian.

Men who had worked in caissons from 1 to 5 years in pressures up to 4 atmospheres developed various troubles with teeth and gums, including tenderness of the gums, which were in some cases congested and in others pale, and necrosis of the dental pulp. It is, therefore, important that the masticatory apparatus of caisson workers be periodically examined, and the findings recorded.

-- Cond. from Bull. Hyg.

676 Evaluating Effects of Industrial Noise on Man. H. O. Parrack.
Arch. Ind. Hyg. & Occ. Med. 5, 415-429 (May, 1952)

Certain of the physiological response mechanisms of man are reviewed, and it is shown how their response is related to frequency. It is also shown how materials used for noise control vary in their effectiveness as a function of frequency. It is shown that the over-all noise-level reading cannot be correlated with the response of the human ear to the noise. On the basis of the data presented the conclusion is reached that in measuring industrial noise one must take the frequency function into account by measuring the noise levels in frequency bands not greater in width than one octave. Certain criteria for evaluating noise, when measured in octave bands, in respect to the probable response of man to this noise are stated. The use of these criteria in evaluating the effectiveness of our attempts at noise control is illustrated.

-- Author's Summary

677 Audiometric Data Following Exposure to Low-Frequency-Centered Noise.
E. J. Showalter. Arch. Ind. Hyg. & Occ. Med. 5, 430-435 (May, 1952).

Exposure to noises that have over-all levels between 90 and 101 decibels apparently does not cause significant hearing loss, provided the energy concentration of the noise is 150 cycles per second or lower. We believe that these data emphasize the need of additional studies throughout industry, correlating job (noise) exposure with audiometric findings.

-- Author's Summary

678 An Objective Method of Classifying Industrial Noise Environments. R. M. McGrath. Arch. Ind. Hyg. & Occ. Med. 5, 436-444 (May 1952).

The author suggests a method for reducing the three variables in assessing industrial noise, intensity, frequency, and duration to a homogeneous base line called "the equivalent acoustical impairment level." Classification of noise environments on the basis of this single base level gives better accuracy of prediction with reference to acoustical impairments than does a classification by sones or equal loudness units. The author presents extensive data in support of the validity of his method, and predicts that the time is not far distant when the data will permit setting a limit of safety that is valid because it reduces the variables to the one base line, the "equivalent acoustical impairment level." He further states that any published limit which does not do so is not a valid standard.

679 Revision of Procedure for Evaluating Percentage Loss of Hearing. Progress Report of Committee to Consider Revision of Prevailing Standard Procedure for Evaluating Percentage Loss of Hearing in Medicolegal Cases. Arch. Ind. Hyg. & Occ. Med. 5, 445-446 (May, 1952).

This report outlines several problems that are recognized by the Committee and presents recommendations for progress toward the formulation of a universally accepted method for calculating hearing losses. They include: (1) revision of the present A.M.A. method or its replacement by a more accurate and simpler method; (2) critical review of the Fletcher 0.8 method; (3) providing means of determining percentage loss in each ear and also combined hearing loss; (4) use of a minimum amount of calculation; and (5) basing the method on the hearing-loss data as recorded by the pure tone audiometer.

RADIOACTIVITY AND X-RADIATION

680 Recommendations of International Commission on Radiological Protection and of International Commission on Radiological Units 1950. National Bureau of Standards, Handbook No. 47. 29 pp. (June, 1951). Obtainable from Supt. of Documents, Washington 25, D. C. 15 cents.

The section on radiological protection includes data on exposure to external or to internal radiation, suggestions as to working conditions, x-ray and radium precautions, film storage precautions, and data on

maximum permissible amounts of various radioactive isotopes. The section on radiological units includes dosage data for x-ray or gamma ray treatment, suggested instruments, and rules of the International Commission on Radiological Units.

681 Monitoring of a Diagnostic X-Ray Department. Lillian E. Jacobson, J. J. Schwartzman, and S. Heiser. Radiol. 58, 568-581 (Apr., 1952).

The need for monitoring a diagnostic x-ray department is discussed. A system of monitoring is outlined, and the results of the various measurements are given in schematic diagrams. The need for calibration of the instruments and badges in the x-ray region in which they are used is discussed. The order of magnitude of the accuracy obtainable by these measurements is presented. Variations up to 40% are found. Despite such variations, the measurement of stray radiation in the protection of personnel is urged.

ENVIRONMENTAL MEASUREMENTS

682 Determination of Carbon Monoxide in the Blood. Normal and Pathological Contents. R. Fabre, R. Truhaut, and F. Berrod. Ann. pharm. franc. 9, 625-638 (1951).

The method, with use of palladium chloride, is described. The quantity of carbon monoxide in the blood of cigarette smokers was 0.35 to 0.55 cc. per 100 cc., whereas normally only 0.25 to 0.35 cc. was found. In persons with occupational exposure the values increased to 1 cc. per 100 cc. of blood with evidence of clinical symptoms. Working details of the method are given in Chemical Abstrats 46, 4043 (May 10, 1952).

683 A Spot Test for Estimating Concentrations of Boron Hydride Vapors in Air. T. L. Etherington and L. V. McCarty. Arch. Ind. Hyg. & Occ. Med. 5, 447-450 (May, 1952).

The method described depends upon the reaction of silver nitrate (in amyl amine solution) with boron hydride to produce a yellow-to-brown color on filter paper. Essentially the apparatus consists of a glass tube through which air containing the boron hydride is blown or drawn, and a rather thick filter paper wet with a drop of 5% silver nitrate solution placed in the tube so that the air impinges upon it. The color develops

after removal from the tube, reaching a maximum in approximately 10 minutes. The sensitivity of the test varies with the hydride being tested, decreasing in the order diborane, pentaborane, decaborane. The limit of identification was 1 microgram of decaborane. Color intensity reaches a maximum at 10 micrograms of diborane. The air sample should be limited to 1 to 4 liters of air and the time to one minute to avoid drying. A device for monitoring various locations in a central location is illustrated.

684 The Determination of Sulfur Dioxide and Sulfur Trioxide in Flue Gases. P. F. Corbett. J. Inst. Fuel 24, 247-251 (Nov. 1951).

The author reviews the underlying principles of an analytical method for the estimation of small traces of sulfur trioxide in the presence of a considerable excess of sulfur dioxide. Initial attempts to reveal a correlation between the sulfur trioxide concentration and dew-point temperature of flue gases have been encouraging.

-- Battelle Tech. Rev.

685 Polarographic Determination of Lead in Blood with Multiple Electrodes. M. Valentinuzzi and L. G. Gonzalez Lanuza. Annales soc. cient. argentina 151, 215-224 (1951). Spanish.

A procedure is described for polarographic estimation of lead in blood, using 2 to 5 dropping mercury electrodes and one anode. Working details are given in Chemical Abstracts 46, 4041 (May 10, 1952).

686 Determination of Nickel in the Air. M. Bykhovskaya. Gigiena i Sanit. No. 11, 28-33 (1951). Russian.

For the colorimetric, dimethylglyoxime method of determining nickel in air samples it is recommended that absorbent cotton, glass wool, or filter paper be used for collection of samples. The presence of iron, copper, and cobalt in quantities greater than 20 micrograms per 10 ml. gives too high results, but the solubility of the nickel dimethylglyoxime in chloroform permits ready separation from much iron and copper; cobalt is not separated and may interfere. The color is more stable in aqueous solutions than in aqueous nitric acid solutions. In potassium or sodium hydroxide solutions color takes 20 to 25 minutes to develop, but then is more stable than that secured in ammonia solutions, when the above bases were used to neutralize the original 20% nitric acid. Oxidation can be effected with 3% ammonium persulfate or 1% iodine in alcohol containing Rochelle salt.

-- Chem. Absts.

687 Toxicology of Carbon Tetrachloride: I. Development of a Method Applicable to Air and Biological Material. R. Fabre, R. Truhaut, and S. Laham. Ann. pharm. franc. 9, 251-266 (1951).

The authors have perfected a method based on the color developed by carbon tetrachloride on heating with pyridine in alkaline solution. The sensitivity is 2 micrograms per ml. When the carbon tetrachloride in air is to be determined, it is collected by adsorption on dried silica gel chilled to 0 C. and is eluted by acetone. In the case of complex biological material, the carbon tetrachloride is first liberated by a stream of hot air. -- Chem. Absts.

689 Quantitative Analysis of Nitrobenzene in Blood. M. Fukue, M. Umezu, and H. Ishikawa. Hukuoka Acta Med. 42, 80-84 (1951). Japanese with English or German summary.

Blood is deproteinized with sodium tungstate, the pH adjusted to 10.0-10.5 with half-molar sodium carbonate, and a polarogram taken. By referring to a standard step-height vs. concentration curve made on sodium carbonate buffer containing known quantities of nitrobenzene, the blood concentration is obtained. The method is sensitive to 1.5×10^{-5} M nitrobenzene, which is 1% of the lethal dose. -- Chem. Absts.

690 Determination of Low Concentrations of Tetraethyl Silicate in Air. S. S. Gurvits and T. I. Sergeeva. Gigiena i Sanit. No. 9, 39-41 (1951) Russian.

The determination is done colorimetrically with the blue reduced complex of silicomolybdic acid. The air is sampled into alcohol absorbers or in wet filter papers moistened with 10% sulfuric acid, after which usual digestion with sulfuric acid, calcining the evaporated residue with sodium carbonate, and solution in hot water precede the conventional silica determination. Satisfactory determinations can be made on 1 to 5 mg. -- Chem. Absts.

691 Sampling of Dust-Laden Gases. C. J. Stairmand. Trans. Instn. Chem. Engrs. 29, 15-44 (1951).

Sampling principles are described, including selection of suitable location, use of mixing baffles to correct maldistribution of gas and dust flow, and the need for isokinetic sampling. Data are given on forms of mixing baffle, sampling nozzles and ejectors for sample extraction. Various types of samplers are described in detail, including sampling cyclones

in five sizes, glass-wool and similar filters, volatile and soluble filters, soxhlet thimbles, miniature electrostatic samplers, and impingement samplers, and a portable sampling apparatus equipped with a heated sampling tube for collecting dry dust. A self-compensating electrostatic sampler which permits isokinetic sampling is also described. Flow measurement presents problems when the gas is at a high temperature, contains moisture, or has a different composition than that used in calibration. These problems are considered and a series of comprehensive correction formulas are presented.

692 Dust Sampling: Errors and Limitations of the P.R.U. Hand-Pump Outfit. H. H. Watson. Coll. Guard. 184, 543-548 (May 8, 1952).

The P.R.U. (Pneumoconiosis Research Unit) hand pump is used extensively in British coal mines to provide rapid assessment of dustiness. By this method a definite quantity of air is drawn through a filter paper and the depth of stain is measured by a densitometer. The instrument is calibrated by comparing the readings with particle counts obtained by a standard method. Similar hand-pump methods have been used in the United States and Canada. The author shows that the conversion from P.R.U. apparatus to thermal precipitator counts cannot be done accurately. Investigations of a pre-filter designed to eliminate the larger non-respirable particles showed that, with the hand pump in its present design, the method was unsatisfactory. Therefore the hand pump has been found to be unsuitable for accurate measurements of dust concentrations in the respirable size range. It is suggested, however, that a paper stain instrument could be designed in such a way that the densitometer readings could be related to the dust hazard.

693 Mobile Sampler Made by Modifying Electrostatic Precipitator. H. K. Smithson. Occ. Health (USPHS) 12, 79 (May, 1952).

An electrostatic precipitator may be used as a mobile sampler by making modifications described and illustrated in the paper. With these modifications the precipitator can be operated on the 6-volt power supply of an automobile. The vacuum line serves for drawing the air through the precipitator.

It takes two to speak the truth--one to speak, and another to hear.
-- Thoreau

694 Generation and Tyndallometric Measurement of Dust Clouds. W. L. Chen, R. J. Foresti, Jr., and H. B. Charmbury. Ind. Eng. Chem. 44, 1171-1174 (May, 1952).

A dust generator, capable of producing uniform clouds with particles in the size range of 1 to 30 microns, has been described. The dust is placed in dispersion by sonic vibration and then carried from the generator by air current. The concentrations of dust may be changed by varying the current input to the generator, the vibration frequency, the air flow rate, and the weight of charge placed into the generator. Dust clouds with particles in the above size range may be evaluated by measuring the light scattered at 90° to the incident beam. The light scattering is a function of the surface area until multiple scattering occurs.

-- Authors' Conclusions

695 Reduction of Dust in Steel Foundry Operations. W. A. Bloor. Foundry Trade J. 91, 31-40, 46 (July 12, 1951)

The author reports research work carried out by the British Iron and Steel Research Association, in developing a rapid method for measuring and recording dust concentrations. Series of standard photomicrographs were prepared, in which the dust count varied by steps, using different average particle sizes in different series. The samples were compared visually with the standard photomicrographs. The Owens jet sampler was used in all the experiments. The question of the best method of selecting squares for counting is discussed. The results obtained in 24 foundries, with dust counts ranging from 200 to 6400 particles per cc., showed sufficient agreement between the comparison method and actual counts. It is not feasible at present to set up an allowable limit for foundry dust, but some suggestions leading to the adoption of a limit are presented. The chemical method of determination of free silica is also idscussed, with suggestions for application and improvement of the method.

696 Jet Impactors for Determining the Particle-Size Distribution of Aerosols. W. E. Ranz and J. B. Wong, Arch. Ind. Hyg. & Occ. Med. 5, 464-477 (May, 1952).

This paper is a condensation of an earlier report to the Atomic Energy Commission. (See IHF Abst. 235, February, 1952).

697 Concentrations of Particulates Found in Air. M. W. First and Philip Drinker. Arch. Ind. Hyg. & Occ. Med. 5, 387-388 (April, 1952).

The authors present a chart of ranges of particle concentrations in air, on a logarithmic scale, from 10^{3} down to 10^{-20} grams per cubic meter. At the higher end are the comcentrations found in low-pressure pneumatic conveying; others range through a number of significant ranges, such as explosive dust concentrations, rain, stack effluents, fog and mist, mine air, city, suburban and rural air, effluents from filters and electrical precipitators, odor thresholds, to threshold limits for radioactive substances.

PREVENTIVE ENGINEERING

698 Practical Aspects of Industrial Exhaust Ventilation. A. C. Mann. J. Instn. Heat. & Vent. Engrs. 19, 169-189 (July, 1951).

The collection and disposal of fumes, dusts, and other harmful materials are discussed with stress placed on correct design and manufacture of hoods. Average velocities for successful conveying of various materials are given. The need for making and recording test figures is emphasized. Various types of collectors are described.

699 Bacterial Filtration Efficiency of Electrostatic Air Cleaner. O. M. Lidwell. J. Instn. Heat. & Vent. Engrs. 19, 139-143(June 1951)

The author reports a series of measurements of the effectiveness of the electrostatic air cleaner in removing airborne bacteria. Dust borne organisms, sprayed cultures, and prepared spore suspensions were used in the test and it was found to be relatively easy to remove over 99% of the bacteria-carrying particles from the air while maintaining a reasonable rate of air flow through the cleaner.

700 Dust Prevention and Suppression in Coal Mines. A. Winstanley. (Abstract) Coll. Guard. 184, 487-492, 537-541 (April 24, May 1,1952).

The author reviews recent progress in dust prevention in coal mines. Infusion, wet cutting, wet drilling, dust extractors and filters, and cyclone separators are discussed. Tables showing the effect of wet

cutting are presented. The influence of ventilation is discussed briefly. In conclusion the author pleads for more expeditious general application of the knowledge, experience, and appliances which have been found effective.

1701 Foundries Join in Developing Cupola Emission Control Unit. T. L. Harsell, Jr. Am. Foundryman 20, 42-44 (Aug., 1951).

Tests for emissions of particulate matter were conducted in three representative cupolas in the Los Angeles area. Various types of dust collection equipment were tested on a pilot plant scale. A full scale wet washer was installed, and the system was later redesigned to include a second washer, a water cooling tower, and a baghouse. The dust loss was within the allowable limit.

1702 Industrial Applications of Sonic Energy. C. R. Soderberg, Jr. Iron & Steel Engr. 29, 87-95 (Feb., 1952).

An application of sonic energy is agglomeration of fumes and mists so that they can be more readily collected in a secondary collector. Two main types of sound generators are discussed, the radial type and axial type. The agglomeration vessel must be designed so that it contains a sonic field of maximized intensity. If the concentration of particles is not large enough, or if they are of such nature that they do not adhere when they strike others, it is advantageous to add water mist to the aerosol. Typical applications are collection of carbon black, sulfuric acid manufacture, and cleaning of open-hearth gases. Sonic energy can also be used in liquid-phase work, applications in this case being emulsification, demulsification, and agitation of liquor in pickling tanks. -- Chem. Absts.

COMMUNITY AIR HYGIENE

1703 Air Pollution Abatement Manual. Manufacturing Chemists' Association 246 Woodward Bldg., 15th and H Sts., N. W., Washington 5, D. C.

Two additional chapters of this Manual have been published (see IHF Absts. 583, May, 1952).

Manual Sheet P-7 (Chapter 6). Sampling Procedures and Measuring Equipment. P. L. Magill. 39 pp. (April, 1952) 75 cents. -- In the first section, the purpose and general principles of sampling are considered, including statistical treatments, conditions affecting sampling, size of sample, frequency of collection, general methods for sampling gases

and particulate-matter, and gas damage to crops. The second section deals with equipment for sampling of gases and particulate matter, including settling, visual and photometric methods, impingers, filters, cyclone samplers, and thermal and electrostatic precipitators. A table gives a comparative summary of sampling devices. Illustrations, diagrams and a bibliography are included.

Manual Sheet P-13 (Chapter 12). Bibliography. G. F. Jenkins. 57 pp. (March 1952). 50 cents. -- This bibliography represents as complete as possible a compilation of the literature up to December, 1951. The papers are listed under six headings: biological, legislative, technical, standards, education, and miscellaneous. Supplementary compilations will be issued semi-annually and will be available from the publishers.

704 Atmospheric Sanitation in Los Angeles County. F. H. Viets. Heat. & Vent. 49, 86-89 (Feb. 1952).

The author describes improvements made by various industries in the Los Angeles region in order to comply with atmospheric pollution regulation. Some gray-iron foundries have substituted reverberator or electric furnaces for cupola melting, while others are installing bag collectors preceded by gas coolers. Wet scrubbers and centrifugal collectors have not been found satisfactory. The nonferrous foundry industry is adopting bag collectors, and steel plants electric precipitators. The coffee-roasting and fish-processing industries have controlled odors by improvements in the processes. Sulfur dioxide from the processing of crude oils has been reduced to one-fifth of its former value by the installation of absorption equipment. A million backyard incinerators still contribute some 90 tons daily of aerosols and a like quantity of aldehydes, oxides of nitrogen, and organic acids, which are factors in smog formation.

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

705 Investigation on Injury to Plants from Air Pollution in the Los Angeles Area. A. J. Haagen-Smit, E. F. Darley, M. Zatlin, H. Hull, and W. Noble. Plant Physiol. 27, 18-34 (1952)

The authors report the results of an extensive study of the effect of a number of air pollutants and their mixtures on five typical farm and garden products. This survey was a continuation of the part of the work previously reported by Haagen-Smit (IHF Abst. 1303, Dec. 1951) relating to damage to vegetation. The most noteworthy result was a confirmation of the earlier results, that the most extensive damage was caused by oxidation products of hydrocarbons. Those with 5 to 9 carbons caused the greatest damage. A number of other compounds were found to produce smog injury, but usually only to alfalfa.

-- Cond. from Chem. Absts.

706 Stacks for Pollution Control. R. S. Steinbock. Chem. Eng. 59, 202-203 (Feb.); 144-147 (March); 154-155 (April 1952).

Graphs are presented showing the maximum ground concentration of pollutants dispersed in the atmosphere from stacks of varying heights and the ground concentration at any distance from a stack for varying stack heights and wind velocity. The effect of plume height is considered in the second installment also with a number of graphs. In the third paper, directions are given for calculating particle dispersion and deposition from stack height, distance, and other factors.

707 The Influence of Carbon Smokes on the Dew-Point and Sulfur Trioxide Content of Flame Gases. C. Whittingham. J. Appl. Chem. 1, 382-388 (Sept. 1951).

It has been known that carbon in a flame decreases the oxidation of sulfur dioxide to trioxide. The author has investigated the subject further by introducing known amounts of sulfur dioxide and of smoke into a gas flame, and collecting condensed samples on a glass disk with controlled cooling. To the disk were attached two thermocouples, with an applied potential between them. The dew-point was indicated by a rapid increase in conductivity. The sulfur trioxide was determined by a method described earlier by Flint (J. Soc. Chem. Ind. 67, 2-5, Jan. 1948), by which the trioxide was collected with negligible oxidation of sulfur dioxide. The addition of 0.54 mg. per l. of carbon as smoke to flame containing 0.06% sulfur dioxide reduced the fraction of total sulfur as sulfur trioxide from 8.2% to 0.08%. Intermediate percentages of sulfur trioxide were obtained by using smaller amounts of carbon. For smoke contents above 0.14 mg. per liter it was difficult to determine the dew-point by the method used. The collection of carbon on the acid film also decreased its sulfur trioxide content at temperatures as low as 140°C. Carbon would appear to influence the sulfur trioxide content in three main directions; (1) by inhibiting its formation in the flame; (2) by direct reaction with the sulfur trioxide once formed; and (3) by physical adsorption. The extent of the last process was not determined.

708 The Corrosion of a Steel Surface by Condensed Films of Sulfuric Acid. D. Flint and R. W. Kear. J. Appl. Chem. 1, 388-393 (Sept. 1951).

An experimental technique is described which has been used to study the corrosion of a steel surface at elevated temperatures by condensed films of sulfuric acid. (The method is similar to that described in the preceding abstract). The results show that (1) the rate of corrosion of steel increases with increasing sulfuric acid dew-point, and (2) irrespective of the dew-point temperature, the rate of corrosion reaches

a maximum at a surface temperature of the steel lying between 20° and 45° below that of the dew-point.

-- Editor's Summary

709 The Influence of Carbon Smokes on the Corrosion of Metal Surfaces Exposed to Flue Gases Containing Sulfur Trioxide. R. W. Kear. J. Appl. Chem. 1, 393-399 (Sept. 1951).

Further work confirmed the results given in the preceding paper, and also indicated that the presence of carbon smokes can profoundly affect the extent of corrosion. As the smoke concentration is increased from zero there is an initial increase in corrosion but eventually the dew-point of the gases and their corrosive properties are substantially reduced. Comparison of the behavior of filtered and unfiltered smoke-laden gases would indicate that carbon reduces the sulfur trioxide content of flue gases by a process of physical adsorption.

710 Atmospheric Pollution. Recovery of Fumes and Gases from Aluminum Alloy Processing. L. C. McCabe. Ind. & Eng. Chem. 44, 121A-122A (May 1952).

Foundry practice in processing aluminum alloys is described, with special reference to the fumes produced. Sodium and aluminum constitute about 10% of the particulate matter formed, and magnesium and silicon another 10%. Many other elements are present in concentrations from 0.01 to 1.0%. The fumes are to a considerable extent soluble in water and suggest the use of wet scrubbers for their removal. Tests on a dynamic wet scrubber on the Venturi principle have indicated high efficiency for fume resulting from the treatment of dross with salt-cryolite flux. One company has also made thorough pilot plant tests of an electrostatic precipitator, operated wet, as a scrubber-precipitator. In all tests of practical significance, the exit gases were well below the acceptable threshold limits and particulate matter was reduced to a very low concentration.

711 Medical Research and Control in Air Pollution. G. P. Larson. Am. J. Pub. Health 42, 549-556 (May 1952, Part 1).

It is frequently assumed by complainants about air pollution that health hazards are involved, and usually no definite assurance can be given that they are not. If the answer is to be found entirely in a program of research to determine the effects of contaminants, as many assume, it will require many years and much expense to answer the question. One difficulty is that the injurious effects of combinations of pollutants may be

greater than the sum of their effects taken singly. Therefore, the problem must be attacked by determining what potentially harmful substances are present and then to remove them as well as is practicable by engineering methods. Methods of detection are described briefly. The results that have been obtained in Los Angeles in identifying the cause of eye irritation and vegetation damage are reviewed. The results accomplished by engineering methods and enforcement of regulations in Los Angeles are presented. The improvement so far obtained is very noticeable, both by measurement methods and by public recognition. Industrial smoke has been reduced by at least 60%; however, public rubbish burning is a large contributor and has not as yet been regulated. Medical research cannot be neglected, but it should be on a national scale.

MANAGEMENT ASPECTS

712 Reaching Out in Management. W. B. Given, Jr. Harvard Business Rev. 30, 33-45 (March-April 1952). Reprints available at 3 for $1.50 and 50 cents each for additional copy, from Harvard Business Review, Soldiers Field P. O., Boston 63, Mass.

In the book "Bottom-Up Management" (IHF Abst. 848, Aug. 1949) the author has advocated development of management opportunities among employees in the lower ranks. In this paper he carries his ideas a step further. He points out that the development of opportunities is not enough, people must be prodded to reach out and take them. Subordinates should be encouraged to develop their own ideas and to offer suggestions, not only to their immediate superiors but also to other departments. The author tells how the plan has worked in American Brake Shoe Co., and cites a number of specific cases. Although there are dangers of mistakes and antagonism in the plan, its general success has greatly outweighed them. Executives are rated on their cooperation in receiving suggestions, as fully as employees in giving suggestions and in carrying them out. Quoting General Ridgeway, "Loyalty that comes from the top down is just as vital as the loyalty that comes from the bottom up," the author thinks that it is even more vital. Reaching out also includes acquiring wider knowledge of business news and principles, as well as interest in the company's activities.

713 Prophylactic Aspects of the Mental Health of the Physically Disabled. Preparatory Commission of the World Federation of Health. Arch. Ind. Hyg. & Occ. Med. 5, 389-394 (April 1952).

Two broad approaches to the mental-health program for the physically handicapped. First, emphasis needs to be placed on guiding communities to accept and treat the handicapped as equals rather than as special members of society. Integration into society rather than segregation should be the general rule. The second approach is directed toward the individual. The individual should be made aware of the realistic aspect of his problems, of the limitations his disability may put on his adjustment to his surroundings, and of the attitudes other people may have toward his handicap. The goal for each individual should be greater self-security, freedom from frustration, and use of his ego strength to fullest advantage.

714 Industry's Manpower Resources. H. Viscardi, Jr. Loss Control (Am. Mutual Liability Ins. Co.) 29, 1-4 (Aug. 1951)

The two major untapped sources of manpower during the present shortage lie in the 11 million persons beyond the age of 65 and the 20 odd million handicapped persons in our country. Most of these 20 million are the less severely disabled, who do not present too great placement problems, and more than 90% of them are now employed. The great untapped source of manpower, then, is the estimated 1.5 to 2 million persons with severe static disabilities who could become employable with modern rehabilitation training and adjustment of their abilities to jobs. In addition there are millions of chronically ill who are potentially productive if given training and employment opportunities. Industrially we are all misfits; only 1% of the population are fit for all types of work. Fitness, then, is a matter of degree. The prejudices and misunderstandings which have deprived us of able employees are luxuries we can no longer afford. The necessity of protection from the ever-increasing burden of support of the aged and the disabled, together with our democratic ideals of opportunity for all, demand that every effort be made to rehabilitate and employ handicapped workers to the fullest possible extent.

715 The Older Working Man. E. L. Bortz. Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 39-44 (1951).

The diseases to which older persons are especially liable and their care are discussed. The continued employment of older workers is urged. The restrictions placed upon older workers by minimum wage laws and company pension plans are criticized. Labor has an unexcelled opportunity to re-examine its stated policy concerning those measures. "The best life insurance for our older citizens may be found in their ability to carry on."

716 The Statistical Side of Our Aging Population. S. L. Wolfbein Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 31-39 (1951).

The author discusses the relation of life expectancy to work expectancy and calls attention to various phases of the problem of the increasing percentage of older persons in the population. He calls attention to the facts that only 5% of the men and women entitled to old age benefits between 1940 and 1950 left their jobs of their own accord; that less than a third of those aged 65 and over who could have drawn old age insurance benefits by retiring took advantage of the opportunity; and that 35% retired for health reasons. It is obvious from these statistics that the so-called problem of the older worker can be alleviated best by doing everything possible to place older people in employment and keeping them in employment.

ACCIDENTS AND PREVENTION

717 Fire and Explosion Hazards of Thermal Insecticidal Fogging. Research Report No. 9, National Board of Fire Underwriters, 85 John St., New York 38, N.Y. 45 pp. (1952).

Thermal aerosol fogs are claimed to be more efficient than atomized sprays in dispersing insecticidal solutions. There are five general methods of producing fogs by this method. The one most generally used is the separately-fired combustion chamber type. The methods are described in this pamphlet. They all involve contact of the spray of insecticidal solution, which may be flammable, with a hot surface or hot gases, but when properly operated, the contact is too brief to cause an explosion. However, explosions have occurred when the apparatus was defective or improperly handled. A more frequent source of danger is contact with a flame or spark in the building being sprayed. Precautions against this possibility, and against health hazards, are described. Briefly they include: operation only by experienced personnel and exclusion of others from the building; giving full information to the local fire marshal or fire chief; use of only listed equipment and insecticide formulations; limiting the amount of material to yield a safe concentration of fog; avoiding all sources of ignition, which includes shutting off power and telephones; thorough ventilation of the building after spraying; warning placards; cleanliness of equipment; and several minor precautions.

718 Dust Flames and Dust Explosions. P. Schlapfer. Schweiz. Ver. Gas Wasserfach Monatsbull. 31, 69-82 (1951). German.

In a study of dust explosions the method of producing the dust cloud is important, as stirring up a weighed amount of dust with air gives unreliable results. A new method produces a steady dust flow. Lower explosive limits of aluminum powder were 92 mg. per l.; lignin powder, 48 mg. per l.; and phenolic resin powders, 45 and 36 mg. per l. The flow rate was 400 cc. per second: ignition was by a 0.2-mm. aluminum wire, 7 mm. long, with 110 volts. The presence of 5% ammonia in the air lowered the limit. A photographic method was used to determine the rate of propagation of dust flames in tubes; for aluminum dust this is of the order of the maximum flame velocity of hydrogen-air mixtures, 267 cm. per second and higher. For lignin the rate is around 190 cm. per second.
-- Chem. Absts.

719 Unloading Flammable Materials from Tank Cars. Manual Sheet TC-4. Manufacturing Chemists' Assn. Inc., 246 Woodward Bldg., 15th & H Sts., Washington 5, D. C. 11 pp. (1952) 20 cents.

This manual specifies the precautions to be taken in unloading tank cars containing flammable material. Many states have stringent regulations for handling flammable materials including unloading. Some states prohibit unloading from bottom outlets; others prohibit syphoning; and others require official approval for installations. The specifications include placement of the cars, protection of property and workmen, dome fittings, sampling, various methods of unloading, piping to storage tanks, preparation and return of empty cars, and dealing with defective cars. Consignees should familiarize themselves with state and local regulations, as well as the procedures outlined in the manual.

MISCELLANEOUS

720 Disinfective Action of Methyl Bromide, Methanol, and Hydrogen Bromide on Anthrax Spores. R. W. Kolb, R. Schneiter, E. P. Floyd, and D. H. Byers. Arch. Ind. Hyg. & Occ. Med. 5, 354-364 (April 1952).

The results of studies of the efficacy of methyl bromide, hydrobromic acid, and methyl alcohol for the destruction of anthrax-contaminated materials are presented. It was demonstrated that in the presence of moisture 3.4 to 3.9 g. of gaseous methyl bromide per liter was capable

of disinfecting commercial-sized rolls of hair and bristles after 18 hours' exposure at room temperature without causing any apparent damage to the materials. The presence of moisture is essential. Hydrogen bromide was shown to be effective at concentrations considerably greater than those which might be produced by normal hydrolysis of methyl bromide. Methanol had no effect. Therefore the efficacy of methyl bromide is not due to hydrolysis. Methyl bromide is believed to offer potentialities as a general nondeleterious disinfecting agent for contaminated industrial materials.

-- Cond. from Authors' Summary

721 Control of Respiratory Infection by Radiant Disinfection of Air. W. F. Wells. Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 15-23 (1951).

The author discusses the value and the limitations of radiant disinfection of air. It has been successfully used in hospital rooms and operating rooms, but its effect is confined to the areas in which it is used. In experiments with radiant disinfection in schools, exposure outside the schools greatly limits its effects. The same limitations would apply to industrial workrooms. The problem of the dynamic control of respiratory infection is no longer how but where to disinfect air. In simplest terms, the control of respiratory infection requires protection, both of adults in places of work and of children in school. However, to be effective it should also include all gathering places for recreation, religious service, and business. Such a program calls for cooperation between a number of organizations, and industry is in the best position to take the initiative in developing a program. The cost of adequate radiant disinfection is less than that of artificial illumination to prevailing standards.

722 The Use of Aerosols in Air Sterilization. F. W. Gilcreas. Am. Acad. Occ. Med., Proc. 3rd Ann. Mtg. 24-30 (1951).

Tests conducted in schoolrooms over a period of two years show that aerosols provide a significant reduction in the total numbers of bacteria in the room, and therefore they can be considered effective under the conditions of the study. The results with aerosols are similar to the results secured with the use of ultraviolet radiation. No data were obtained on the incidence of diseases because the period of the test up to the time of reporting was too short and because the prevalence of diseases during the period was low.

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IN RE: ABRAMS November 1992

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