Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL - - - decisions and trends

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INDUSTRIAL HYGIENE FOUNDATION
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INDUSTRIAL HYGIENE FOUNDATION

FOUNDATION FACTS

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

Vol. 13 February, 1951 No. 2

New Staff Addition

The post of executive assistant was recently created for the joint purpose of coordinating expanding activities of the Foundation staff and of assuring that the Foundation obtain well-indicated additional recognition for the work it is doing.

Robert T. Griebling was chosen to fill this new position. He brings to the staff a wide experience in public relations, having been active in this field for 17 years. Mr. Griebling served two of our members, Aluminum Company of America and American Radiator & Standard Sanitary Corporation, in public relations capacities, and was director of public relations of Allegheny County Sanitary Authority following its inception in 1946. The Authority was formed to study sewage treatment and disposal problems in Allegheny County.

Mr. Griebling, a graduate of the University of Wisconsin, has been interested in public health problems for more than 10 years, and was a welcome visitor and voluntary assistant at many of the Foundation's annual meetings. He is therefore no stranger to Industrial Hygiene Foundation, but a friend who has had our interests at heart for a long time.

Medical Committee Increased

Dr. William P. Shepard, one of the country's foremost exponents of public health, was recently appointed to serve on the Medical Committee. Dr. Shepard, currently president of the American Public Health Association, is Third Vice President of the Metropolitan Life Insurance Company. His headquarters are in San Francisco. In addition to his work at Metropolitan, Dr. Shepard is clinical professor of public health and preventive medicine at Stanford University.

Walmer Named

Dr. C. Richard Walmer, Managing Director of the Foundation, was elected to the board of directors of the Western Pennsylvania Safety Council.

Reprints Available

"The Mechanism of the Anaphylactoid Phenomenon," by Dr. Paul Gross, research pathologist, and Dr. Jack H.U. Brown, former research biochemist of the Foundation, published in the January, 1951, issue of the American Journal of Medical Sciences, presents results of animal experiments to determine the extent of shock by intravenous injections of foreign material. Lethality of dosage was exceptionally interesting--particles over 0.6 micron in size did not kill, while particles 0.2 micron in size produced 100 per cent mortality.

"Manual of Operation for an Industrial Hearing Conservation Program" issued by the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology. The purpose of the manual is to protect individuals subjected to excessive noise and acquaint industry with methods for control.

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HIGHLIGHTS OF

ELEVENTH ANNUAL A.M.A. CONGRESS ON INDUSTRIAL HEALTH

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The 11th Annual Congress on Industrial Health, held at the Atlanta, Ga., Biltmore Hotel, February 26 to 28, was the first meeting of its kind held in the South by the Council on Industrial Health of the American Medical Association.

Additional sponsors included the Medical Association of Georgia and the Fulton County Medical Society.

The speakers stressed again and again the growing importance of the industrial South, and pointed to the need for trained personnel to discharge industrial health functions properly.

Rehabilitation Emphasized

The accent was heavily on rehabilitation. Dr. Elmer L. Henderson, of Louisville, president, American Medical Association, keynote speaker at the dinner meeting, observed that the vacancies left by the young men joining the armed forces must be filled by women, older persons, and the physically handicapped. "Our invincible element of strength," he said, "lies on the home front, and we must do everything to maintain our working forces at a high level."

Paul S. Barrett, director, Georgia division of vocational rehabilitation, stated that Georgia had been rehabilitating 1,500 persons a year, but the number would be increased to 4500 with new funds voted by the state legislature.

Paraplegics on Parade

Most dramatic event of the evening was a demonstration, by actual Warm Springs cases, of the extent of rehabilitation often possible. Dr. Robert L. Bennett, medical director, Warm Springs Foundation, showed the 200 guests (1) a paralytic physician, so improved that he was again able to practice medicine; (2) a paraplegic, completely paralyzed from the waist down, trained to repair watches, who now has his own shop; (3) a 19-year-old girl, also paralyzed from the waist down and still under treatment, demonstrated how she could pick herself off the floor unaided; and (4) a motion picture of a boy dressing himself, and later, eating with prosthetic devices.

Amputees Show Wonderful Coordination

Dr. Henry H. Kessler, director, Kessler Institute for Rehabilitation, Newark, N.J., asked two of his patients to demonstrate their skill. The first one's leg was amputated above the knee. He was able to walk and move about normally, and ended by running across the banquet hall. The other suffered amputation of both arms six inches below the shoulder. Both men had been injured in childhood by trains. The second amputee was equipped with (1) a standard prosthetic left arm, and (2) a right arm, electrically controlled, now under development by International Business Machines, Inc. The motor is concealed in the elbow, the battery, rechargeable nightly, is worn inside the trouser leg. The arm is activated by toe manipulation.

Dr. Kessler closed his demonstration by showing a color motion picture of an Israeli soldier, a former pianist, who lost both hands in the war, but who had learned to play the piano with special prosthetic devices. Each forearm was equipped with a two-pronged device, and while the artist could only play four notes at a time, such was his skill that his performance far exceeded expectations.

Miss Mary Switzer, director, office of vocational rehabilitation, Federal Security Agency, Washington, and the Hon. Robert Ramspeck, chairman of the executive committee of the President's committee on "Employ the Physically Handicapped Week," Department of Labor, Washington, stressed the need to make the handicapped self-sustaining and thus become part of the country's defense program. "Without employment," Mr. Ramspeck stated, "rehabilitation is wasted. Prepare the handicapped for day-to-day living, so they are not dependent on others."

Health for the Southern Worker

In the opening session John K. Williams, executive secretary, Birmingham, Ala., Industrial Health Council, defined industrial health as the positive promotion of physical and mental health among workers, whether they be in plant, office, or factory, and stated that industrial health forms an integral part of community health.

Dr. Lester M. Petrie, director, division of industrial hygiene, Georgia Department of Public Health, spoke at length on the Greater Atlanta multiphasic survey, which will eventually include the entire state. His report on the screening tests made thus far will be published in an early issue of the A.M.A. Archives The survey, Dr. Petrie emphasized, is a detection service and not diagnostic, but is valuable in exposing incipient hidden diseases, such as tuberculosis, diabetes, and syphilis. Examinations are made of the chest, blood, mouth, teeth, weight and height, and cost less than $1.35 per person. Out of 213,000 persons examined, 17,671 were found to have syphilis.

Dr. Petrie also described a typical small plant health maintenance center, such as those being started in Georgia. The business of the center is handled by a board of control, while ethical and professional guidance is provided by an advisory board, consisting of representatives of law, insurance, labor, medical societies, and professional and technical schools. These health centers provide in-plant service, and are of particular benefit to small industries who cannot individually afford a health maintenance program. The centers are staffed by a full-time physician, a full-time nurse, trained first aid workers, and a clerical staff. The program includes evaluation of physical capacities of the worker and treatment of on-the-job accidents and illnesses. Chronic illnesses requiring more than on-the-job treatment are referred to private practicing physicians. Hence, the company need at present is for internists rather than traumatic surgeons.

In describing preventive medicine practices as they are found in the health centers, Dr. Petrie said: "It is better to build a fence around the top of a cliff than to maintain an ambulance at the bottom."

Keep Physicians Informed

Means should be found to acquaint private physicians with industrial health problems, and to alert them on the various diseases their patients may contract through their occupations, said Dr. Gradie R. Rowntree, associate professor of preventive medicine and public health, University of Louisville. He was seconded by a number of other speakers.

The medical schools, Dr. Rowntree stated, should teach industrial health and its importance. He cited the University of Louisville, which has 15 weekly one-hour sessions on industrial medicine. An additional six hours is used on field visits. The industries selected for the visits either have exceptionally good health services, or have brought particular hazards under control.

Dr. Carl A. Nau, professor of preventive medicine and public health, University of Texas Medical School, Galveston, urged early interest in industrial health by medical students. Both private doctors and nurses should know more about industrial health, and how to diagnose and treat cases that come to their attention. "New chemicals are being made in Texas faster than we can study them," he said, "yet their potential toxicity should be determined. College professors of industrial medicine should be thoroughly indoctrinated in industrial operations before they discuss manufacturing practices with their students. We also must get the full confidence of the working man. That's where we often fall down."

Future Industrial Living

In spite of the dangers that lurk in handling radioactive materials, the worker in a nuclear energy plant is safer than he is at home. This startling fact was brought to the attention of the delegates by Dr. Jean S. Felton, medical director, Oak Ridge National Laboratory, Oak Ridge, Tenn., who pointed out the extreme precautions taken for the protection of the workers at Oak Ridge. Care must be exercised there because a single exposure may have fatal results. Therefore, he said, there is great need for specific health education in those industries which are beginning to use the new radioactive chemicals.

Dr. Felton also touched on the advisability of plant dispersal to minimize damage from bombing attacks. Industry should decentralize as much as possible, and erect new plants in areas that are out of danger. A typical area, Dr. Felton prescribed, would consist of a concentration of population in no greater space than five square miles, and such an area should be separated from a similar one by 10 miles of open country. These areas should contain a population of no more than 15,000. Such a concentration is too small to attract atomic bombs, whose greatest effectiveness lies in densely populated sections.

Pesticide Progress

The chemicals used in agriculture to protect fruits and vegetables from insects, pests, and rodents must be given careful study in relation to their effect on human beings. This was brought out in a panel discussion led by Dr. Robert A. Kehoe, director, Kettering Laboratories, Cincinnati, Ohio. "While these pests are a threat to our food supply, and to the food supply of our allies," he said, "we must defend the supply and take proper calculated risks to assure us of this supply, as well as the health of those who manufacture the chemicals and those who apply them."

He called on Dr. John F. Marchand, assistant medical director of the American Cyanamid Company, to discuss alkyl phosphates. Dr. Marchand laid particular stress on the need for users to know what chemicals they are handling, so that they do not expose themselves to latent dangers. He gave the following advice: (1) Don't let the worker handle chemicals with his bare hands; (2) Use gloves, and change them frequently. Rubber gloves are best, but should be watched for pinholes. Leather gloves may increase exposure.

(3) Change coveralls frequently. Where there is a drifting spray, a slicker should be worn. (4) Goggles should not be worn, except by airplane pilots who dust fields. (5) Make one man responsible for policing the rest of the workers. (6) Provide proper first aid in the fields, and teach the men how to use the antidotes.

Paul Fitts, a farmer from Cornelia, Ga., who participated in the panel, stated that he had excellent results during the past two years with parathion, a spray he uses on fruit.

Justus C. Ward, chief, pharmacological and rodenticide section, insecticide division, Department of Agriculture, Washington, stated that while there are only 25 or 30 chemicals in general use as pesticides, there are about 30,000 trade products on the market, and therefore the labels should be carefully studied in order to know the chemical composition of each particular type. The Department of Agriculture, he stated, is always concerned with new products, particularly those shipped in interstate commerce. The Department must know the effect of such chemicals on men handling them, and what instructions to issue to protect workers.

If the poison is to be used on food, it must go through an extensive series of tests to be sure no injurious residue is left. Some poisons may contaminate the soil, and cause an injurious odor or flavor in s following rotated crop. In other words, a poison used to control harmful insects on tobacco, may persist in the soil and alter the taste of peanuts grown the following season. Any residue, left on a food crop, must be low enough to avoid a possible acute or chronic injury.

Noise in Industry

Noise was defined by Allen Wilson, assistant manager, acoustical department, Celotex Corporation, Chicago, as unwanted sound. He stated that no acceptable standards of level of sound had yet been formulated. Mr. Wilson found that inability to converse with a neighbor in an industrial plant as the result of noise was more annoying than the noise itself. "Nobody minds his own noise," he said, "but doesn't like the other fellow's." He stated that much can be done to reduce noise by proper plant layout, which would include isolation of noisy machinery, mounting machinery on sound-deadening planes, and by noise absorption through the use of absorbent materials on walls and ceilings.

Some Don't Mind

Most interesting was the description given by Dr. C. Stewart Nash, of the University of Rochester, N.Y., a prominent otolaryngologist, of the noise in a plant constructing steel railroad cars, and the problems faced by management. All the 350 men working in the room where the most noise was being made had hearing losses, and all were real claims. Under the laws of the state in which this plant was located, compensation is paid out only if the injury is of sufficient gravity to keep a man from work. Since these men were working, the state compensation law did not apply in their case. The insurance company concerned, however, felt that hearing loss was compensable, and was eager to respect the spirit of general compensation legislation. The company, too, felt that the men were entitled to some compensation, but feared, since carbuilding competition was keen and the net profit was small, that it would go out of business if it had to provide for large scale compensation throughout a man's working life. The union concurred.

A compromise was worked out, which, in Dr. Nash's opinion, was equitable. Compensation will be paid at retirement. The extra premium necessary to carry such compensation is moderate and will not restrict the company's financial operations. The men, by this compromise, can keep well-paying jobs. They themselves are interested in their jobs, do not mind the deafening noise, and feel that it is part of the job--something they have to put up with in the nature of things. (The noise in the plant was measured at 115 to 120 decibels.) The compensation thus comes at a time when, through retirement, a worker's income is seriously reduced, and when he can use every extra dollar he can lay his hands on.

Dust Problem

A great deal of additional knowledge on pneumoconiosis is necessary before this subject can be considered thoroughly explored, according to five prominent specialists who participated in a panel on industrial pulmonary dust diseases. Led by Dr. Lloyd E. Hamlin, medical director, American Brake Shoe Company, Chicago, the discussion covered etiology and pathogenesis, clinical diagnosis and course, rehabilitation, and evaluation of engineering control.

The participants included Dr. Kenneth M. Lynch, dean of the faculty of the Medical College of South Carolina, Charleston; Dr. Burgess L. Gordon, clinical professor of medicine, Jefferson Medical College, Philadelphia; Dr. Oscar A. Sander, co-chairman, Industrial Hygiene Foundation Medical Committee; and Dr. Charles R. Williams, director of applied research, Liberty Mutual Insurance Company, Boston.

"There exists some knowledge that is good," Dr. Lynch said, "but we should not be content with it. We should be willing to hold each dusty occupation under suspicion, as possible hazardous, until full and strictly controlled study proves it not to be. Industry has frequently been misled into complacency by science. Where industry has placed dependence upon science and has not been well guided, or where general ignorance of hazard has not been a fault of industry, it should not be penalized."

Skepticism

Dr. Gordon pointed out that the unreliability of silicosis symptoms is producing much skepticism. He found that many coal miners, in advanced stages of the disease, could continue to do heavy work without noticeable strain. Radiologists, he continued, examining the same patient on different days, frequently arrive at a different diagnosis. X-rays, he indicated, do not always tell the whole story. Marathon runners whom Dr. Gordon examined in six different years were found to be able to compete in 81 days of consecutive exercise, running 40 miles a day, yet many of them had extensive symptoms of pulmonary disorders. Examining these runners at the end of a race, Dr. Gordon found that most of them did not even have a dilated heart. Their hearts were actually smaller than normal, and only after an hour and a half of rest did their hearts return to the normal size.

Rehabilitation

Asking a worker with an incipient pulmonary disability to change jobs is not the answer for treatment of pneumoconiosis disorders, accoring to Dr. Sander. The workers, first of all, has been trained for his job, and depriving him of this training, which gave him a living, would create hardship for himself and his family. The proper treatment is to reduce dust

dissemination at the worker's station, so that he is no longer exposed to dangerous concentrations. Then, when proper dust control has been carried out in the plant, the doctor has a psychological duty to perform, and that is to assure workers their condition will not grow worse by their return to the place which was the origin of their pulmonary troubles.

Dr. Sander's files contain cases who were examined in 1933, and, although in various stages of pneumoconiosis, they are still on the job. Plant conditions, of course, were considerably improved in that time.

Both Dr. Sander and Dr. Williams, who followed him, were dubious as to the benefits to be obtained from aluminum dust therapy. "It is bad engineering," said Dr. Williams, "to add another dust to an existing dust."

Control of Industrial Dusts

Dr. Williams named five ways in which dust can be prevented from getting into the air which people breathe. They are:

1. Isolation, which is accomplished either by building a wall around the offending origin, or by isolating through elapsed time. This would consist of having dusty operations carried on by a few workers, and the work would be completed by others after the dust had settled, on another shift.

2. Substitution of a less toxic material. Here he cited the ground flint and the ground quartz used as a parting compound in foundries, but which have long ago been superseded by harmless compounds.

3. Local exhaust ventilation, with hoods, ducts, and blowers feeding the dust into collectors, whose contents are later properly disposed in locations where it cannot get back into the air.

4. Dilution by ventilation. Dr. Williams does not recommend this.

5. The use of respirators as a last resort.

All Subjects Interesting

Other interesting discussions in the three-day meeting included a panel on hand injuries, which stressed the vulnerability of the hand in industry and the need for effective cooperation in a study of these injuries by compensation administrators, safety experts, physicians, consulting specialists, and rehabilitationists.

Dr. Kessler presided. The participants included Charles A. Miller, safety director, Texas Company; Dr. J.D. Martin, Jr., associate professor of surgery, Emory University School of Medicine; Dr. Elkin Vogt, general practitioner of Lithonia, Ga., and Richard D. Carr, secretary-treasurer, Georgia State Board of Workmen's Compensation.

Civil Defense

Another panel discussion was concerned with the place industrial medicine should occupy in civil defense, and the manner in which plant medical departments should function in an emergency.

Brig. Gen. James S. Simmons, dean, Harvard School of Public Health, presided. The Industrial Health Defense Committee, in addition to General Simmons, consisted of Dr. Kehoe, Dr. Kessler, and Dr. Edward H. Carleton, medical director, Inland Steel Company, East Chicago, Ind., and president, American Association of Industrial Physicians and Surgeons.

Dr. Charles-Francis Long, medical director, Bayuk Cigars, Inc., Philadelphia, and chairman, Commission on Industrial Health and Hygiene, Medical Society, State of Pennsylvania, blueprinted the role the industrial physician should play in emergencies. Dr. M.N. Newquist, medical director, Texas Company, gave a report of a Special Committee on Manpower Conservation, Industrial Health and Peak Production.

The Industrial Hygiene Foundation was represented at the congress by Dr. C. Richard Walmer, managing director, and Robert T. Griebling, executive assistant.

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INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

122 Conference on Noise to be Held April 23, at Atlantic City.

In recognition of the growing importance of Noise as an environmental, occupational hazard with respect to impaired hearing, the Council on Industrial Health of the American Medical Association, and "Committee on Noise in Industry" of the American Academy of Ophthalmology and Otolaryngology will hold a joint conference, morning and afternoon sessions, Monday, April 23, 1951, at the Chalfonte Hotel, Atlantic City. The program will include the consideration of measuring noise levels in the working environment, the control of noise, the diagnosis and prevention of impaired hearing as related to work. This conference is being organized expecially to acquaint industrial physicians with the problem and the prevailing opinions about its management and solution. The program will be announced at an early date.

123 Reprints Available on Noise Measurement.

Copies of the paper "Apparatus for Noise Measurement" by Leo Beranek can be obtained by writing to Mr. Charles Worthen, General Radio Company, 275 Massachusetts Avenue, Cambridge, Mass. Dr. Beranek is an outstanding authority in this field.

124 Air Pollution Meeting.

A two-day meeting of the East Central Section of the Air Pollution and Smoke Prevention Association of America was held in the Auditorium of Mellon Institute on February 8 and 9. 125 delegates from Cleveland, Akron, Detroit, Cincinnati, Louisville and other cities in the East Central Section of the United States attended. Papers were presented on problems of incineration, smoke control apparatus, and the effects of impure atmospheres on paints having a white lead base.

125 Comparative Study of Air Pollution under Way in West Virginia City.

A cooperative plan is being inaugurated in the Charleston, West Virginia, industrial district by which air pollution in the district is being studied. The study will be under the supervision of the industrial health bureau of the West Virginia Department of Hygiene. One technical employee of the bureau will be assigned full time to the study, and laboratory services will be provided. The remaining personnel will be paid from a fund of $27,000 provided by the major industries. It is hoped that after July, 1951, the State will provide funds for continuation of the work. All sources of air pollution will be considered, and all major pollutants will be studied quantitatively.

Ind. Hyg. Newsletter, February, 1951, USPHS

George Bernard Shaw on Smoke.

Smokeless Air, the quarterly published by the National Smoke Abatement Society in London, recalled the fact that the late George Bernard Shaw was very active in promoting the abatement of smoke and other forms of air pollution. In its Winter, 1950 issue, the magazine reprinted a speech Mr. Shaw made at the annual meeting of the Coal Smoke Abatement Society in 1911. The speech was quite humorous and provoked much laughter, particularly when Mr. Shaw came to his final suggestion. He offered the advice that "those who want to get rid of coal smoke should make a practice of carrying about a bag of soot and throwing it over people's collars and shirt-fronts, in order to convince them of the evils of smoke."

OCCUPATIONAL DISEASE STATISTICS

126 Occupational Disease Statistics

	Conn.[2] Jan. 1951	Ind[2] Jan. 1951	Mich.[2] Dec. Jan. 1950-51	Ohio[1] Oct. 1950	Wisc.[2] Dec. 1950	Totals
Allergy					2	2
Carbon Monoxide Poisoning		2	1			3
Carbon Tetrachloride Poisoning					1	1
Conjunctivitis					1	1
Dermatitis	55*	9	35	257	29	385
Eye Infection					2	2
Fumes					4	4
Hernia			11			11
Inflammatory Conditions			1			1
Lead Poisoning		1	9	2	1	13
Lung Irritation					2	2
Miscellaneous			2	125		127
Phlebitis	1					1
Pneumoconiosis			8			8
Pyridine Poisoning		2				2
Silicosis	1	2	18	36	1	58
Silico-Tuberculosis		1				1
Skin Infection					6	6
Skin Irritation					7	7
Tuberculosis (due to contact)				8		8
Unknown			1			1
Total	57	17	86	428	56	644

(1) Occupational Disease Cases reported to the Industrial Commission. There were 69,217 days lost, including one death reported from chemical poisoning and eight from lung diseases.

(2) Occupational disease cases reported to the Health Department.

* Acids, Chromium and compounds, Dyes and inks, Foodstuffs, Friction, tension and repeated motion, Nitro and amino compounds, Rubber chemicals, Soap solutions, glue, etc., and Turpentine caused one each; Paints and lacquers caused two; Synthetic resins and chemicals caused three; Solvents (N.O.C.) caused four, Alkalies caused six; Oil, fats and waxes caused thirty-one; and sixteen were caused by undetermined hazards.

LEGAL DEVELOPMENTS

127 Emphysema--Wheat Handler--Grain Dust Allergy--Test for the Determination of Unspecified Occupational Diseases.

In order for an ailment to be classified as an occupational disease, the court stated that there must be a known relationship between the disease and the employment. Evidence that the condition was contracted in the course of the employment is not sufficient. Since it was conclusively established that the claimant had contracted emphysema and that his condition was the result of an allergy to grain dust and not a hazard of his employment as a grain handler, the court concluded that the condition was not an occupational disease. Sanford v. Valier-Spies Milling Company, St. Louis, Missouri, Court of Appeals. No. 28,008. December 19, 1950. -- CCH

128 Death Benefits--Plant Guard--Exposure to Fumes from Petroleum Products--Conflicting Medical Testimony.

An award of death benefits, in the amount of $8,375, was affirmed in favor of the widow and children of a plant guard who sustained a blood condition as the result of exposure to the fumes of petroleum products while employed in a synthetic rubber factory. Although there was conflicting medical testimony, the court held that the factual issues were resolved by the jury in the claimant's favor and that these findings were binding since there was substantial evidence to support them. The court concluded that the claimant had sustained the burden of proving that the decedent had died of an occupational disease contracted in the course of his employment and that the claimant was not under any obligation to exclude every other cause. Judgment affirmed. Travelers Insurance Company v. McKain, United States Court of Appeals, Fifth Circuit. No. 13,054, January 3, 1951. -- CCH

129 Anthraco-silicosis--Grinding Machine Operator--Claimant's Failure to Prove Exposure to the Silica Hazard--Medical Testimony.

Where the claimant had alleged that he had contracted anthraco-silicosis in the course of his employment for the defendant as a grinding machine operator, the court denied a recovery because of his failure to prove his exposure to the silica hazard. Medical testimony which was introduced on behalf of the claimant, indicated that he was suffering from an advanced stage of silicosis at the time of his employment by the defendant. Sulewski v. Baldwin Locomotive Works, Pennsylvania Superior Court. No. 73, January 12, 1951. -- CCH

BOOKS, PAMPHLETS AND NOTICES

130 The Proceedings of the Ninth International Congress of Industrial Medicine, London, Sept. 13-17, 1948. John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8, England. 1090 pp. (1949). Price L2/2.

The topics discussed in this Congress covered all the principal phases of industrial medicine, social aspects, environment, nursing, clinical aspects, practice, and special subjects. Over 200 papers were presented, and they are given in full in French or English and summarized in this volume. It is a reference source of much practical usefulness. -- F. F. Rupert

131 Bibliography of Occupational Medicine. Vol. 2, International Labor Office, Geneva. 171 pp. (1950). Price $1.10.

This volume extends the bibliography to 1949 and indexes 2350 articles, mostly published in 1949.

132 American Standard, Safety in Electric and Gas Welding and Cutting Operations. Prepared by American Standards Assn., Sectional Committee 249 under AWS Sponsorship. American Welding Society. 44 pp. (1950). Price $.50.

All hazards ordinarily associated with welding are considered, and carefully considered methods of prevention are recommended, beginning with acetylene generators and oxygen cylinders, then to installation and operation of the arc-welding and cutting equipment in all its phases and fire, chemical and radiation hazards. -- F. F. Rupert

133 Company Group Insurance Plans. F. Beatrice Brower. Conference Board Reports Studies in Personnel Policy No. 112. National Industrial Conference Board, Inc., 247 Park Avenue, New York 17. 70 pp. (1951). Available to associated companies at $2.00.

This report concerns a study based on information from 261 companies employing about 2 million workers. Among the trends noted are: increase in the number providing hospital and surgical benefits (tripled since 1945); and more insurance plans tailored to conditions within the particular establishments; and increase in benefits received when the employee is hospitalized, whether in cash or for surgical and hospital payments. About three out of four plans are on a joint contributory basis. The gross premium cost ranges between 1.5 and 2% of the payroll in 2/3 of the companies. Life insurance varies from a flat sum to an amount proportional to wages. Only about a third of union agreements refer to insurance. The general impression is that insurance plans improve morale. -- F. F. Rupert

INDUSTRIAL MEDICAL PRACTICE

134. Occupational Tuberculosis among Interns and Nurses. L. Brahdy. Ind. Med. & Surg. 19, 584-586, (Dec., 1950).

The incidence of tuberculosis among student nurses in a number of hospitals varies from 1.3 to 5%, and similar figures have been found for physicians and medical students. In many states these are compensated, placing a financial burden on the hospital. All steps should be taken to prevent tuberculosis among hospital employees, as necessarily as in industry. These steps should include x-ray examination of all personnel and patients, strict cleanliness, technique in handling sputum, dust control by mechanical and chemical means, and by training personnel in dust prevention methods. Tuberculosis vaccination may be helpful, but only in combination with some of the other methods. A few hospitals have successfully decreased or eliminated occupational tuberculosis, and many more can accomplish the same result by sufficient work.

135. Diseases Commonly Encountered in Tobacco Factories: Methods of Minimizing Them; Preliminary Report. J. S. Santillan, A. A. Gorospe and J. D. Menez, Jour. Philippine M. A. 26, 116, (March, 1950).

Four cigar and cigaret factories in Manila were inspected, and the annual reports on the physical examination of the workers were studied. Diseases of the eye, nose and throat, dental caries and diseases of the gums, and pulmonary tuberculosis were comparatively frequent. The authors believe that tuberculosis is due to environmental and social conditions rather than to tobacco dusts. The eye and nose disorders may be caused by the tobacco dusts, which are poisonous and irritant. The use of exhaust systems in tobacco factories is recommended.

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

136. BCG Vaccination in Sarcoidosis. H. L. Israel, M. Sones, S.C. Stein, and J.D. Aronson. Am. Rev. Tuberc. 62, 408-417, (Oct., 1950).

A study of BCG vaccination under controlled conditions in 20 patients with sarcoidosis indicates that patients with this disease are unable to develop and maintain skin sensitivity to tuberculin. Atypical local reactions occur at the site of vaccination in a small number of patients with sarcoidosis, but in the majority the local reaction is indistinguishable from normal. Vaccination with BCG does not provide significant assistance to the clinician as a diagnostic or therapeutic agent. The failure of development of skin sensitivity to tuberculin in patients with sarcoidosis does not establish sarcoidosis as an anergic form of tuberculosis. The tuberculin anergy exhibited by patients with sarcoidosis appears to be nonspecific, due to intereference with general immunologic mechanisms.

137 Artificial Respiration. A New Method and a Comparative Study of Different Methods in Adults. A.S. Gordon, D.C. Fainer and A.C. Ivy. Report of the Council on Physical Medicine and Rehabilitation. J. Am. Med. Assn. 144, 1455-1464, (Dec. 23, 1950).

The authors have conducted the first thoroughgoing comparison of all the well-known methods of resuscitation, including the Eve rocking method, intermittent positive pressure and alternating positive and negative pressure mechanical methods and the following manual procedures: Silvester, Schafer (prone pressure), Nielsen, Schafer-Nielsen-Drinker (modification of Nielson, Emerson and Schafer-Emerson-Ivy hip lift-prone pressure .) In most cases, warm corpses were used as subjects because they most nearly approximated the condition of the usual subject, but a few normal subjects with voluntary suspended respiration after hyperventilation also served. Air movement into and out of the lungs was measured in all the corpses. The advantages and disadvantages of the Eve method and the five best developed manual methods are presented in a table, and a number of points of comparison are covered in the summary. Among the most important points are: (1) the "push and pull" method, such as the Nielson, is more effective than one that only "pushes", such as the Schafer; (2) lifting the hips (Emerson method) is more effective than the Schafer method; (3) the ventilating efficiency of the Schafer method can be doubled by lifting the hips alternately with the push on the chest (Schafer-Emerson-Ivy method); (4) both types of mechanical respirators provide safe, adequate exchange; (5) mechanical respirators should be considered as adjuncts and not substitutes for the manual method, preferably of a "push and pull" type; (6) concern for maintenance of circulation should be secondary, because blood movement will probably be proportional to the effective manual or mechanical intrapulmonary pressure alteration produced.

138 Bursitis. G. F. Apfelbach.
Ind. Med. & Surg. 19, 476-479, (October, 1950).

The anatomical locations of the more common bursae have been presented. Not all pathological changes of bursae are of traumatic origin. A careful clinical investigation must often be made to determine the etiology. The acute traumatic bursa is best treated by aspiration of the hematoma, gentle compression and rest. Repeated aspirations risk infection. The tennis elbow may have three or more etiologies. Pneumoarthrography is a safe procedure to aid in the diagnosis of bursal enlargements, the anatomical connection of bursae with joints, and the determination of the character of bursal contents. -- Author's Summary

139 Fate of Oil Particles in the Lungs and Their Possible Relationship to Development of Bronchiogenic Carcinoma. L. R. Sante, Am. J. Roentgenol 62, 788, (December, 1949).

Sante summarizes the available knowledge concerning the response of the lungs to instillation of various types of oils, namely, highly refined vegetable oils free from fatty acids, animal oils and mineral oils. It is noted that the vegetable oils are eliminated without evidence of damage.

Animal oils produce acute lipoid pneumonia, but complete recovery and elimination of the oil may occur. Mineral oil is taken up by the alveolar phagocytes but is not digested by them and may result in acute lipoid pneumonia or chronic granulomatous infiltration, or "paraffinoma," hard fibrous masses containing the oil droplets and located at the lung roots.

The author presents two cases of bronchiogenic carcinoma. In both cases liquid petrolatum had been used daily for a period of years. In one case the pathological studies indicated that the carcinoma arose in an area of organized lipoid pneumonia, while in the other organizing lipoid pneumonia was present throughout the tumor-bearing area. In view of the fact that many hydrocarbons are known to be carcinogenic, the author speculates that liquid petrolatum may have been an etiologic agent in these cases. -- Arch. Ind. Hyg. & Occ. Med.

140 Newer Occupational Diseases. J. B. Skinner. New Engl. J. Med. 243, 482-486, (1950).

Among the subjects discussed in this review are: radiation injury from shoe-fitting fluoroscopes; coccidiomycosis in a wool sorter (one case); and poisoning by beryllium, parathion, and tetryl. -- Chem. Absts.

141 Annual Report of the Division of Industrial Hygiene, Vermont Department of Health, Fiscal Year Ending July, 1950. H. B. Ashe, Director, Barre, Vt., 10 pp. (1951).

Since granite quarrying is one of Vermont's principal industries, it received the most attention from the Division for the year and in future plans. Wet and dry methods of dust control have been used with some success. Other industries studied were slate and asbestos mills, wood-working plants (for lacquer and paint fume exposure) and gas and service stations. A total of 230 plants were visited, 1249 chest x-rays were taken, and 1194 recommendations were made.

142 Studies of Health Hazards in Industry. J. J. Bloomfield. Ind. Hyg. Newsletter (USPHS) 10, 22-24, (Dec., 1950); 11, 8-10, (Jan., 1951).

The article is one of a group of lectures given by the author to a class of physicians in Rio de Janeiro, Brazil. The subject is limited to dusts which are capable of producing fibrosis of the lungs of an incapacitating character. Before presenting findings from his own experience, the author reviews the important factors to be considered in dust inhalation. The properties which determine the capacity of a dust to produce pulmonary pathology are: (1) The chemical and mineralogical composition of the dust, (2) its size, (3) its concentration in the air, and (4) the duration of exposure. After a discussion of each of these subjects the author states some general considerations and conclusions. He believes that the conclusion that all dusts are potentially dangerous cannot be resisted. He states, also, his belief that any lung disease caused by dust could be

eliminated if the present knowledge with regard to the prevention and control of dust exposure were applied. Attention is called to the importance of particle-size of dust as a factor in causing certain types of lung disease. Pulmonary conditions, the roentgenograms of which simulate those of silicosis are classified according to their causes.

143 Congestive Heart Failure of Renal Origin; Pathogenesis and Treatment in Four Cases of Carbon Tetrachloride Nephrosis. C. K. Friedburg. Am. J. Med. 9, 164-174, (August, 1950).

Experience with the four cases, one fatal, which are described in detail, emphasized the factor of excessive use of liquids in the treatment. Deficient excretion of sodium and water due to primary renal disease can produce the syndrome of congestive heart failure without cardiac disease; this was true in the cases described, where the subjects were young and health. These cases are described not only to reemphasize the danger of fatal pulmonary edema due to overzealous administration of massive quantities of fluids, but also to stress the frequency of congestive heart failure, with sodium and water intake in amounts not ordinarily excessive for persons with normal hearts. This report also stresses the fact that the treatment of carbon tetrachloride nephrosis should be directed briefly toward prevention and control of heart failure, without regard to the concomitant azotemia, associated acidosis or electrolyte disturbance. This emphasis is justified, because fatalities from lower nephron nephrosis are most commonly due to this complication. The renal disturbance is of relatively brief duration, with spontaneous diuresis and recovery usually beginning within two weeks of exposure to the chemical.

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

144 Cardiovascular Disease in the Steel Industry. L. T. Smyth. Ind. Med. & Surg. 20, 34-37 (Jan., 51).

The results of a study of the prevalence of cardiovascular disease in a large steel plant are reported, and the case-finding methods described. The value of the mass chest x-ray survey using miniature film as a method of case finding is emphasized, and the significance of cardiovascular disease in the steel industry is discussed.

145 They'll Wear Clean Respirators. Anon. Nat. Safety News 62, 32-33, 82-83, (Dec., 1950).

Systematic cleaning and maintenance of respiratory protective equipment has resulted in a 100% increase in the use of dust, fume and chemical cartridge respirators by the employees of Bethlehem Steel Company. Respirators are picked up and delivered daily in all departments. The respirators, of three types, with interchangeable parts, are dismantled, the filters discarded, the parts cleaned in soap and water, disinfected and dried, and the respirators are assembled and put in cellophane bags. Parts used in paint spraying or greasy operations are given special treatment.

146 Effectiveness of Gauze Respirator for Sulfuric Acid Mist. A. Wallach. Am. Ind. Hyg. Assn. Quart. 11, 215-219, (December, 1950).

Commercial untreated gauze, 30 mesh, on a suitable wire frame, appears to be an effective respirator for sulfuric acid mist. Six to ten layers may be used, depending upon the mist concentration. Resistance of the pad to inhalation and exhalation is less than 1/16 inch of water under conditions equivalent to maximum exertion. There was no conclusive evidence of correlation between filtering efficiency and atmospheric mist concentration, but the efficiency appears to increase with rapidity of breathing. Such a device is of practical value, especially for workers exposed continuously to excessive amounts of acid mist over a three to four hour period and where no feasible engineering control seems possible. It has the advantages over the usual acid mist filter-type respirator approved by the Bureau of Mines in that it minimizes the dermatitis problem to the face, has practically no resistance in breathing, and the "cartridge" replacements are less expensive.

-- Cond. from Author's Summary

147 Deposits of Calcium Carbonate Crystals in Conjunctiva Following Carbide Corrosion. E. Heinsius, Klin. Monatsbl. f. Augenh. 115, 673, (1949). In German.

The author reports observations on two patients who had sustained carbide corrosion of the conjunctiva while working. He gives his theory for the formation of crystals of calcium carbonate, which is derived in part from experiments on rabbit eyes. He points out that the question of early surgical transplantation versus conservative treatment in these cases is still not definitely decided. Recommendations are made as to procedure in cases where transplantation is required.

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

148 Tuberculosis of Tendon Sheaths, as an Occupational Disease. L. Holscher. Monatsschr. f. Unfallh. 53, 97 (April, 1950). In German.

Two butchers who worked in the same slaughterhouse developed tenosynovitis of the fingers after they had handled meat from cattle infected with tuberculosis. Neither of the men had had any pulmonary disturbances. Microscopic studies of a biopsy specimen obtained from the sheath of the flexor tendon revealed in both instances tuberculous granulation tissue. Treatment consisted in extirpation of the tendon sheath. The author accepts both these cases as of occupational origin, although a direct percutaneous mode of infection, in both cases, is suggested. The author feels that the two modes of infection which indicate an occupational origin are tuberculous infection of the tendon sheath caused by a trauma or the spreading to the tendon sheath of tuberculosis of the skin which resulted from accidental inoculation of tuberculous material.

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

SKIN DISEASES AND BURNS

149 The Patch Test--Its Technic and Interpretation. W. Weinberger. Arch. Ind. Hyg. & Occ. Med. 2, 565-573, (November, 1950).

The author discusses briefly the techniques of the various types of epidermal test, together with their applications, indications, value, limitations, dangers, interpretation and reading. Under the heading "precautions and contra-indications," eight common fallacies in patch testing are listed.

150 Dermatitis Due to Contact with Iodoacetic Acid. M. D. Marcus and J. B. Frerichs. J. Am. Med. Assn. 142, 805-806, (March 18, 1950).

Iodoacetic acid is a caustic chemical which is being increasingly used. Contact with even minute, subvisible particles, such as may inadvertently occur in laboratories, may produce dermatitis. More important, similar contact might well affect the eye. It is probable that the chemical acts as a primary irritant, although the possibility of the existence of a sensitization mechanism has not been ruled out in these two cases. "It is suggested that persons handling iodoacetic acid take every precaution to prevent injury to skin and eyes. The most important precautions would appear to be: (1) careful handling of the chemical, (2) prevention of air currents in the weighing room, (3) wearing of rubber gloves, which sould be inspected daily for holes and tears, (4) wearing of gogles or spectacles and (5) thorough washing of hands and exposed portions of the arms and face immediately after handling the acid."

151 Experimental Granulomas of the Skin. F. R. Dutra, Arch. Ind. Hyg. & Occ. Med. 3, 81-89, (Jan., 1951).

Beryllium granulomas have occurred in the skin and subcutaneous tissues of pigs after implantation of phosphor powders which contain beryllium oxide. Nonspecific granulomas of foreign body type occurred in the tissues into which metallic beryllium or beryllium oxide alone had been implanted. Two different samples of powdered beryllium oxide, one of which was calcined at a relatively low temperature for a relatively short time as contrasted with the second, produced tissue reactions that differed greatly. The more extensive and protracted reaction was produced by the powder which had been calcined least.

-- Author's Summary

CHEMICAL HAZARDS

152 Industrial Toxological Investigation. H. F. Smyth, Jr., and C. P. Carpenter, Am. Ind. Hyg. Assn. Quart. 11, 195-200, (December, 1950).

This paper describes the organization and working plan of the Chemical Hygiene Fellowship at Mellon Institute, sponsored by the Union Carbide and Carbon Corporation. This Fellowship now has a staff of 25, and toxicological investigation of a large number of products has been accomplished.

153 Control of Health Hazards in Dry Cell Manufacture. H. A. Roche. Tenn. Ind. Hyg. News. 7, 1-3, 14, (October, 1950).

The principal hazardous dusty material used in the industry is manganese dioxide, which is toxic in sufficient quantities over a period of time. The maximum permissible concentration according to Tennessee authorities is 6 mg. manganese per cubic meter of air. The hazard is greatly reduced by exhaust ventilation, and exposure is watched by means of periodic examinations. Other hazards arise from zinc and ammonium chlorides as irritants, pitch and asphalt vapors in the sealing process, and soldering. Again the use of exhaust ventilation, with protective clothing, reduces these hazards to a safe limit.

154 Occupational Health Hazards. W.H. Cary, Jr., and P.J. Valaer. J. Am. Water Works Assn. 42, 485-489, (May, 1950).

This is a general consideration of possible health hazards in the water works industry. The principal hazards occur in the chemical treatment of water, including exposure to chlorine, sulfur dioxide or ammonia gas, hydrogen fluoride, and the various solutions used. The others are of miscellaneous origin, involved in the various incidental operations of water works.

155 Methemoglobin-Producing Poisons in Industry. P. Cheramy, Semaine d. hop. Paris 75, 3084, (October 10, 1949). In French.

The chemistry of hemoglobin and methemoglobin is reviewed. Chlorates, nitrites and nitro and amino derivatives of aromatic compounds can transform hemoglobin to methemoglobin, thus producing anoxia and cyanosis. Measures must be taken in industry to prevent inhalation of these compounds or their penetration of the skin. -- Arch. Ind. Hyg. & Occ. Med.

156 Occupational Jaundice and Anemia. E. Browning. Practitioner 164, 397, (May, 1950).

The author shows that jaundice or anemia or a combination of both may be the consequence of exposure to toxic agents, either chemical or physical. Compounds which include aniline, nitrobenzene, dinitrobenzene and trinitroluene are, as a group, agents which may cause both anemia and jaundice. Carbon tetrachloride, the chlorinated naphthalenes and phosphorus may cause jaundice. The chief point of action of the aromatic hydrocarbons is the hemopoietic system. The many toxic agents which produce dyshemopoiesis may be classified as (1) those which act directly on the marrow, (2) those which act on the peripheral blood cells, and (3) those which form methemoglobin. The primary action of most substances known to produce aplastic and hypoplastic blood conditions is to cause liver damage. Once the protective filter is eliminated, the poison is free to act on the marrow. -- Cond. from Arch. Ind. Hyg. & Occ. Med.

157 The Significance of Heinz Bodies in the Erythrocyte. M. Buckell and J.D. Richardson. Brit. J. Ind. Med. 7, 131-139, (July, 1950).

That Heinz bodies are a definite structure formed in the erythrocyte and not an artefact arising from the method of examination as has sometimes been suggested, would seem to be established by the mass of evidence now published. But this is about as far as that knowledge really goes. The biochemical nature of Heinz bodies is still not fully understood, and with a more complete knowledge, insight into the chemical changes, cuasing their production should be gained. -- Author's Summary

158 The White Blood Count in Sprayers Using Quick-Drying Paints. A Study of the Health of Workers Using Benzene Solvents in a Modern Factory. F. Jindrak and K.T. Vesely. Casopis Lekaru Ceskych. 89, 285-288, (Mar. 10, 1950). (In Czechoslovakian).

Blood examinations were carried out on twenty-five persons employed for up to twenty-three years in spraying quick-drying paint which was dissolved in solvents of the benzene type. The work was carried out in cabinets from which the vapor-laden air was removed by exhaust fans. The investigation included seventy-one employees engaged in other work. The only abnormalities among paint sprayers were a slight leucocytosis, a slight lymphocytosis after sternal puncture and positive results in many cases in the Rumpel-Leede test. Findings in the other cases were negative. It is concluded that no toxic effects were produced by exposure to benzene vapor in the given circumstances. -- French Summary

159 A New Aspect of the Hematology of Lead Poisoning. I. Garta. Wien. klin. Woch. 61, 610-613, (September 23, 1949). In German.

The author considers that basophil stippling of the red cells is not characteristic of anemia caused by lead poisoning, since it occurs in other forms of anemia. The macrocytic-hyperchromic and the microcytic hypochromic types of lead anemia are described. -- Cond. from Bull. Hyg.

160 Studies of Variations of the Blood Picture During the Course of Inhalation of Certain Organic Solvents: Experiments on Animals. J.H. Besse. Arch. d. mal. profess. 2, 22 (1950). In French.

Studies were made of the blood of eighteen workers who were exposed to a mixture of organic solvents employed in applying cellulose pigments. The solvents were methyl, ethyl and butyl alcohols, methly and butyl acetates, methyl cyclohexanone and methylethylketone. The main blood change was a marked drop, sometimes as much as fifty per cent, in the number of neutrophilic segmented granulocytes. No clinical or pathologic signs were evident at any time. In guinea pigs exposed to the vapors of the same mixture of solvents the signs of intoxication were striking. Symptoms appeared rapidly and could lead to the death of the animal in a short time. Chronic exposures caused a fall in the number of neutrophilic segmented granulocytes, lymphocytosis and lesions of the lungs, the testicles and the adrenal glands. -- Arch. Ind. Hyg. & Occ. Med.

161 Chemical Composition of Rabbit Bone Marrow in Benzene Poisoning. A.A. Dietz and B. Steinberg. Arch. Biochemistry 26, 291-298, (April, 1950).

Rabbits were given 75 mg. benzene/100 g. body weight daily in two subcutaneous injections. The marrow was analyzed at several degress of injury. The action of benzene on the marrow was to increase its water content and to decrease the amount of lipide, residue, total and non-protein nitrogen, and non-protein sulfur fractions. The ratio of nitrogen to residue was not altered, and the phosphate concentration remained normal. Animals which were permitted to recover from the benzene intoxication, until the marrow and blood leucocyte counts were normal, had marrow that was essentially normal in chemical composition. A comparison was made with the changes caused by x-rays. -- Bull. Hyg.

162 Vinyl Coatings Are Safe. C. G. Munger. Safety Rev. (U.S. Navy) 7, 4-9, (August, 1950).

In the January number of this magazine an article (not abstracted) stated that application of vinyl coatings is hazardous. The author refutes the statement to a large degree, showing that the solvents used in paint and varnish for this type of resin are not materially different from those in other paints. A table of flash-points and explosive mixtures of solvents is given. Second, regarding the fire hazard of the dried paint, it has been shown that the vinyl film is self-extinguishing. The toxic properties of the solvents used are no greater than those for other paint. As with other varnish materials, care must be taken to avoid exposure and fire.

163 Toxicological Studies of Compounds Investigated for Use as Inhibitors of Biological Processes. I. Toxicity of Vinyl Propionate. A.M. Ambrose, Arch. Ind. Hyg. & Occ. Med. 2, 582-590, (November, 1950).

Studies have been presented on the toxicity of vinyl propionate administered to rats by various routes. From the experimental data obtained, it is tentatively suggested that unnecessary or prolonged exposure to vapors of vinyl propionate be avoided or reduced to a minimum. Cutaneous and mucosol absorption of vinyl propionate and prolonged ingestion of food contaminated with this chemical do not appear to present serious hazards under the conditions of the experimental procedures reported herein. Concentrations of inhaled vinyl propionate of 110 p.p.m. were quickly fatal. -- Cond. from Author's Summary

164 Toxicological Studies of Compounds Investigated for Use as Inhibitors of Biological Processes. II. Toxicity of Ethylene Chlorohydrin. A.M. Ambrose, Arch. Ind. Hyg. & Occ. Med. 2, 591-597, (November, 1950).

The toxicity of ethylene chlorohydrin was demonstrated in rats by various modes of administration. This substance appears to be extremely toxic by inhalation; 7.5 p.p.m. for one hour was fatal. From the author's studies and from reports of others on human subjects it is concluded that inhalation of vapors of ethylene chlorohydrin and contact of the skin with this chemical should be avoided or reduced to a minimum.
-- Cond. from Author's Summary

165 Intoxication by the Refrigerator Gas, Methyl Chloride. An Epidemiological Study. A. Vilches. Rev. Inst. Bacteriolog. Malbran. 14, 63-73 (1949). (In French).

Several cases of a disease, fairly acute in onset, with symptoms predominantly nervous, were observed by the author. After the rejection of an early diagnosis of "virus encephalitis," the author considered the possibility of some form of poisoning. Enquiries revealed that a refrigerator had been acting unsatisfactorily for some time, and that there had been a leakage the day before the onset of the symptoms. Methyl chloride was implicated because the escaping gas was inflammable. Administered to guinea pigs the gas caused death, with tonic and clonic spasms. In small domestic refrigerators the danger from leakage is not likely to be great because of the small quantity of the substance needed. In large, central, installations the risk is greater. The author suggests the addition of some substance with a definite odor, which will reveal any escape of the toxic methyl chloride. -- Cond. from Bull. Hyg.

166 Comparative Toxicity of Five Glycerol Ethers. C.H. Hine, P. Loeb and H.H. Anderson. Arch. Ind. Hyg. & Occ. Med. 2, 574-581, (November, 1950).

An appraisal of the acute toxicity and local cutaneous effects of five glycerol ethers indicated that these compounds would create no serious problems through their industrial application. -- Author's Summary

167 Toxicology of the Glycols. J. Scholz. Klin. Wochschr. 28, 69-71, (1950). (In German).

An explanation is sought for the difference in toxicity of the various glycols. All glycols appear to damage the kidney because they accumulate there without being excreted. The toxicity is increased if the glycol cannot be metabolized or produces toxic metabolites. Breakdown of glycols occurs more readily if the hydroxyl groups are vicinal. The toxicity of ethylene glycol does not seem to be due to acid formation. Blanket restrictions on the use of glycols seem unjustified since some are much less toxic than others. -- Cond. from Chem. Absts.

168 Acetone and Its Action on Human and Animal Organs, Especially on the Eye. J.J. Gomer. Z. Hyg. Infektionskrankh. 130, 680-692, (1950). (In German).

The injurious effects of acetone on the eye are ascribed to pure acetone itself rather than to impurities in technical acetone. The removal of water by the acetone causes a gelatinous flocculation and transparency of the sclera. -- Chem. Absts.

169 Toxicity to Latex. Queries and Minor Notes. J. Am. Med. Assn. 144, 809, (October 28, 1950).

The case is reported of a man who suffered from headaches, possibly due to working with liquid latex, which was highly atomized or to a solvent used in the treatment of latex. A discussion is given of various solvents used to stabilize the latex milk. Some of the hydrocarbons mentioned, including gasoline, are known to produce headaches on occasion. If benzene, carbon tetrachloride or carbon disulfide is present, a higher degree of damage might result, necessitating special medical examinations.

170 Carbon Disulfide and Hydrogen Sulfide. II. A Follow-Up Clinical Study of Low Grade Exposures. H.H. Rubin, A.J. Arieff and F.W. Tauber. Arch. Ind. Hyg. & Occ. Med. 2, 529-533, (November, 1950).

This is a report of the clinical findings and the results of biochemical examinations of a group of workers with low grade exposure to carbon disulfide and hydrogen sulfide, 63 of these having been included in a clinical study five years previously. Psychic and neurological symptoms are vague and again cannot be correlated with toxicity. Aberrant signs seen previously were demonstrable in the follow-up study, which emphasizes our impression that they are deviations from the average rather than indications of pathologic change. Subjective complaints and objective neurological signs

were less prominent in this group made up entirely of shift workers. Carbon disulfide absorption was minimal, as evidenced by the fact that it was not present in the urine in detectable amounts. The total cholesterol values of the blood were within normal limits. -- Authors' Summary

171 Hydrogen Sulfide Causes Death of Three Men in Well. Industrial Hygiene Div., Florida State Board of Health. Ind. Hyg. Newsletter (USPHS) 10, 13, (December, 1950).

Hydrogen sulfide that had accumulated at the bottom of a well caused the death of a workman digging muck and of two other men who attempted to rescue him. The occurrence of hydrogen sulfide in wells is not uncommon, and precautions are outlined to prevent accidents like the one described. They include: (1) driving out the gas with air; (2) use of a life line; (3) the winch should be large enough to lift a man; and (4) if a worker in the well becomes dizzy or has trouble breathing he should immediately be brought to the surface.

172 The Poisonous Properties of Alkaline Cyanides Used Industrially, Particularly in Work Places Where Thermic Processes are Carried Out. M. Stempfel. Arch. Malad. Professionnelles. 10, 621-623, (1949). (In French).

Alkaline cyanides are especially dangerous if mixed with acids, when there is free evolution of hydrogen cyanide or prussic acid. The high temperatures employed in the tempering and in the cementation of steel do not increase any danger from the formation of hydrocyanic gas, even should acids be present, since the cyanide is decomposed at these temperatures. Wherever cyanides are used waste materials must be treated with a strong solution of sulphate of iron. Means for rendering first aid in case of cyanide poisoning should be provided. -- Cond. from Bull. Hyg.

173 Ammonia. Ind. Health Bull. 4, No. 5, State of New Jersey Dept. of Health, Div. of Ind. Health, 12 pp. (1950).

The hazards involved in handling ammonia are discussed briefly, under the subjects of toxicology, detection and determination, permissible concentrations, medical and engineering control, and medico-legal aspects.

174 Serum Copper in Metal-Fume Fever. J.R. Wallgren and O. Gorbatow. Nord. Med. 41, 764, (April 29, 1949). (In Norwegian).

A study was made of twenty patients with metal fume fever. Seventeen of them were employed in the copper industry and three worked with zinc or brass. Typical metal fume fever was observed in thirteen, whereas seven had only mild or indistinct symptoms. The mean figure of 126 $\pm$ 11 micrograms per 100 cc. is taken as the basis for the evaluation of the serum copper values obtained, using the carbomate method. In eight of the cases of metal fume fever, serum copper exceeding 160 micrograms per 100 cc. was

noted, which is definitely pathological. In three of the remaining cases, serum copper values were normal, and the symptoms were caused by zinc. The increased serum copper values are assumed to be the direct result of inhalation and absorption of copper dust. -- Adaptation of English Summary

175 Protective Clothing for Work with Mercury and its Cleaning from the Latter. K.V. Migai. Gigiena i. Sanit. 6, 17-20, (1950). (In Russian.)

Vapor permeability tests (static) showed that all cotton, flax and wool fabrics are penetrable within 1-2 hours; rubber and plastic treated cloth in 3-5 hours. The best was a protective fabric developed by the Kharkov Industrial Health Institute (not described) which gave no penetration for 3-5 days. Since all fabrics are permeable to vapors, the ease of contamination by the metal is the only controllable factor, on the basis of which tightly woven cotton fabrics are best and are recommended. Directions for washing are supplied. -- Chem. Absts.

176 Chronic Pulmonary Granulomatosis in Residents of a Community near a Beryllium Plant: Three Autopsied Cases. C. Chesner. Ann. Int. Med. 32, 1028, (June, 1950).

Chesner presents the histories and necropsy reports of three cases of chronic pulmonary granulomatosis occurring in residents near a beryllium plant. The chief autopsy findings were confined to the lungs. The microscopic sections showed a nodular and diffuse granulomatous lesion replacing the lung parenchyma. The patients died of pulmonary insufficiency with right-sided heart failure. Spectrographic analysis of the lung ash in case 1 revealed the presence of beryllium. Beryllium was recovered from the tissues in cases 2 and 3. Such a recovery of beryllium would only indicate that the individual had inhaled beryllium during life. Beryllium analysis should be done on autopsy material from persons who have been living in areas where beryllium plants are located and who have no history of chronic pulmonary granulomatosis. This might help in a determination of the relationship between exposure, the finding of beryllium in the tissue, and disease. The author reviews the histories of 11 cases of delayed chronic pneumonitis which occurred near a plant in which beryllium was processed. Four of the 11 (all non-fatal) worked in the plant and represented a small proportion of the number employed. Three of the other cases were fatal. Possible explanations for exposure were found in some cases. Air sampling revealed a minimal contamination for only a short distance from the plant. -- Cond. from Arch. Ind. Hyg. & Occ. Med.

177 New Aspect of Poisoning by Selenium Compounds. R. Rohmer, E. Carrot, and J. Gouffalt. Bull. Soc. Chim., France, 275-278, (1950). (In French).

A chemist, exposed to a high concentration of hydrogen selenide, developed a severe hyperglycemia controllable only by increasingly large doses of insulin. Attempts were made to produce a similar condition in laboratory animals by exposing them to hydrogen selenide and by the

injection of sodium selenite. A relatively mild and transitory hyperglycemia was found to be associated with selenium poisoning in these animals. The authors conclude that, in a predisposed subject, selenium poisoning might act to precipitate the diabetic state. -- Chem. Absts.

178 Administration of BAL in Selenium Poisoning. J.B. Belogorsky and D. Slaughter, Proc. Soc. Exptl. Biol. & Med. 72, 196-198, (1949).

Twenty-six white rats equally divided in sexes were used to investigate the effects of BAL in selenium poisoning. Selenium alone consistently produced liver damage in rats when administered in an amount of 5 mg. per kg. once a day for a period of several days. BAL alone, in the dosage of 15 mg. per kg., did not produce any untoward symptoms of pathological changes in the liver or kidney of the experimental animals. When BAL was administered simultaneously with selenium no liver damage resulted. However, tubular necrosis was observed. This was probably responsible for the death of the majority of animals. It is proposed that sulfhydryl-groups furnished by BAL exert a specific protective action in preventing liver damage usually produced by selenium, and that BAL enhances the toxicity of selenium for the kidney. -- Authors' Summary

179 Suggested Maximum Allowable Concentration of Insoluble Uranium Compounds in Air. H.C. Hodge, H.E. Stokinger, W.F. Neuman, W.J. Bale and A.E. Brandt. Atomic Energy Commission Document 2784, 115 pp. (December 22, 1949).

Results are given in uranium content of lung tissue and of pulmonary lymph nodes in dogs and rats, which were exposed for one year to atmospheres containing uranium oxide at concentrations averaging about 10 to 1 mg. U per cu. m. It is predicted that a lowering of the dust concentrations would result in a roughly comparable lowered uranium content in lung tissue and pulmonary lymph nodes. Small particles produced a lung content much greater in proportion to their size than large particles at the same concentration. Studies were made of the chemical toxicity of various uranium ores. From the standpoint of chemical toxicity, the suggested maximum allowable concentration range of 200 to 250 micrograms per cu. m. in the cases of uranium oxide and uranium fluoride allows a reasonable margin of safety. -- Cond. from Nuclear Sci. Absts.

180 Experimental Production of Malignant Tumors by Beryllium. J.M. Barnes, Lancet,463, (March 11, 1950).

Reference is made to earlier experiments in which bone sarcoma is produced in rabbits by the injection of zinc beryllium silicate and beryllium oxide suspenions. The author conducted experiments on twenty-four young rabbits which were given a series of intravenous injections of a washed suspension of finely divided beryllium metal in water. Nineteen rabbits died within a month with acute liver necrosis and typical signs of acute poisoning by a soluble beryllium compound. Two of the remaining rabbits died from pulmonary infections, two developed characteristic bone sarcomata and only one survived. The author considers that since there seems to

be little doubt that beryllium can produce neoplasms in rabbits, attention should be drawn to another possible industrial hazard.
-- Cond. from Bull. Hyg.

181 Experimental Research on Intoxication by Hexamethylenediamine. C. Ceresa and M. DeBlasiis, Med. d. Lavoro 41, 78, (March, 1950). (In Italian).

Ceresa noted anemia of the hemolytic type in several workers employed in a nylon-fabricating factory. Experiments by the authors on guinea pigs present evidence that hexamethylenediamine was the causative agent. A previous work by Ceresa showed that crude adiponitrile also produces hemolytic processes. -- Cond. from Authors' Summary

182 Lead Poisoning in Workers Filing Automobiles. E. Barraso, Med. d. Lavoro 41, 86, (March, 1950). (In Italian).

Several hundred workers employed in filing automobile bodies were periodically examined from 1946 to 1949, inclusive. Thirty-three cases of lead poisoning were encountered. The frequency of the symptoms was as follows: Anemia was present in all, with an average red corpuscle count of 3,200,000 and a hemoglobin content of 66 per cent (Sahli); increased coproporphyrinuria was present in 79 per cent; a lead line, in 61 per cent; stippling (more than 100:1,000,000), in 60 per cent; intestinal troubles, in 60 per cent; gastric troubles, in 49 per cent; constipation, in 45 per cent; lead color, in 33 per cent; lead colics, in 18 per cent; myalgia and arthralgia, in 12 per cent; lead hypertension, in 12 per cent; hyperthyroidism, in 9 per cent. One man showed lead palsy. The great danger in filing bodies with grinding machines and rotating brushes is stressed. For prevention several technical measures are suggested, the most important of which is to discontinue the filing with mechanical means and go back to the system of filing by hand. -- Adaptation of Author's Summary

183 BAL and Lead Poisoning: II. Effect on Blood Changes. G. Graziani, Folia Med. 32, 472, (1949). (In Italian).

The animals receiving BAL showed only a slight reduction in red corpuscles, and in only half of the animals appeared a few basophil-stippled red cells. The controls showed a fully developed picture of lead poisoning.
-- Adapted from Arch. Ind. Hyg. & Occ. Med.

184 BAL and Lead Poisoning: I. Action of BAL on Coproporphyrin and Lead in the Urine. G. Graziani, Folia Med. 32, 467, (1949). (In Italian).

Rabbits were poisoned with doses of 0.1 Gm. lead acetate given orally every other day. One group received daily 10 mg. BAL per kilogram. The increase in elimination of coproporphyrin was equal in both groups but reached higher values in the BAL-treated animals because they survived longer. The lead elimination was slightly higher in the BAL-treated animals. The elimination increased in all animals gradually to become constant after 10 to 12 days. -- Adapted from Arch. Ind. Hyg. & Occ. Med.

185 Phenol in Blood and Urine in Experimental Intoxication with Trinitrotoluene.
G. Graziani, Folia Med. 32, 461, (1949). (In Italian.)

Phenols were determined in the blood and urine by the method of Theis and Benedict. The phenols in the blood of six rabbits receiving a daily dose of 20 mg. of trinitrotoluene increased, while the urinary elimination dropped. This effect is related to the renal damage produced by the poison. -- Adapted from Arch. Ind. Hyg. & Occ. Med.

186 Exposure to DDT, Queries and Minor Notes.
J. Am. Med. Assn. 145, 448 (February 10, 1951).

A worker engaged in filling cylinders with an aerosol containing DDT comes into direct contact with the aerosol when he detaches the filled cylinder from the supply source. He wears no protective covering. The question arises as to whether he is exposed to any hazard in the work. The writer states that any workman repeatedly subjected to such exposure, even in small amounts, should be provided with protection, since DDT accumulates and is stored in fatty tissues. Later in periods of illness leading to fat loss this accumulation may be mobilized, causing significant damage. Exhaust ventilation should be installed, and hand protection, the type depending on the solvent should be provided. If the solvent is toluene or xylene along with carbon dioxide as the propeller, the additional hazards of dermatitis on contact or injury from inhalation would be present.

187 Factors Influencing the Mechanism of Lead Poisoning.
J. Muller, Pracovni Lekarstvi 2, 49, (1950).

The ability of red blood cells to adsorb lead was studied. In non-exposed cells, the finding of Behrens and Pachur of a logarithmic relationship between lead added and lead adsorbed by a red cell was verified. Further it was shown that there are differences in the ability of red cells of different individuals to absorb lead. It was assumed that the appearance of nonhematological symptoms of lead poisoning depended on the lead flowing into the interstitial fluid and that only lead not bound to red blood cells is available to reach the interstitial fluid. Therefore, persons whose red cells have a smaller ability to adsorb lead will show hematological signs of lead poisoning sooner than those whose red cells adsorb lead better. The ability of the individual cells to adsorb lead, therefore, can be used as a measure of individual resistance to lead poisoning. In persons with adequate previous exposure a different shape of absorption curve was found. The shape of the curve gives an indication of immediate danger.
-- Adaptation of Author's Summary

188 Blood Phenols and Urinary Conjugated Sulfates in Experimental Benzene Poisoning Treated with Vitamin C. L. Pecora, Folia Med. 32, 489, (1949). (In Italian).

Inhaled benzene is oxidized by the organism to phenols, which are excreted as conjugated sulfates. For that reason the ratio conjugated S: total S increases in benzene poisoning. Rabbits were poisoned with daily injections of 1 cc. per kilogram of a forty per cent solution of benzene in oil. A group received also 0.1 gm. ascorbic acid intramuscularly. Treatment with benzene alone produced an increase in free and total phenols in the blood, followed by a drop that was more accentuated in the conjugated part. In the group treated with ascorbic acid the conjugated fraction increased more and the later fall was delayed. The conjugated compounds in the urine increased in the ascorbic acid group still more markedly and increased more slowly. Ascorbic acid also prolonged survival.

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

189 Peripheral Blood and Myelogram in Experimental Trinitrotoluene Poisoning. T. Sessa and O. Longo, Folia Med. 32, 448, (1949). (In Italian.)

Daily doses of trinitrotoluene caused death in guinea pigs in three to eight days after a total dose of 0.6 to 2 Gm.; 0.04 Gm. per week caused death within a month. In rabbits 0.08 to 0.12 Gm. given weekly caused death in 30 to 45 days. The acute poisoning produced severe anemia with hyperchromatosis and high reticulocyte formation, leukocytosis and atypical, high erythroplastic activity of the bone marrow. Chronic poisoning produced in the guinea pig a more moderate anemia and reduced bone marrow activity, with prevalence of granulopoiesis over erythropoiesis. The prevalence of leukopoiesis was still more marked in the rabbit.

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

INDUSTRIAL DUSTS

190 Rapid Quartz Analysis by X-Ray Spectrometry. K. Kay, Am. Ind. Hyg. Assn. Quart. 11, 185-194, (Dec., 1950).

The author reports extensive experiments on the known variations of procedure in the determination of quartz in dusts by x-ray spectrometry, with the purpose of securing maximum accuracy and at the same time reasonable speed. In summary he says "The recorder technique, as described in this paper, offers a compromise between accuracy and speed which is entirely acceptable in the industrial hygiene field. Combined with suitably organized laboratory procedures for sample handling, the recording spectrometer permits the analysis of number of samples which by any other method would be beyond the practical possibilities of modern health budgets."

191 Tomography in Pulmonary Silicosis. L. Roche, E. Naudin, and F. Tolot. Rev. Med. Miniere. 2, 5-8, (July-Aug.-Sept., 1949). (In French).

A comparison is made, in thirty cases of pneumoconiosis, of the appearance of the lungs in a standard x-ray photograph with that in a series of tomographs (focused x-rays). An advantage in the use of tomography is that it is an aid in the exact estimation of the degree of damage. The method is costly, and the authors regard it as not indispensable in routine work. They consider, however that routine x-ray photographs should be supplemented by a thorough examination on the screen. By varying the position of the patient and of the source of illumination, as much information can be obtained as is necessary for routine work. -- Cond. from Bull. Hyg.

192 Experimental Studies of Asbestosis. A. J. Vorwald, T. M. Durkan and P.C. Pratt. Arch. Ind. Hyg. & Occ. Med. 3, 1-43 (January, 1951).

The following observations emerged from the experiments conducted by the authors. Various species of animals including the guinea pig, rat and rabbit, but not the mouse and dog, develop peribronchiolar fibrosis of the lung similar to human asbestosis after being exposed by inhalation or intratracheal injection to long chrysotile asbestos fibers. Fibers shorter than twenty microns are incapable of producing peribronchiolar fibrosis. The mode of action of the long asbestos fiber in the production of asbestosis is primarily mechanical rather than chemical in nature. Typical experimental asbestosis was produced by the inhalation of an atmospheric suspension containing an average of 138 million asbestos particles per cubic foot of air by light field count, of which less than one per cent consisted of fibers longer than ten microns. The actual lower limit of concentration of long fibers necessary to produce asbestosis in animals cannot be established from these studies. The duration of exposure required to develop the pulmonary reaction to inhaled asbestos dust is inversely proportional to the concentration of long fibers in the atmosphere. Established experimental asbestosis ceases to progress on discontinuance of dust exposure. This cessation of progressive reaction may be due to the formation of asbestosis bodies. The formation of asbestosis bodies represents a coating of the fibers by blood and tissue elements, which results in loss of ability of the fiber to produce fibrosis. Aluminum hydroxide failed to neutralize the fibrosing action of the longer fibers. Inhalation of asbestos dust did not alter significantly the final outcome of experimental tuberculosis in two series of guinea pigs exposed to the dust.
-- Cond. from Authors' Comments and Summary

PHYSICAL ASPECTS OF THE ENVIRONMENT

193 Allergy to Cold as an Occupational Disease: Clinical and Experimental Study on 100 Workmen in a Meat Packing Factory. E. Mathoy. Ann. Allergy 8, 373, (May-June, 1950).

The investigations described were carried out on 100 workmen employed in a meat packing factory in Buenos Aires, Argentina. All worked one to six hours at temperatures of 26 to-22° F., with rest periods. Fifty-two per cent of the workers reported symptoms like rhinitis, asthma, headaches, weeping, and cystalgia; however, objective signs were noticed only in 27%. The symptoms were mostly mild. Over 80% of the patients with allergic symptoms had a positive eosinophilic index. The symptoms could be partially or totally counteracted by treatment with antihistaminic drugs.
-- Cond. from Arch. Ind. Hyg. & Occ. Med.

RADIOACTIVITY AND X-RADIATION

194 Medical Aspects of Atomic Weapons. Revised Edition. Prepared for the National Security Resources Board by the Department of Defense and the United States Atomic Energy Commission. 24 pp., (August 15, 1950). Price $.10 from Supt. of Documents, Washington 25, D.C.

This pamphlet gives in briefer form the essentials of the subject covered more fully in the publication "The Effect of Atomic Weapons."

195 Some Public Health Aspects of an Atomic Explosion. W.H. Sullivan, Ind. Med. & Surg. 20, 1-6, (Jan., 1951).

This lecture was delivered at the Basic Training Course for Physicians on the Medical Aspects of Atomic Warfare, at Birmingham, Alabama, May 5, 1950. The various health aspects of an atomic explosion are discussed comprehensively, divided into: (1) protective measures, (2) prophylactic measures, (3) possible evasive actions, (4) evaluative procedures, (5) reclamation measures, and (6) therapeutic measures. In summary the author says: (slightly condensed), "We may say that the primary problem of concern to the public health officials is that of education; education to eradicate the fear engendered by the apostles of doom during the past four and a half years; education to each responsible persons to sift the wheat from the chaff in atomic bomb phenomenology so that the existing confusion is dispelled. Second, well defined plans must be implemented to

make the best use of available physicians, and studies of supplies of water and food and of bacteriologic and toxicologic problems must be made. Third, there must be more training courses to give all physicians sound, practical, down-to-earth information, which will enable them to handle the casualties with more than a smattering of ignorance concerning radiation damage effects."

196 Radiation Hazards in the Atomic Energy Program.
M. Eisenbud. Ind. Med. & Surg. 20, 7-11, (Jan., 1951).

This is a general paper reviewing progress in the knowledge of biological effects of radiation, permissible levels, protection, waste disposal, instrumentation, personnel monitoring, and trend in industrial utilization.

197 Acute Radiation Syndrome--A Problem for Practitioners.
J.Z. Bowers, J. Am. Med. Assn. 145, 63-65, (Jan. 13, 1951).

The pertinent information that has been presented may be summarized as follows: The acute radiation syndrome is caused by sudden exposure to the penetrating radiations liberated by the atomic bomb. The resulting changes depend primarily on the inherent sensitivity of the exposed tissues and the type of radiation and are attributable to damage to the blood and the blood-forming organs, the blood vessel endothelium and the bowel. These particular tissues all show a tendency toward ultimate regeneration, and it is on this fact that present therapeutic programs are based. The primary manifestations are hemorrhagic diathesis, nausea, vomiting and diarrhea and depression of the formed elements of the body. Treatment is at this date supportive in nature. -- Author's Summary

ENVIRONMENTAL MEASUREMENTS
(Analytical Procedures and Methods)

198 A New Method for Demonstration of Small Quantities of Carbon Monoxide in the Blood, and Its Clinical Application for Workers in Danger of Chronic Carbon Monoxide Poisoning. H.A. Beckmann. Zeitschr. Ges. Exptl. Med. 109 467-487, (1941).

Barkan's method was examined since it claimed to demonstrate minute quantities of carbon monoxide in the blood by estimation of the "easily split" iron. There was a linear correlation between the content of hemoglobin and the amount of easily split iron in blood and, accordingly, it is possible to detect any pathological variations in iron. In acute carbon monoxide poisoning a decrease in the easily split iron was shown to

persist for a longer period than carbon monoxide hemoglobin. It was further shown that in the blood of workers under chronic influence of carbon monoxide, disturbances in the splitting of iron take place even in cases in which no carbon monoxide hemoglobin can be detected. -- Biol. Absts.

199 A Study Comparing the Results Obtained by Estimating the Amount of Carbon Monoxide in the Blood by Using a Eudiometer and by Absorption by Chloride of Copper. Barthe, Paris, Duchemin and Thomas. Arch. Malad. Professionnelles, 10, 581-588, (1949). (In French).

The apparatus used in the two methods is explained by diagrams. Irregularly higher results were obtained with the eudiometer method than with the chloride of copper. These differences were possible caused by some pre-existent carbon compounds in the blood which were not absorbable by chloride of copper, but were combustible in the eudiometer. Attention should always be paid to this error when blood is being analyzed for the presence of carbon monoxide. -- Cond. from Bull. Hyg.

200 Determination of Small Amounts of Chromium in Human Blood, Tissue and Urine. Colorimetric Method. P.F. Urone and H.K. Anders.

A rapid colorimetric method for the determination of small amounts of chromium in human blood, tissues, and urine is described. The method is sensitive to 0.005 microgram of chromium per milliliter of final solution. Samples are ashed in borosilicate glass beakers, using a combination of wet and dry ashing methods. The blood and tissue samples are oxidized by bromine in alkaline solution. Oxidation of the urine samples is accomplished by sodium bismuthate in acid solution. Diphenylcarbazide gives a clear red-violet color which can be measured colorimetrically or spectrophotometrically. Comparative standardization curves and typical analyses are given. -- Editor's Summary

201 Polarographic Analysis for Benzene in Organic Material. M. Verain, J. Vettin, and G. Noisette. Arch. Malad. Professionnelles 10, 600-607, (1949). (In French).

The polarographic method devised by Heyrovsky is compared with the colorimetric method of Nahoum, in which methylethylketone is used. Applied to the same materials, both methods gave identical readings for the same samples. With slight concentrations of benzene the polarographic method was found to be the more sensitive. The analyses showed that benzene disappeared rapidly from the blood, but that it could be detected in the bone marrow for long periods. The absence of benzene from the blood does not, therefore, indicate that the workman may not be absorbing benzene to a dangerous extent. Examination of the bone marrow, post-mortem, is advised in any death of which the cause may be in doubt. Improvement in ventilation, clear labelling of all vessels containing benzene and systematic examination of exposed workers are suggested remedial measures.

-- Cond. from Bull. Hyg.

202 A Modified Air Sampler Employing Fiberglas. F.W. Sehl and B.J. Havens, Jr., Arch. Ind. Hyg. & Occ. Med. 3, 98-100 (January, 1951).

The new air sampler is a practical and efficient device for the determination of air-borne dust and especially fume. Soluble dust and fume may be easily and completely removed from the filter and determined by any analytic procedure desired. The materials used in the sampler contain no organic matter and, therefore, present no analytical difficulties arising from this source. The sample does not have to be transferred to another container--it can be sealed immediately after the sample is taken, so that there is no chance of loss or contamination. Being rugged, and a dry sampler, it presents no special difficulties in shipment. It may be used either vertically or horizontally. It is recommended for use by industrial hygienists for the determination of air-borne non-pneumoconiosis-producing toxic particulate matter.

-- Authors' Conclusions

PREVENTIVE ENGINEERING

203 Recirculation from Industrial Exhaust Systems. A.C. Stern and D.P. O'Neil. Heat. Pip. & Air Cond. 22, 112-121, (November, 1950).

Two alternate control systems for recirculation of exhaust air in factories in winter are proposed. The simpler on-off system discharges all process exhaust out of doors whenever the outdoor temperature exceeds any chosen control temperature. The more advanced modulating type regulates the amount discharged outside and that returned to the building, in proportions varying with the outside temperature. Methods of calculating net annual recirculation and heat saving for both methods are presented. The authors summarize their conclusions as follows: (1) There should be no recirculation of any process effluent which could be detrimental to the health and well-being of workers. (2) For the same reduction in installed heating plant, a lower net annual recirculation can be achieved through the use of modulating control than by on-off control. (3) The use of secondary air cleaners of the filter type in modulating control systems adds a factor of safety and is recommended. (4) The suction plenum system of modulating control as preferable to the pressure plenum system because it allows a tertiary air cleaner to be used. (5) There is very little error in assuming that modulating recirculation control systems operate with percent recirculation a linear function of temperature. (6) There is little justification for net annual recirculation in excess of fifteen per cent. (7) It is proposed that recirculation for purposes of heat saving be limited to exhaust heating loads in excess of 500,000 Btu per hour, or one half the total hourly building transmission plus infiltration load, whichever is greater. (8) There are very few instances in which recirculation from small unit separators is justifiable.

204 Disposal of Oil and Varnish Fume. J.C. Dittmer. National Safety News 63, 36-37, 104-106, (January, 1951).

The National Lead Company made a study of existing methods of fume disposal, dust removal, and air conditioning. The most practical and least costly method involved scrubbing the fumes with water. Tests were made with the Pease-Anthony Scrubber for eliminating oil fumes generated during the heat bodying of linseed oil. The tests indicated that linseed oil fumes could be satisfactorily eliminated although there are no known means of quantitatively determining the content or the removal of the fumes from the air stream other than the effect of the scrubbed gases on the tester's nose and eyes. The method was perfected until the faint residual fume issuing from the stack could barely be detected and the odor of acrolein and other aldehydes was definitely gone. The factors of time in water spray scrubbing and relationship between the size of the fume particle and the water droplet are discussed. The new Venturi scrubber, which is being developed, may be more effective for use with varnish fumes that may be composed mainly of particles of sub-micron size.

205 A Graphical Method of Sizing Cyclone Dust Collectors. L. Monroe, Heat. and Vent. 47, 63-66, (December, 1950).

When properly designed, the cyclone dust collector is capable of removing a large proportion of the dust in industrial exhaust air with a minimum of expense. Although much research has been done to evaluate the influence of the many variables which are involved, proper design continues to present a difficult problem. This is due in part to a lack of agreement among the many investigators. Such considerations as effect of particle size, quantity of air, dimensions of the collector, and pressure losses are difficult to determine from published data. This article is a summary of the findings of a number of workers, and their recommendations. Much of their data has been incorporated into a nomograph for the simplification of design procedure. -- Editor's Summary

206 Industrial Ventilation. F. R. Ingram. Modern San. 3, 17-19, (January, 1951).

This short paper outlines the proper method of preparing for the installation of a suitable exhaust system and reminds the user the maintenancy is equally important. Several illustrations are included.

207 Annual Summary of Activities. Fiscal Year 1950. Industrial Hygiene Section, Bureau of Sanitary Engineering, Texas State Dept. of Health, G.W. Cox, State Health Officer. 4 pp., (1950).

This report discloses 1,174 services performed during the year for 964 plants, including introductory surveys, plant surveys, technical studies of hazards, atmospheric pollution investigations, etc. Analyses

were made on 253 samples, and 1825 field determinations of physical conditions were made. Other activities included conferences, lectures, publications, films, literature distributed, and requests for information answered.

COMMUNITY AIR HYGIENE

208 Micro-Climatic Factors in Smoke Pollution from Tall Stacks. P.H. Lowry, Atomic Energy Commission Unclassified Document 688, 1 pp., (no date).

The document is in abstract form; it is reproduced below in its entirety. "The basic meteorological factors which affect the dispersion of effluent from tall stacks are discussed in terms of their utility in determining a pollution climatology. These factors include: wind speed, direction, and gustiness, and the vertical temperature gradient. It is shown that, for tall stacks, all of these factors can be approximated from the record of a single anemometer and vane mounted near the level of the stack-top. Using data collected at Upton, New York, an operational climatology is developed which combines the variables into a single pollution index. Examples are shown of such an index. The limitations of the index result both from the lack of a firm theory and from nonmeteorological factors such as local topography and the nature of the effluent. -- Nuclear Science Abstracts

209 Problems of Air Pollution. A.D. Brandt. Iron & Steel Eng. 27, 75-82, (June, 1950).

The author first shows that air pollution is a broad term covering many types of contaminants. Results of the important surveys are presented. The dependence of pollution upon meteorological conditions is discussed briefly, and types of pollution--nuisance, economic, health, vegetation, and animals--are considered. Air pollution control is discussed from the engineering and legal standpoints, outlining typical stipulations of the laws. In conclusion, the author gives the observations or opinions that are most important: (1) it behooves industry to obtain the fullest information on air pollutants; (2) cooperative research should be made in each community, supported by the contributions of local industry; (3) air pollution abatement must be faced, not fought; and (4) full publicity must be given.

210 Problems in the Drafting and Administration of Air Pollution Control Legislation. A.C. Stern. Modern Sanitation 2, Part One 24-27, 60, (November, 1950). Part Two 34-35-, 60-61, (December, 1950).

The author stresses the point that air pollution legislation should be fitted to the needs of the community for which it is enacted. Standards for stack emission density must be established before ordinances can be formulated. The permissible emission of particulate matter must also be limited. Most smoke ordinances define prohibited density either in terms of the Ringlemann Chart or by definition of opacity in terms of degree of visibility of objects through smoke. Gas emission standards are also discussed. The only gas for which a ground level maximum allowable concentration has been established is sulfur dioxide. Values for discharges into adjacent windows have not been established. There are two major approaches to air pollution control; prevention of new sources and control of existing ones. Prevention of new sources requires review by the air pollution control agency of proposed new installations or alterations of plants or equipment. A method for the control of existing sources is annual inspection. Three types of penalties are fines and/or imprisonment and sealing the offending source. Part II is concerned chiefly with ordinances for air pollution control. The author considers it better that the ordinance delegate to the administrative officer or to a board of technical experts the formulation, promulgation and revision of rules and regulations. These should be filed with the legislative body for 30 days, to be subject to its action. If the legislative body does not act in that time, they should become effective without affirmative action. The question is raised as to whether the rule-making board or a separate board should act as an appeal board with authority to reverse the decisions of the administrative officer. The need for Federal legislation in interstate air pollution problems and to further research and standardization is pointed out. Legislation on a State or County level will benefit towns or communities too small to afford air pollution control units. At the local level the question arises as to what city or county agency should administer the ordinance. The author concludes that efforts must be directed just as much to enforcement of existing legislation as to the drafting of new laws.

211 General Aspects of Meteorology in the Air Pollution Problem. N.R. Beers. Atomic Energy Comm. Unclassified Doc. No. 684, 1 page, (No date).

The document is in abstract form; it is reproduced as follows in its entirety. "Progress in stack meteorology, a branch of meteorological engineering, has been made by clearly demonstrating that the earth's atmosphere is not an infinite sink into which man may pour an unlimited quantity of pollutant. With a given array of sources and effluent rates, the pollutant that may be disposed of (by discharging it) into the atmosphere depends on the weather and on the amount of pollution that is "tolerable" or otherwise permitted, not merely in the immediate vicinity of the source but sometimes for distances of many miles. Outstanding weather examples are briefly discussed. Meteorological control, as established by Hewson at Trail, B.C., and Beers and co-workers at Brookhaven, illustrates the possibilities in this new field. Stress is laid on the fact that in application

specific studies are required for individual sites and polluting sources, and that the meteorological engineer must supply in advance the best possible information of the effect of weather on the operation or activity at hand. The requirement means that meteorological engineers must be proficient not only in the accepted field of "pure meteorology"; but must also become proficient in the operating practices of his client, and capable of interpretation and explanation as needed for an effective and efficient operation. A vast new field is opening with the present necessity to obtain a clean atmosphere." -- Nuclear Science Abstracts

212 Diffusion of Stack Gases in Stable Atmospheres. Morton L. Barad, Atomic Energy Commission Unclassified Document--703, 1 page, (no date).

The document is in abstract form; it is reproduced as follows in its entirety. "Smoke plumes emitted from elevated sources during inversion conditions and characterized by negligibly small settling rates remain aloft for many miles over fairly flat terrain. Photographs of oil-fog plumes taken at the Brookhaven National Laboratory are presented to show the nonisotropic character of diffusion during conditions of strong stability. Since relatively rapid dilution occurs within the first few meters of a stack, the diffusion problem is treated as a two-phase problem. The first phase may be termed the adrodynamic phase, the second phase, the meteorological phase. The classical diffusion equation is re-examined for possible application in the inversion case. If concentrations of the effluent within the first one or two kilometers of the source are desired, it is desirable to treat the source as an area source of finite concentration rather than a point source of infinite concentration." -- Nuclear Science Abstracts

213 Fundamentals of Smoke Abatement. J.F. Barkley. U. S. Bur. Mines, Inf. Circ. 7588, 34 pp., (December, 1950).

This is a revision of Information Circular 7090, published in 1939, since when there have been many new ordinances and regulations. Most of the Circular consists of text and discussion of actual and proposed regulations; as an example the rules and regulations for Washington, D.C., are given in full. In the final four pages methods of smoke abatement usable at individual plants are discussed, applicable to stokers and to hand-fired boilers.

214 Contamination of Atmosphere by Products of Incomplete Combustion and Their Hygienic Significance. N.M. Tomson. Gigiena i Sanit. No. 2, 8-12, (1950).

A review of public health hazards from pyrolytic products in smoke is presented. In addition it was shown that distillation of shale oils at high temperatures (800-900°) gave appreciable amounts of benzopyrene in the distillate while low temperatures oil (400-500°) is almost free of this hydrocarbon. Similar results were obtained from air samples drawn in the vicinity of power plants which use coal. -- Chem. Absts.

215 Smoke and Fumes Abatement in the Oil Industry. W.L. Stewart, Jr., Proc. Smoke Prevention A. America 42, 35, (1949).

Although the true nature of "smog" is not well understood, the oil refineries around Los Angeles have endeavored to decrease atmosphere pollution. The evolution of sulfur dioxide has been greatly reduced by the substantially complete removal of hydrogosulfuric acid from gases burned at the refineries; further steps have been taken for dust and smoke control and the avoidance of water pollution. -- Chem. Absts.

216 Air Pollution Control. Anon. Nat. Engr. 54, 17-19, 24-44, (October, 1950).

This report summarizes the main points of the discussion at the Sixty-Seventh Annual Convention of the National Association of Power Engineers on August 16, 1950. The program adopted included the recommendation that the National Association of Power Engineers establish as its national policy the principle that air pollution control be achieved by establishing practical limits on emission, and that it be on record as opposed to control of fuel, equipment or design.

217 Unsolved Problems in Air Pollution Control. H.B. Lammers, Combustion 22, 46-48, (July, 1950).

Many problems still requiring solution in air pollution control embrace numerous spheres of activity and a multitude of subjects. Some of the major points covered in this article are:--the municipal problem; economic considerations; administrative procedure; standards of measurement; air pollution and health; the technical problem, and research.

218 Toxicity of Sulfuric Acid Mist. J.F. Treon, F.R. Dutra, J. Cappel, H. Sigmon and W. Younker. Arch. Ind. Hyg. & Occ. Med., 716-734, (December, 1950).

In these preliminary experiments animals were exposed to air containing sulfuric acid in the form of a mist, the particles of which were predominantly less than 2 microns in diameter. Deaths occurred almost uniformly when groups of mice, rabbits and rats were esposed to a concentration of 0.383 mg. per l. for 7 hours on each of 5 successive days, but all animals survived when exposed to 0.203 mg. per l. for the same period. Figures are given for shorter exposure. Guinea pigs were more sensitive. Rabbits were about as susceptible to the mist of sulfuric acid as they were to either hydrogen chloride or hydrogen fluoride, but guinea pigs were somewhat more susceptible to the former than to the latter. Lesions resulting from the sulfuric acid exposures included degenerative changes of the epithelium of the respiratory tract, pulmonary hyperemia and edema, and, in some instances, focal pulmonary hemorrhages. There were, in addition, areas of both atelectasis and emphysema in the lungs of all animals.
-- Cond. from Authors' Summary

219 Proceedings of the Midwest Power Conference. Vol. 12. Sponsored by Illinois Institute of Technology, with the cooperation of other schools and of other organizations. 456 pp. (1950).

Three of the numerous papers in this volume deal with air pollution.

Smoke Abatement Engineering. H.B. Lammers, pp. 309-313. The work of the Coal Producers Committee for Smoke Abatement is described. It consists of surveys, consulting on air pollution problems, and recommendations for abatement. It is emphasized that solutions of the problems of various cities may differ greatly according to local conditions. Eight points included in a sensible approach to the air pollution problem are: (1) facts, not hearsay; (2) attention to engineering, equipment and education; (3) consideration of economic factors; (4) emphasis on administrators rather than on legislation; (5) acceptable standards; (6) differentiation between nuisance pollution and health factors; (7) public support; and (8) cooperation of experts in all fields.

Field and Laboratory Methods of Air Pollution Study. P.L. Magill and R.W. Benoliel, pp. 314-320. This is a brief preliminary report on the study of air pollution in Los Angeles. The gaseous contaminants accurately measured include sulfur dioxide and trioxide, ammonia, aldehydes, and (maxima only) oxides of nitrogen and filterable oil. A number of other contaminants are known to exist, and six others are found occasionally. The five types of particles include: (1) carbon and metal particles; (2) transparent, light-scattering crystals; (3) small, water-soluble and oil-soluble particles and oil droplets; (4) substances capable of forming moisture droplets in the air; and (5) large soluble crystals. Types 1,2,4 and 5, in varying degree, account for most of the lack of visibility. Tests show that no one contaminant is responsible for eye irritation, but it apparently results from a number working together.

Industry's Attack on the Air Pollution Problem in Chicago. G. Baumgart and W.C. McCrone, pp. 320-329. Atmospheric pollution conditions in Chicago are described, and the work by the public and by industry toward the abatement of pollution is reported. Costs to the city and to industry are discussed. "We must devise new equipment and techniques which are inexpensive, practical, or even profitable. Here is another opportunity for research."

220 Air Pollution in Pittsburgh, S.B. Ely. Arch. Ind. Hyg. & Occ. Med. 3, 44-47, (January, 1951).

The author describes the methods used to obtain samples of dust, from the air, for chemical analysis. A table reproduced in the article gives percentages of mineral matter in dust in the Pittsburgh district. Chart I represents graphically the monthly and yearly averages of dust fall within the city limits in 1938, 1948 and 1949, and Chart II shows the monthly and yearly average percentages of fixed carbon for the same years. The author states that the conclusions reached in the paper indicate that the correction of smoke is a small part of the problem of clearing the atmosphere and that the purely mechanical phase of smoke prevention is changing into chemical and other fields.

221 Meteorological Technics in Air Pollution Surveys. M. Eisenbud and W.B. Harris. Arch. Ind. Hyg. & Occ. Med. 3, 90-97, (January, 1951).

The various meteorological factors influencing air pollution, such as stack height, distance from the stack, wind speed and atmospheric turbulence, are reviewed. A brief discussion is given of the mathematics of turbulent diffusion as covered by Sutton, together with average values of the parameters. From this mathematical treatment, the simple equations for estimating maximum ground level downwind concentration and its distance from the effluent stack are also presented. The authors have conducted air pollution surveys at various plants and have presented in this discussion a brief resume of three separate applications demonstrating the value of these equations to the industrial hygienist. -- Authors' Summary

MANAGEMENT ASPECTS

222 Handicapped Workers. H.G. Murray, Arch. Ind. Hyg. & Occ. Med. 2, 542-548, (November, 1950).

The experience in the Dennison Manufacturing Company with handicapped persons is that they are, on the whole, steady, competent workers who certainly earn their wages as well as, or better than, the average employee who is not physically handicapped as the expression "physically handicapped" is generally understood. The author states that their greatest weakness concerns their versatility, but he questions whether they differ greatly in this respect from many persons who are not physically handicapped.
-- Cond. from Author's Summary

223 Problems of Operating under Non-Occupational Disability Laws. Panel Session, with Introduction by E.L. Clark. Insurance Series No. 87. Am. Management Assn., 330 W. 42nd St., New York 18, N.Y., pp. 1-15, (1950).

Except for the introduction, the paper consists of questions asked of the panel, consisting of two representatives of business, two of insurance companies and Miss Donlon of the New York Compensation Board, and their answers. The discussion pertains especially to the New York law.

224 Conference on Sickness Disability Insurance. Sponsored by the Graduate School of Business, the School of Engineering, the School of Law, and the School of Public Health of Columbia University. Arch. Ind. Hyg. & Occ. Med. 2, 631-697, (December, 1950).

This conference was held at Columbia University on May 9, 1950. The following papers were presented and are published: Significance of Sickness Disability Laws as Social Legislation, by M.E. Segal;

The Relationship of Sickness Disability Insurance to Workmen's Compensation and Unemployment Insurance, by A.J. Bohlinger; Underwriting Principles in Sickness Disability Insurance, by H. Beers; Probable Future Developments in Sickness Disability Insurance, by M.D. Miller; Problems Encountered in Inaugurating New York State's Disability Benefits Law, by E.E. Towson, (condensation published); Attitudes of Organized Labor toward Sickness Disability Insurance, by D. Kaplan; Effects of Sickness Disability Legislation on Employee Relations, by R.E. Chislett II; and Sickness Disability Insurance and Preventive Medicine, by L.J. Goldwater. Discussions of the papers are also reported.

225 Slough Industrial Health Service. An Experimental Group Service for Small Plants. M.E.M. Herford, Am. J. Pub. Health 40, 1529-1535, (Dec., 1950).

In the Slough, England, area there is an unusual concentration of industrial plants, mostly small, and this service was founded by the Nuffield Foundation and other organizations to provide medical service for them. It is supported in part by the plants served, and in part by the Nuffield Foundation and the National Health Service. The four full-time doctors, ten nurses and a few others supervise the medical staffs of the four companies provided with them and perform the medical services directly at all the other plants. The services include medical examinations, first aid, environmental surveys, occupational therapy, and records and statistics. Worker cooperation is enhanced by frequent meetings. In the early stages there was opposition on the part of some private practitioners, but it is disappearing. It is hoped that a psychiatrist and a dentist can be added in the future.

ACCIDENTS AND PREVENTION

226 New Trends in Body and Leg Protection. Anon. Safety Maint. & Production 101, 24-25, 34-38, (Jan., 1951).

This is a "roundup of some of the recent developments in safety clothing to protect the bodies and legs of industrial workers." The article begins with a brief account of the traditional types of protective clothing--asbestos, fire-resistant duck, natural and synthetic rubber, and plastic sheet--then turns to some recent developments. A waterproof fabric permeable to water vapor but impervious to water consists of cotton coated with a mixture including synthetic rubber and has a number of applications. Woven plastic yarn materials have some advantages over the same in sheet form, have the advantage or porosity and lighter weight, but can be coated when splash protection is wanted. Another development is the use of stripes or patches of luminous material on protective clothing worn outside

in the dark. A new type of uniform has been designed for x-ray technicians, consisting of light-weight spun lead-glass woven into a fabric and made into garments covering the body. Knee pads of an improved type are easily snapped on and off.

227 New Paint Retards Fire. S. Lee, Safety Maint. & Prod. 101, 16-17, 49-50, (Jan., 1951).

Tests are reported, with illustrations, on a new fire-retardment paint in comparison with ordinary paints, showing that a fibre board building coated with the new paint does not burn, while one with ordinary paint is completely consumed. The tests were made by Columbia University Research Laboratories and are being repeated by the National Bureau of Standards. The name of the paint and address of the manufacturer can be obtained on inquiry to the editor of Safety Maintenance & Production.

228 Fire Protection Precautions for Uranium Scrap and Powder. E.J. Kehoe, F.L. Brannigan and M. Eisenbud. Nucleonics 6, 34-37, (May, 1950).

Fire properties of uranium scrap are discussed with emphasis on its pyrophoricity, meaning its tendency to ignite spontaneously. Safe procedures for storage, handling, disposal, and shipments are given briefly. Among the most important rules are storing in small amounts only and avoiding leaving piles only partly covered with oil or water. All ordinary types of extinguishers are to be avoided, but automatic sprinklers are efficient provided the quantity of uranium is not too large. The ICC regulations are summarized very briefly, with references to the original regulations.

MISCELLANEOUS

229 Air Disinfection and Sterilization. Symposium conducted by Society of Chemical Industry, Food Group, Microbiological Panel, London, October 11, 1950. Chem. & Ind. No. 50, 805-807, (December 16, 1950).

The papers are given in abstract form. They include: Methods of Sampling Air for Bacteria, O.M. Lidwell. The process of sampling air for bacteria includes three parts: extraction from the air, collection of bacteria from the sample and recognition and enumerations of the organisms. Relatively little attention has been paid to the first. Methods of and instruments for sampling are described.

Air Disinfection by Ultraviolet Irradiation and Chemical Vapors. R.E.O. Williams. General types of both methods are described and compared. The effectiveness of the two methods is roughly the same, but they are affected differently by ventilation.

Removal of Bacteria from Air by Filtration and Its Application to Industrial Fermentations. D.A. Parker and G.B. Cherry. Removal of bacteria by filtration has proved satisfactory in the fermentation industries.

Industrial and Large Scale Purification of Air Supplies (with Special Reference to the Electrostatic Precipitator). D.L. Munden. Large scale tests with 0.2 gram of dust per 300 cu. ft. of air showed an efficiency of 99% dust removal by the Precipitron against 20 to 4% by viscous and fabric filters. Under more dusty conditions, 2 g. dust per 300 cu. ft. of air, the Precipitron had an efficiency of 97% compared with 99.9% for the Miniature Precipitator. Similar tests on airborne bacteria are being conducted.

Ultraviolet Irradiation of Air Supplies (with Special Reference to Intensity Measurements). H. Mellors. According to published results, ultraviolet radiation is more expensive than and inferior to other methods, but final conclusions await further controlled tests. The most efficient sources of bactericidal energy are the low pressure mercury-vapor "germicidal lamps." The radiation may be measured by methods described. Preliminary experiments have demonstrated the varying resistivity of pathogenic spore-forming and soil-dust bacteria and also the low air velocities necessary when complete sterilization is required. Several improvements can be made in large-scale sterilization, such as more ducts and lamps, precleaning of air, and humidity control, but ultraviolet irradiation may prove useful only where reduction of bacterial concentration and not complete sterilization is required.

230 Control of Acute Respiratory Illness by Ultra-Violet Lights. Jean Downes. Am. J. Pub. Health 40, 1512-1520, (December, 1950).

From the data of acute respiratory illness observed in families during three school years in Pleasantville and Mount Kisco, New York (September, 1946 - May, 1949); it is apparent that the introduction of ultra-violet lights in the Pleasantville schools and other places where children congregate did not affect the illness rates. Also, there was no evidence that the seasonal or weekly incidence of such illness among school-age children was affected in any way. In fact, the two communities were strikingly similar in this respect. -- Author's Conclusions

231 Q Fever Epidemic in Workshop of Swiss Federal Railroads in Zurich-Altstetten; Epidemiology and Symptomatology of Q Fever. G. Bracher. Praxis 39, 253, (March 23, 1950).

Positive complement fixation reactions for Q fever were observed in 14 of 60 cases of illness which occured in the fall and winter of 1948 among railroad workers in Switzerland. Most of the cases had been diagnosed as grip, bronchitis and atypical pneumonia. The nearness of a slaughter house and a cleaning station for stockcars prompted the suggestion that infection came from material washed from the cars, which was carried by the wind after it had dried. It was found that persons who had contact with live stock incurred greater risk than those who handled the skins of slaughtered animals. -- Cond. from Arch. Ind. Hyg. & Occ. Med.

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