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Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

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INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

4400 FIFTH AVENUE -:- PITTSBURGH 13, PA.

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INDUSTRIAL HYGIENE FEATURES

Abst. No. 210 surveys the microstructure of the lung.

The heart and physical exercise are discussed in Abst. No. 221.

Abst. No. 225 reports on pulmonary emphysema in a non-smoking population.

Abst. No. 228 is concerned with pulmonary alveolar mural sclerosis.

Two years' experience in treatment of burns in a private general hospital are discussed in Abst. No. 238.

Consult Abst. No. 241 for information on the origin of the house dust allergen.

Health standards for lead chromate dusts are presented in Abst. No. 245.

Ferrous sulfate poisoning is described in Abst. No. 246.

Information on the excretion and metabolism of edible food colors is given in Abst. No. 251.

Abst. No. 253 reports on a case of fatal addiction to trichloroethylene.

Abst. No. 261 is concerned with the response of the lung to physical irritants.

Asbestosis in experimental animals is the title of Abst. No. 265.

Abst. No. 270 describes an example of thorotrast-induced meningioma.

Abst. No. 278 investigates osteogenic sarcoma in a luminous watch dial painter.

See Abst. No. 282 for information regarding the measurement of automobile exhaust gas hydrocarbons.

Data on short-term air pollution studies are given in Abst. No. 292.

FOUNDATION FACTS

DRS. ROBERT T. P. deTREVILLE AND PAUL GROSS, of the Foundation's staff attended a Lead Symposium at The Kettering Laboratory, University of Cincinnati, College of Medicine, February 25-27.

INDUSTRIAL MEDICAL ASSOCIATION MEETING held in Washington, D.C. from March 18-21 was attended by the Foundation's Managing Director, Dr. Robert T. P. deTreville.

TRANSACTIONS OF 27th ANNUAL MEETING of Industrial Hygiene Foundation held in Pittsburgh, Pa., on October 24-25, 1962, have been published as the complete March 1963 issue of the Archives of Environmental Health. Copies of these Transactions are now being mailed to all I-H-F members.

NEW REPRINTS available from the Foundation upon request. "Response of the Lung to Physical Irritants" by Paul Gross, Arch. Environmental Health 6, 42-44 (Jan. 1963), and "Pulmonary Alveolar Mural Sclerosis" by Paul Gross, Arch. Environmental Health 6, 117-117 (Jan. 1963).

28th ANNUAL MEETING

OCTOBER 23 - 24, 1963

03121170

TABLE OF CONTENTS

	<u>Page</u>
DR. WILLIAM P. YANT	1
NEWS ITEMS.	1
OCCUPATIONAL DISEASE STATISTICS	2
COMING EVENTS	3
LEGAL DEVELOPMENTS	3
BOOKS, PHAMPLETS AND NOTICES.	4
INDUSTRIAL MEDICAL PRACTICE.	5
SKIN DISEASES AND BURNS	10
CHEMICAL HAZARDS.	13
INDUSTRIAL DUSTS.	17
PHYSICAL ASPECTS OF THE ENVIRONMENT	20
RADIOACTIVITY AND X-RADIATION.	21
ENVIRONMENTAL MEASUREMENTS	24
PREVENTIVE ENGINEERING	25
COMMUNITY AIR HYGIENE	26
ACCIDENTS AND PREVENTION	27
MISCELLANEOUS.	28
INDEX	29

03121171

November 1992

IN RE: ABRAHAM



WILLIAM P. YANT

HWBB-0019276

Industrial Hygiene Foundation regrettably informs its members of the sudden death of Dr. William P. Yant in New York City on January 29, 1963.

Dr. Yant, Research Consultant to the President of Mine Safety Appliances Company, was a member of the Board of Trustees of Industrial Hygiene Foundation since its inception in 1936, and Chairman of the Board from 1958-1961. He also served as a member of the Research Advisory Council and the Chemical-Toxicological Committees from 1946-1956.

A pioneer and internationally recognized authority in the field of industrial hygiene, he participated in the formation of Industrial Hygiene Foundation, and made unlimited contributions of his time, energy and experience to the progress of the Foundation. His strong, personal concern for the Foundation was a dominant element in the Foundation's achievements.

Dr. Yant's interest in industrial hygiene has been ascribed to his concern for "any activity which would lead to greater health, comfort and safety for human beings." His plans were large and as a result millions of workers in industry have benefited by his untiring efforts to safeguard their health. Industrial Hygiene Foundation and the entire field of industrial health has lost one of its staunchest supporters.

During his long career, Dr. Yant had 38 U.S. Patents and 28 Foreign Patents on safety and industrial instruments, equipments and methods. He authored 150 publications on the knowledge and practice of occupational health and safety. He was first president of the American Industrial Hygiene Association which he helped found in 1939. Eight years later the group presented him the Cummings Award for his accomplishments in this field.

03121172

Dr. Yant also received the Pittsburgh Award (for distinguished service) of the Pittsburgh Section, American Chemical Society, in 1946, and was a past chairman and councilor of the section. He was given the Williams Memorial Medal by the American Museum of Safety in 1958, and the Houston Chamber of Commerce Industrial Health Award in 1955. He was past president and honorary life member of the American Society of Safety Engineers; an honorary life member of the National Safety Council's Industrial Conference; and a fellow of the American Public Health Association. He was active in committees of many organizations, including the American Standards Association, American Society for Testing Materials, National Silicosis Conference, National Research Council, President's Conference on Occupational Safety, U. S. Technical Conference on Atmospheric Pollution, and U.S. Public Health Service.

03121173

INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

199 Gordon Research Conference in Air Pollution.

The first Gordon Research Conference dealing specifically with air pollution will be held June 17-21, 1963, at the Tilton School, Tilton, New Hampshire. The specific subject will cover the criteria of air quality. Participants will seek to determine what concentrations of specific pollutants cause a threshold or limiting effect on each use of air. The detailed program will appear in the April issue of "Science". The Conference will provide an ideal opportunity for scientific discussion at a relaxing, isolated location. No papers are printed and note taking is discouraged; each participant is free to speak his honest thoughts. It is essentially a scientific bull-session. Participation is considered to be a signal honor, and the attendance restrictions will limit participants to 100. Those interested in being selected to attend this Conference should address inquiries to Dr. W. George Parks, Director, Gordon Research Conferences, University of Rhode Island, Kingston, Rhode Island. The chairman is Dr. J. E. McKee, California Institute of Technology, and the Vice Chairman is Robert A. Baker of The Franklin Institute, Philadelphia, Pa. -- Am. Soc. Civil Eng., Sanitary Eng. Div. News

200 Graduate Study With a Radiological Health Specialty.

The University of Illinois, Department of Civil Engineering, under a grant from PHS's Division of Radiological Health, will be able to offer financial assistance to graduate students desiring a radiological health specialty beginning in June or September, 1963. The newly designed program leading to the M.S. and Ph.D. in Sanitary Engineering for Radiological Health Specialists includes courses in radiochemistry, radiobiology, nuclear physics, radioactive waste disposal, nuclear engineering, reactor physics, nuclear reactor engineering, public health, statistics, and air pollution as well as a variety of interdisciplinary options. The objective of this program is to produce professional personal capable of directing radiological public-health programs. Eligibility is on the basis of citizenship and scholarship. Monthly stipends range from \$250 to \$400 plus tuition and allowances for dependents. Benjamin B. Ewing, Professor of Sanitary Engineering, is the grant project director. -- Am. Soc. Civil Eng., Sanitary Eng. Div. News

201 Summer Institute at Clemson College.

The first summer institute in process engineering applications in the field of water and waste treatment will take place at Clemson College in Clemson, South Carolina, from June 10 to July 20, 1963. It includes graduate level courses in unit operations, unit processes and related topics. Stipends of \$600 to \$1,200 are available with priority being given to personnel and regulatory agencies. Address inquiries to G. F. Meenaghan, Associate Program Director, Department of Chemical and Metallurgical Engineering at the college. -- Am. Soc. Civil Eng., Sanitary Eng. Div. News

03121174

OCCUPATIONAL DISEASE STATISTICS

202 Occupational Disease Statistics. (Cases reported to the respective Health Departments).

	Colo. Sept.-Dec.	Conn. Dec.	Pa. Jan.-Feb.	Tenn. Jan.	Total
Anthraco-silicosis		1	75		76
Asbestosis		1			1
Brucellosis				1	1
Carbon monoxide poisoning	1	1		1	3
Chrome poisoning	1				1
Dermatitis	41	26*	25	8	100
Dermatitis welding fumes				1	1
Diseases from animals	1				1
Fibrosis (pulmonary)			1		1
Fumes (unidentified)			1		1
Hepatitis			1		1
Hydrochloric acid poisoning	1				1
Lead poisoning	4	2	2	1	9
Metal fume fever				4	4
Paint fume intoxication				1	1
Pneumoconiosis	3		113		116
Pneumoconiosis (suspected)			10		10
Poisoning from solvents	1				1
Poisoning by tetrafluoroethylene resin (heat decomposition prod.)		1			1
Respiratory irritation			2		2
Silicosis	4	2	19	1	26
Silicosis (suspected)			22		22
Tuberculosis			1		1
Miscellaneous	12				12
Total	69	34	272	18	393

* Causes are listed as follows:

Connecticut: Occupational dermatitis due to oils and greases (and metal cutting compounds) 8; occupational dermatitis due to solvents 4; occupational dermatitis due to other chemicals: alkalies 1, miscellaneous 1, multiple chemicals 2, nickel and nickel compounds 1, synthetic resins or resin (plastic compounds) 1, undetermined 1, unspecified 1; occupational dermatitis—other: infection 4, multiple agents 1.

03121175

COMING EVENTS

- 203 Mar. 31-Apr. 5 American Chemical Society, 144th National Meeting, Los Angeles, Calif.
 Apr. 1-2 Symposium on Process Automation, Santa Monica, Calif.
 Apr. 1-3 National Open Hearth and Blast Furnace, Coke Oven and Raw Materials Conference, Buffalo, N. Y.
 Apr. 1-3 Oak Ridge Institute of Nuclear Studies, Gatlinburg, Tenn.
 Apr. 9-13 American College of Preventive Medicine, Philadelphia, Pa.
 Apr. 14-19 Electrochemical Society, Spring Meeting, Pittsburgh, Pa.
 Apr. 16-19 American Dermatological Association, Hot Springs, Va.
 Apr. 16-19 Southwest Research Institute, USAF Aerospace Fluids and Lubricants Conference, San Antonio, Texas
 Apr. 16-20 American Physiological Society, Atlantic City, N. J.
 Apr. 16-20 Federation of American Societies for Experimental Biology, 47th Annual Meeting, Atlantic City, N. J.
 Apr. 16-21 American Association of Immunologists, Atlantic City, N. J.
 Apr. 16-24 3rd International Meeting in Forensic Immunology, Medicine, Pathology, and Toxicology, London, England
 Apr. 17-19 Institute of Environmental Sciences, Annual Technical Meeting, Los Angeles, Calif.
 Apr. 17-20 American Meteorological Society, Spring Meeting, Washington, D. C.
 Apr. 21-24 3rd Rare Earth Conference, Grand Bahama Island (near Miami), Florida
 Apr. 22-24 American Oil Chemists' Society, 54th Annual Spring Meeting, Atlanta, Ga.
 Apr. 22-24 National Academy of Sciences, Washington, D. C.
 Apr. 23-24 International Symposium on Boron-Nitrogen Chemistry, Duke University, Durham, N. C.
 Apr. 25-27 American College of Surgeons, (sectional meeting), Toronto, Canada
 Apr. 25-28 Association of Clinical Scientists, Spring Meeting, Louisville, Kentucky
 Apr. 26-28 American Association for Pathologists and Bacteriologists, Cincinnati, Ohio
 Apr. 29-30 Lead Industries Association, Annual Meeting, Chicago, Ill.
 Apr. 29-May 1 Aerospace Medical Association, Los Angeles, Calif.
 Apr. 29-May 1 Instrument Society of America, 9th Annual Analysis Instrumentation Division Symposium, Houston, Texas
 Apr. 30-May 2 18th Purdue Industrial Waste Conference, Purdue Memorial Center, Lafayette, Indiana

LEGAL DEVELOPMENTS

204 FDA Approves Irradiated Food.

The Food and Drug Administration has approved the first irradiated food for public consumption. In clearing the Army's petition to use radiation-sterilized bacon, the FDA recently removed a major roadblock in the development of radiation processing as a new method to preserve food. It is the first time that a radiation-sterilized, or high-dosage treated, food has been approved for human consumption anywhere in the world. The bacon is canned, then treated with a 4.5 megarad dose of gamma radiation from a cobalt-60 source. The Army will try the new product out first in troop acceptance tests. FDA also is expected to act favorably, probably within 60 days, on another Army petition to use low doses of radiation to deinfest grain.

-- Chem. Eng. News

03121176

205 FDA Draws up Proposed Rules.

The Food and Drug Administration has drawn up proposed rules to carry out the provisions of the Kefauver-Harris Amendment to the Food, Drug, and Cosmetic Act approved by Congress last year. Drug makers have until April 1 to comment on the proposals, but the new rules were slated to get a going-over at a Food and Drug Administration—industry conference scheduled recently. The proposed rules establish procedures for registration of all drug manufacturers and provide broad descriptions of required manufacturing controls. The regulations detail FDA controls over drug advertising in journals and by direct mail, procedures on reporting clinical experience with new drugs, and rules for establishing generic names. The regulations also establish procedures for determining the efficacy of drugs as now required in new drug applications.

-- Chem. Eng. News

206 Control of Water and Air Pollution May Result in Tax Break.

Industry would get a tax break for adding facilities to control water and air pollution under a bill introduced by Senator Abraham Ribicoff (D—Conn.). Under S. 736, the cost of building or installing air or water pollution control equipment could be treated as deductible expenses instead of being added to the capital account of a company. To qualify for tax deductions, the facilities would have to be certified by both state and federal pollution control officials. In a companion measure (S. 737), Senator Ribicoff proposes that the Department of Health, Education, and Welfare make loans to small business to make it easier to get pollution control equipment.

-- Chem. Eng. News

BOOKS, PAMPHLETS AND NOTICES

- 207 Flash Points Index of Trade Name Liquids. NFPA No. 325 A. National Fire Protection Assn. 180 pp. (1962). FOR SALE FROM: National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. PRICE: \$2.00.

This publication lists more than 5,300 products in its 1962 issue. Data given includes the flash point of the liquid, the name of the manufacturer, principal use of the product, and the source of the information listed. About 2,750 additions and changes have been made in the new volume, which supersedes one issued by NFPA in 1959. The 180-page index contains information essential to anyone buying, using or storing flammable liquids, to inspectors of properties, and to those responsible for the protection of life and property from fire. It is of particular value to purchasing agents, insurance managers, safety directors, transportation managers, and fire department personnel.

- 208 Safety in Industry. Mechanical and Physical Hazards No. 7. Maintenance and Safety. Bull. No. 246. U. S. Department of Labor, Bureau of Labor Standards. 15 pp. (1962). FOR SALE BY: Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. PRICE: 15 cents.

This bulletin explains the difference between routine maintenance and preventive maintenance and suggests how each should be planned and organized. The advantages of preventive maintenance are outlined and suggestions offered as to criteria to be applied in determining what equipment should be covered by it. The necessary steps in establishing a preventive maintenance program are given and the application of these steps discussed.

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- 209 Safety in Industry. Organization and Administration No. 3. The Fundamentals of Accident Prevention. Bull. No. 247. U. S. Department of Labor, Bureau of Labor Standards. 14 pp. (1962). FOR SALE BY: Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. PRICE: 15 cents.

This publication points out that while successful safety programs may differ considerably in the emphasis placed on certain aspects of them, there are certain basic elements which must be incorporated into every program if maximum results are to be obtained. Four basic elements are identified, and program activities to implement these elements are discussed. This bulletin should be particularly helpful to establishments just starting to organize their safety activities.

INDUSTRIAL MEDICAL PRACTICE

- 210 Microstructure of the Lung. V. E. Krahli.
Arch. Environmental Health 6, 37-42 (Jan. 1963).

A brief survey of the microscopic anatomy of the delicate, sensitive, and responsive lining of the respiratory tree is presented. Two experimental methods are suggested by means of which normal pulmonary anatomy and physiology, phagocytosis, pulmonary ventilation, and perfusion, etc., may be studied. -- Author's summary

- 211 Age Related Changes in the Fibrous Proteins of the Lungs. J. A. Pierce.
Arch. Environmental Health 6, 50-57 (Jan. 1963).

Human lung collagen and elastin were measured with an alkaline extraction method. The elastin content of the lungs increased as age advanced during adult life. The collagen content did not change. Several techniques employed have failed to show any differences between elastins obtained from young and old people. The lungs of women contain quantities of collagen and elastin similar to those found in the lungs of men. -- Author's summary

- 212 Rehabilitation in Disseminated Sclerosis. An Evaluation of 28 Patients.
W. O. Geisler and A. T. Jousse. Can. Med. Assn. J. 88, 189-191 (Jan. 26, 1963).

The results of rehabilitation have been described and evaluated in a group of 28 patients moderately severely disabled with disseminated sclerosis between the ages of 19 and 71 years and in a controlled hospital setting. Twenty-three suffered chronic progressive disease and 5 were in remission from an acute exacerbation. They had had the disease an average of 12.7 years and were hospitalized an average of 5.4 months. On admission, 24 required much assistance with their activities of daily living, 6 had poor control of elimination, and 4 were depressed. On discharge, 13 cared for themselves with little or no help, 4 had overcome their problems of elimination, and 3 had improved emotionally. A major symptom in 13, fatigue, did not preclude successful performance, but a progression of disease or failure to react steadfastly did. None were gainfully employed. Six years after discharge, 18 of 20 were alive and happy at home. -- Authors' abst.

- 213 Hepatocellular Cytoplasmic Changes in Acute Alcoholic Hepatitis. F. Schaffner, et al.
J. Am. Med. Assn. 183, 343-346 (Feb. 2, 1963).

Liver biopsy specimens from 25 patients with alcoholic liver disease and jaundice and hepatic insufficiency were studied histologically, histochemically, and electron microscopically, and attempts were made to correlate findings with clinical features and results of

03121178

laboratory tests. The hepatocellular necrosis was best related to mitochondrial changes consisting of clumping, enlargement, bizarre forms, abnormal cristae, and degeneration. These changes seem to represent Mallory's alcoholic hyaline. Jaundice, especially with cholestasis, was best related to the presence of larger than normal vacuoles filled with granular material or with a component of bile and to dilatation of bile canaliculi with shortening and loss of their microvilli. Intracellular fat appeared to reduce the amount of cellular organelles while extracellular fat elicited a macrophage response. The mechanism responsible for the jaundice, the cause of the mitochondrial changes, and the substance responsible for the leukocytic inflammatory reaction remain to be elucidated.

-- Authors' summary

- 214 Aetiology and Pathology of Beat Knee. W. J. W. Sharrard.
Brit. J. Ind. Med. 20, 24-31 (Jan. 1963).

The object of this study was to determine the mechanism of the production of beat knee and its relation to pathological findings. A clinical study was made among 598 coal face workers at one large colliery; 579 were examined of whom 233 showed evidence of past or present beat knee. A considerable preponderance of non-inflammatory lesions, most commonly in the prepatellar bursa, was demonstrated. It was concluded that the single common factor in the causation of non-inflammatory or acute recurrent bursitis was the trauma of kneeling. Experimental investigation of the pressures exerted showed great variations in the pressure on the knee as a whole and on different parts of its weight-bearing surfaces. The view that these localized and extreme variations in pressure may lead to rupture of a vessel found confirmation in the aspiration of blood from the bursae of 29 out of 30 patients. Histological sections from chronically enlarged bursae showed intense fibrosis in the wall of the bursa and sometimes deposition of hemosiderin. In the management of a new case of acute simple bursitis, immediate aspiration of the blood and the instillation of hyalase proved successful in all 12 cases. Aspiration was also successful in certain cases of acute recurrent simple bursitis. Surgical removal of chronically enlarged fibrotic bursae allowed 8 out of 12 patients to return to the coal face. It is suggested that in order to reduce the incidence of beat knee, the use of a knee pad that will not only protect the skin of the front of the knee from trauma by coal particles but will also cushion the knee from the effects of extreme variations in pressure may be desirable.

-- Author's abst.

- 215 Occlusive Arterial Disease in the Hand due to Occupational Trauma. I. J. Schatz.
New Engl. J. Med. 268, 281-284 (Feb. 7, 1963).

Ten cases of ischemia of the digits due to occupational trauma are discussed. The predominant presenting symptoms were rest pain, Raynaud's phenomenon and skin ulceration. Other causes of occlusive arterial disease in the hand were excluded. Angiography was necessary in some cases to confirm the diagnosis for purposes of workmen's compensation. Treatment consisted of the avoidance of further trauma, abstinence from tobacco and local care of the hands; sympathectomy was performed in 5 patients to promote healing of ulceration. Because 8 of these patients were seen within 10 months, it is suggested that this syndrome is an important, if often overlooked cause of industrial disability.

-- Author's summary

- 216 The Management of Corneal Lesions Following Trauma. W. B. Clark.
Ind. Med. & Surg. 32, 47-52 (Feb. 1963).

Some of the numerous forms of trauma to the cornea, from both mechanical agents and chemicals, have been described together with appropriate management and treatment in some instances. Some emphasis has been directed to the singular damage from bee stings on the eyelid in which the stinger eventually damages the cornea. Likewise, some emphasis has been accorded a new form of treatment of herpetic keratitis ulcers by the intramuscular injection of Sander's toxoid. This neurotropic toxoid, prepared from the venom of the South African cobra and the South American rattlesnake, led to results that were demonstrably favorable in 150 cases, but at this time the nature of the action of this toxoid is not established.

-- Author's summary

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- 217 Pathology in Respiratory Disease Mechanism Studies. J. Gough.
Arch. Environmental Health 6, 122-128 (Jan. 1963).

Gough-Wentworth paper-mounted sections of inflated lungs demonstrate pathological changes difficult to identify in lungs cut at the time of autopsy and allowed to collapse. Focal dust emphysema occurs in mining and other industries but also in the general population due to atmospheric pollution. Centrilobular emphysema is due to bronchiolitis and is an important form of "obstructive lung disease". Post-mortem angiography and bronchography give valuable information in the interpretation of pathological changes. The mechanical properties of the lung can be studied post-mortem by a variety of techniques including a modification of the Tiffeneau test.

-- Author's summary

- 218 Vaccination Against Influenza. J. Simpson and W. Taylor.
Trans. Assn. Ind. Med. Officers 12, 90-92 (Oct. 1962).

A vaccination program in a working population of 10,649 (in England) is described. The incidence of influenza during the winter months of January 1962-March 1962 in Dundee was slight: 10.07 per 1,000 population. Wright-Fleming vaccine was used with disposable syringes. The program suggested that vaccination does reduce the incidence of influenza in an inoculated population and that as low a vaccination rate as 40% is still sufficient to reduce materially the epidemic potential of a total vaccination program population. Vaccination does result in a material saving of working days.

-- Authors' summary

- 219 Effect of a Simulated Altitude Change on Asthma. V. V. Chambers, M. R. Allansmith and H. J. Simon. Ann. Allergy 20, 666 (Oct. 1962).

Both going to the mountains and taking short rides in an airplane have been reported to bring relief to the asthmatic patient. In order to investigate one factor of this situation, the authors studied the effect of a simulated altitude of 2,440 meters (8,005 ft.) for 6 hours on 14 chronically wheezing asthmatics. Nine of the 14 were under 12 years of age. All patients had been observed for 6 months or longer. Each patient was checked by questioning as to symptoms and by stethoscope examination of the chest before and after each altitude run, and weekly for one month following the run. One half of the patients kept a daily post-run diary of their wheezing and amount of medication used. No beneficial effect was noted during the one-month follow-up by 13 of the 14 patients. One patient who noted remarkable absence of wheezing for 6 weeks following the test resumed wheezing after a 2-week vacation trip in a dusty trailer. When the chamber run was repeated without a pressure change, a fact unknown to the patient and his parents, the same remarkable absence of wheezing was noted.

-- J. Am. Med. Assn. References & Reviews

- 220 Pulmonary Mechanics. Some Physical and Biochemical Factors. R. M. Mendenhall.
Arch. Environmental Health 6, 74-79 (Jan. 1963).

Dynamic studies of biologic surfactants derived from lung tissue have shown that wide hysteresis loops are obtainable with a dynamic model which vary in surface tension from about 46 dynes per centimeter on expansion (corresponding to inspiration) to nearly 0 dyne per centimeter on compression (corresponding to expiration). Such a film on the surface of the alveolus could, because of its control over the amount of liquid in the alveolus, serve to facilitate passage of fluid laden with respiratory gases between the lumina of the capillaries and the lumina of the alveoli. Since continual replenishment of the surfactant is required in the model, it may be hypothesized that the old material in the lung may be forced toward cilia which then carry it toward the esophagus, serving to cleanse the alveolar surface. Continual replacement or turnover in biologic systems implies feedback mechanisms. Hence, such mechanisms may be impaired when toxic agents alter pulmonary mechanics or the fluid dynamics of the lungs.

-- Author's summary

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- 221 The Heart and Physical Exercise. G. R. Cumming.
Can. Med. Assn. J. 89, 56-55 (Jan. 12, 1963).

Cardiac hypertrophy and extreme bradycardia occur in the highly trained endurance athlete, but not in those with lesser degrees of training. Several longevity studies in athletes fail to show any beneficial effects of athletic training confined to the college years. The invaluable British studies relating physical activity of various occupations to coronary disease show that while exercise does not prevent coronary atherosclerosis, it may reduce the incidence of large and fatal intarctions and of complete coronary obstructions. Various American studies have not confirmed this beneficial effect of exercise. To be of any value in the prevention of coronary disease, exercise must be continued on into middle age. The sedentary life characteristic of western civilization is probably not a major factor in the high incidence of coronary disease. -- Author's abst.

- 222 Effects of Long-Term Feeding of Vegetable Fats on Atherosclerosis. H. B. Lofland, Jr. and T. B. Clarkson. Proc. Soc. Exptl. Biol. Med. 112, 108-111 (Jan. 1963).

White Carneau pigeons were maintained for 26 1/2 months on cholesterol-free diets (pigeon pellets). When such diets were supplemented with 10% Crisco, aortic atherosclerosis and the level of aorta cholesterol were less than in birds receiving no supplement, or 10% safflower oil. Serum cholesterol levels were not different in these 3 groups. When other groups were maintained on diets containing 1% cholesterol for 6 months, the severity of atherosclerosis was increased, and inclusion of 10% safflower oil in the diets exerted no prophylactic effect. When cholesterol was removed from the diets, and the birds were maintained for additional 12 months on either pellets alone, or pellets plus 10% safflower oil, there was no decrease in the level of aorta cholesterol and a slight decrease in aortic atherosclerosis. -- Authors' summary

- 223 Clinical Diagnosis of Intestinal Obstruction. J. M. Johnston.
Ind. Med. & Surg. 32, 53-55 (Feb. 1963).

A careful, methodical history, coupled with a physical examination incorporating knowledge of the diagnostic and etiologic factors producing intestinal obstruction, and aided by laboratory studies as indicated, will usually provide a plausible explanation for the patient's illness and for the corrective treatment to follow. -- Author's summary

- 224 Cigarette Smoking: A Clinical and Public Health Challenge. N. C. Delarue.
Part I. The Clinical Challenge. Can. Med. Assn. J. 87, 961-969 (Nov. 3, 1962);
Part II. The Public Health Challenge. Ibid. 87, 1018-1022 (Nov. 10, 1962).

This article is not intended to add any new information implicating cigarette smoking in the pathogenesis of lung cancer, chronic bronchitis and emphysema, and coronary heart disease, although the available evidence has been brought up to date subsequent to a review of this matter one year ago. One should continue to stress the magnitude of the association between cigarette smoking and lung cancer as demonstrated by the degree of increasing hazard with increasing exposure, a hazard that is not apparent for any other possible causative agent. Other factors are definitely involved and seem to act in cumulative fashion with exposure to cigarette smoke. The falling risk among "discontinued smokers" remains an important observation in ascribing the main role in the production of the respiratory diseases to the tar content of cigarettes. In recognition of the universal impact of the report of the Royal College of Physicians of London in 1962, it seems probable that the public indoctrination which appeared so slow, tedious and unrewarding during the past decade has now reached the stage where a receptive audience is at last available. Therefore, a recitation of the present situation was considered necessary and worth while. Note has been made of the reasonable attitudes and actions to be expected on the part of the medical profession, government, tobacco manufacturers, and educational agencies whether working in the academic field or in voluntary health organizations. Professional leadership. There are 53 references to the subject. -- Author's summary

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- 225 Pulmonary Emphysema in a Non-Smoking Population. P. W. Dysinger, et al.
Diseases of Chest 43, 17-25 (Jan. 1963).

Smoking and air pollution appear in the literature to be two etiologic variables most strongly associated with a risk for developing pulmonary emphysema. In most populations, however, it is difficult to separate these variables. This preliminary report presents the 5-year emphysema mortality experience in an essentially non-smoking population of 64,250 Seventh Day Adventists (SDA) in California. They do not appear to differ greatly from the general population in respect to exposure to air pollution. There were 4 deaths due to emphysema as the "underlying cause" among SDA men, whereas 22 would have been expected at concurrent California mortality rates for men. An additional 14 deaths attributed a secondary role to emphysema, whereas 51 would have been expected. The deceased with such a diagnosis appear to be drawn primarily from the SDA minority with a long-term smoking history. Other population variables do not appear able to explain this degree of difference, and it is concluded that smoking, particularly cigarettes, may indeed be an important differential factor related to the risk of mortality from pulmonary emphysema.

-- Authors' summary

- 226 Tetanus Prophylaxis in Treatment of Puncture Wounds of Patients in the Deep South.
A. N. Houston, et al. J. Trauma 2, 439 (Sept. 1962).
(Journal of Trauma, Williams & Wilkins Co., 428 E. Preston St., Baltimore 2, Maryland*).

Because of the endemic nature of tetanus in the Deep South, puncture wounds are a special problem in this area. The authors report a series of 2,583 cases of puncture wounds (of which about 90% were on the soles of the feet). No cases of tetanus were observed in this series. All wounds received adequate inspection, cleansing, and debridement (with cuticle nippers). Tetanus booster injections were given to 1,161 patients who had been previously immunized, and first tetanus toxoid injections were given to 1,075 patients. The remaining 347 patients were receiving incomplete active immunologic protection with an ill-timed second or third injection, or refused any injection. There was no infection on arrival in 2,303 patients; antibiotics were given to 506 of them either as prophylaxis or as treatment for subsequent infection. Of 280 patients infected on arrival, 221 received antibiotics. Tetanus antitoxin was administered to 172 of the entire group, but to only 35 (less than 2%) of the more than 2,000 treated since 1957. Only 12 of the 172 (7%) demonstrated reactions to the antitoxin. In 2,935 separate injections of tetanus toxoid there were only 7 reactions (0.24%).

-- J. Am. Med. Assn. References & Reviews

- 227 Some Comments Regarding the Allergic State. The Initiation of Antibody Synthesis.
R. S. Farr. Arch. Environmental Health 6, 92-98 (Jan. 1963).

The "allergic state" is not an entity but has come to be applied to an ever increasing number of untoward physiologic events which are mediated through a variety of immunologic mechanisms. Many of the physiologic events associated with the allergic state are normal phenomena and can be elicited by non-immune mechanisms. Many allergic states are the predictable result of applying strong antigenic stimulation to otherwise normal immune mechanisms. Since allergic states due to circulating antibody exist only after antibody synthesis against the offending antibody is first initiated, special attention has been given to some of the factors which control the initiation of antibody synthesis. The factors considered during this brief presentation include: the antigen used; the dose of the antigen; the concentration of antigen to which the antibody synthesizing cells are exposed; the species of animal used as the test subject, the strain of animal used within a species, or as applied to humans, the individual person involved, and finally of course, the method used for immunization and whether the antigen is injected intravenously, subcutaneously, or perhaps even in an emulsified state. -- Author's summary

* Address not in current List of Periodicals.

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228 Pulmonary Alveolar Mural Sclerosis. P. Gross.Arch. Environmental Health 6, 114-117 (Jan. 1963).

Reprints available from the Industrial Hygiene Foundation upon request.

Microscopic examination of lung tissue from 77 non-selected autopsied adult hospital patients showed variable degrees of alveolar mural thickening in all but a few sections. This was exclusive of the thickening secondary to the presence of dust or the result of chronic interstitial pneumonitis. The mural thickening was characterized by slight to severe thickening of the alveolar reticulin by argentophilic material. In some cases, the axial fibers were involved, in a few instances the short side branches of the axial fibers were affected, and in other cases the alveolar capillaries were encased in a shell of argentophilic material. Combinations of these were also observed. In some cases, this mural thickening was associated with an increased vascularity, and in other cases the capillary bed was reduced. It is suggested that the observed thickening of the alveolar reticulin could result in alveolo-capillary block and diminished pulmonary compliance if the changes are sufficiently extensive and severe. In part because of limitations of this study, no relation of mural thickening to age or sex was noted.

-- Author's summary

229 Pathogenesis of Pulmonary Emphysema. R. V. Ebert and J. A. Pierce.Arch. Internal Med. 111, 34-43 (Jan. 1963).

Pulmonary emphysema is a disease characterized by distortion and destruction of normal lung architecture. The disease represents structural failure of the connective tissue network of the lungs. It can be recognized during life only when severe or accompanied by chronic bronchitis. Studies on the pathogenesis of pulmonary emphysema must be based on the anatomical diagnosis. The Laennec hypothesis of the pathogenesis of emphysema stresses the importance of the trapping of air. Doubt is cast on this hypothesis, since patients with bronchial asthma do not commonly develop emphysema and since bronchial obstruction does not regularly produce the disease in animals. It is proposed that the occurrence of pulmonary emphysema depends on primary alterations of the connective tissue framework of the lungs. Chronic bronchitis is considered a result rather than a cause of emphysema. There are 35 references to the subject.

-- Authors' summary

230 Staphylococci in Rural Patients Discharged from Hospital. I. M. Smith, et al.Am. J. Med. Sci. 245, 12 (Jan. 1963).

A study was made of the persistence and economic importance of staphylococcal infections in rural patients discharged from hospital and in their families. Among 295 patients, 54 died in hospital and 22 at home within 6 months of discharge. Seventeen of these patients died of staphylococcal infection. Eight of 18 patients with hospital acquired infections died. Patients came from all services of the hospital and had all varieties of staphylococcal infection. In 14% of the patients, lesions had not healed in 6 months after diagnosis and in 9% the lesions were active for at least 14 months. Many patients transferred their infections to their families and 14.6% transferred their staphylococci to their milk cows. Some phage types were more easily transferred than others. Staphylococcal infections are of great economic importance.

-- J. Am. Med. Assn. References & Reviews

SKIN DISEASES AND BURNS

231 Atopic Dermatitis (Eczema): An Appraisal. A. L. Hudson.Can. Med. Assn. J. 87, 957-960 (Nov. 3, 1962).

The commonly used term "allergy" connotes an induced state of altered tissue reactivity. The term "atopic" presupposes an allergic diathesis, but is used to indicate the presence of non-induced or spontaneous alterations of tissue reactivity. The major controlling

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factors in either induced or spontaneous allergies may depend upon the stability of the individual's prevailing autonomic nervous system activity (adrenergic or vagotonic). The history, appearance and behavior of the skin eruption called atopic eczema suggest that allergy plays little or no role in its etiology. Generalized neurodermatitis is a more appropriate term than atopic eczema even when the disorder occurs in association with rhinitis and asthma. After dislodging atopic eczema from the cozy intimacy it has had for so long with allergic disease, more effective handling of the disease should be possible. Treatment is complicated and prolonged but usually rewarding.

-- Author's summary

- 232 So-Called Margarine Illness in Holland. R. D. G. P. Simons.
German Med. Monthly (Stuttgart) 7, 291 (Sept. 1962).

An epidemic illness, characterized by a pleomorphic skin eruption, was observed in Holland during August and September, 1960. It was suggested that the illness might be related to a new type of margarine, but it has now been shown that the coincidental consumption of margarine in patients with erythema multiform was mistaken for a causal relationship. The author supports this view by the following observations: the hypothesis was publicized without any experimental proof and without a study of the pertinent medical reports on the epidemic occurrence of erythema multiform. The extent of the epidemic was exaggerated. The diagnosis was not verified in the patients, because less than 2% were seen by dermatologists. The consumption of several other brands of margarine, as such, or in biscuits, croquettes, and pastry, was included in the statistical evaluation. The disease also occurred in East Germany and in England, although the implicated brand of margarine had not been sold there; on the other hand, the disease failed to appear in overseas Dutch territory where the margarine had been widely eaten. Skin tests with the emulsifier used in the preparation of the margarine became positive only after sensitization, but not after eating of the margarine. The disease did not occur in over 100 women volunteers who consumed the implicated brand of margarine. In an addendum it is mentioned that the Dutch Ministry of Health at the beginning of 1962 announced that the so-called margarine disease could not be explained on the basis of a direct or indirect toxic effect of either the margarine or the emulsifier.

-- J. Am. Med. Assn. References & Reviews

- 233 Granulomas of Skin Due to Mycobacterium Balnei after Abrasions from a Fish Tank.
S. Swift and H. Cohen. New Engl. J. Med. 267, 1244 (Dec. 13, 1962).

The recent literature has recorded epidemics of skin granulomata which have appeared following abrasions of the skin sustained in certain swimming pools. An acid-fast organism, Mycobacterium balnei, is responsible for the disease, which has been called "swimming-pool granuloma". Two cases of granulomata of the dorsum of the hand have been seen in a mother and son, both of whom cut their fingers on the metal band lining on the top of a household type aquarium. The identification of the responsible organism as Myco balnei was made both by cultural characteristics and serologic tests. Treatment of the condition is unsatisfactory. The lesions eventually resolve spontaneously after several months. Infections with this organism have not previously been reported from any source other than swimming pools.

-- J. Am. Med. Assn. References & Reviews

- 234 Microsporum Gypseum Infections in Cucumber Growers. A. H. Klokke.
Ned. Tijdschr. Geneesk. 106, 1892 (Sept. 22, 1962).

The author presents the histories of 3 patients with dermatomycosis, in whom Microsporum gypseum was isolated from the cutaneous lesions. The men were cucumber growers, and M. gypseum was cultured from all soil samples collected from the greenhouses with which the patients were connected. Further studies on the greenhouse soil revealed that M. gypseum had been introduced into the greenhouse with a soil improver. The infection of the soil improver was traced to one of its components, cowdung, which yielded growth of M. gypseum. In a review of the literature the author cites among others, a 1961 report from Britain which described ringworm-like infection due to M. gypseum in cucumber growers. This form of infection with M. gypseum can be regarded as an occupational disease.

-- J. Am. Med. Assn. References & Reviews

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- 235 Mast Cells and Eosinophils in Food and Inhalant Allergy. K. J. Johnson.
Ann. Allergy 20, 657 (Oct. 1962).

Eosinophils and mast cells found in nasal smears from 100 allergy patients were compared with food allergy histories and the results of scratch skin tests in these patients. No correlation was found between the nasal smear cells and either the food allergy histories or skin test reactions of inhalants and foods. Goblet cells were found most consistently, and mast cells least often.

-- J. Am. Med. Assn. References & Reviews

- 236 Occupational Eczema, Stratum Corneum Thickening, and Electrocutaneometry. H. Sigel.
Ind. Med. & Surg. 32, 56-57 (Feb. 1963).

A patient with primary irritant occupational dermatitis of the face was given ultravioletpsoralen therapy to induce stratum corneum thickening as a protective measure. The treatment was successful in permitting the patient to continue on his job symptom-free for about 3 months, until the effects of the treatment were dissipated. Stratum corneum thickening was monitored by electrocutaneometry.

-- Author's summary

- 237 Treatment of Allergic Patients with Betamethasone: An Evaluation. D. B. Frankel, A. L. Aaronson and N. J. Ehrlich. Ann. Allergy 20, 649 (Oct. 1962).

Seasonal or perennial respiratory allergies, or both, in 52 adults and 42 children, and severe dermatological allergies in 6 adults and 7 children were treated with betamethasone (Celestone). No patient received betamethasone unless he had proved to be refractory to all other types of anti-allergic managements. The usual starting dose of 4 or 6 0.6 mg. tablets daily was reduced gradually or rapidly, as required, to the smallest dose which would suppress symptoms. The results of treatment were excellent or satisfactory in 43 of the adults and 38 of the children with respiratory allergies, and in 5 of the adults and all 7 children with dermatological allergies. An unsatisfactory response or significant side effects occurred in 10 adults and 4 children. Side effects were fewer and milder than those which occur with equipotent doses of other steroids.

-- J. Am. Med. Assn. References & Reviews

- 238 Two Years' Experience in Treatment of Burns in a Private General Hospital. G. E. Collentine, J. D. Conway, W. Woloschek and B. Waisbren. Wisconsin Med. J. 61, 511 (Oct. 1962). (Wisconsin Medical Journal, 330 E. Lakeside St., Madison 5, Wisconsin*).

A special facility for the care of burns was opened in August 1959. The purpose of this report is to review the experience of the first two years. Major departures from routine therapy were: (1) total exposure treatment of all burns, (2) unusually large doses of parenteral antibiotics, (3) extensive use of sharp debridement in the hydrotherapy tank without anesthetics, and (4) "medical debridement" with cotton pledgets soaked in solutions of antibiotic mixtures designed to combat common surface invaders. Results were inconclusive, but the practicality of such a facility and a team approach to burn care have been affirmed.

-- J. Am. Med. Assn. References & Reviews

- 239 Ivalon as a Cover for Excised Burn Wounds. P. H. Taylor, et al.
Arch. Surg. 86, 250 (Feb. 1963).

Ivalon sponge was used as a temporary wound cover in conjunction with excision therapy in 9 patients with large body burns. Four patients were considered to have good results in that upon removal of the Ivalon the underlying bed clinically appeared ready for grafting. However, many complications such as poor autograft take, believed to be due to Ivalon, impurities in the underlying bed, multiple abscess formation, and purulent material beneath the Ivalon with poor

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attachment were discouraging. The results of application of Ivalon on an excised wound do not appear to be as good as the reported results of its use on granulating wounds. As a temporary wound cover, Ivalon shows some advantages but it is not without fault. Further evaluation is necessary to prove the efficacy of this substance as a temporary covering for excised burn wounds.

-- J. Am. Med. Assn. References & Reviews

- 240 Local Prophylactic Chemotherapy for Burns Treated with Tulle Gras and by the Exposure Methods. E. J. L. Lowbury, et al. Lancet 2, 958 (Nov. 10, 1962).

In a controlled trial, patients whose burns were treated prophylactically with tulle gras containing neomycin and chlorhexidine had significantly less infection with staphylococci and with gram-negative bacilli, and significantly lower mean body temperature than those whose burns were treated with penicillin cream; on the other hand, the separation of sloughs was delayed and the results of skin grafting were slightly worse in the patients treated with neomycin-chlorhexidine tulle gras. In another controlled trial the prophylactic use in burns treated by the exposure method of polymyxin, neomycin, and bacitracin sprayed from a pressure pack containing dichlorotetrafluoroethane was associated with significantly less bacterial infection and with a lower mean body temperature than was found in comparable series of patients whose burns were treated with penicillin lactose powder or with no antibiotic. -- J. Am. Med. Assn. References & Reviews

- 241 Origin of the House Dust Allergen. R. Hale and L. P. Cawley. Ann. Allergy 20, 661 (Oct. 1962).

New evidence is presented to show that house dust allergen will not form in cotton linters as a result of age alone as has been suggested by many early investigators. Various samples of aged and new cotton linters were extracted and tested to illustrate this fact. The results show that one sample of linters aged under different conditions of moisture, light, and sterility failed to develop dust antigen regardless of the conditions under which the material was stored. On the other hand a sample only 6 months old was found to contain dust allergen. To demonstrate that a certain amount of aging is necessary, new linters were shown to contain no active allergen. In another phase of the study, an attempt was made to see if the particles containing dust allergen had a characteristic microscopic appearance or chemical staining qualities which would make possible the identification of good raw material for extraction. It was concluded that the dust particle could not be positively identified by gross or microscopic appearance.

-- J. Am. Med. Assn. References & Reviews

CHEMICAL HAZARDS

- 242 Hydrogen Sulfide Exposure in the Gas Industry. M. B. Carson. Ind. Med. & Surg. 32, 63-64 (Feb. 1963).

This paper is concerned with the effects of hydrogen sulfide on the eyes. From the author's own experience and that of other investigators it would seem that the ocular symptoms are the earliest sign of a rise in the hydrogen sulfide concentration in the working atmosphere and appear before any complaints of respiratory difficulties are made. Once the cause is removed, victims appear to make an uneventful and rapid recovery although the possibility of permanent damage to the cornea cannot, in a severe case, be ruled out. The exposure is easily prevented by improved ventilation of the building or by ducting the fumes to the outside air. Another possible step, probably better, would be to pass the vapor through iron oxide to absorb the hydrogen sulfide.

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- 243 The Eye and Hydrogen Sulfide. R. W. R. Beasley.
Brit. J. Ind. Med. 20, 32-34 (Jan. 1963).

An incident in which 5 men were exposed to hydrogen sulfide and steam is described. Three of the men developed delayed eye effects, and a review of the literature supports the view that these effects were due to hydrogen sulfide.
-- Author's abstr.

- 244 Effect of Nitrous Oxide on the White-Cell Count in Leukemia. D. W. Eastwood, et al.
New Engl. J. Med. 268, 297-299 (Feb. 7, 1963).

Nitrous oxide inhalation effectively depresses the white-cell formation in the albino white rat. The effect of nitrous oxide inhalation is also present in myelogenous leukemia, and 2 cases are presented in which this effect is demonstrated. Further elucidation of the mechanism by which bone-marrow depression occurs may help explain the mechanism of anesthesia produced by nitrous oxide.
-- Authors' summary

- 245 Health Standards for Lead Chromate Dust. F. Hartogensis and R. L. Zielhuis.
Ann. Occ. Hyg. (London) 5, 27-36 (Jan.-Mar. 1962).

This survey in pigment factories gives good reasons for suggesting that where there is exposure to dusts the same hygienic standards should be applied to all lead pigments. Pb chromate has been reported as being less toxic than other lead compounds (Bull. Hyg. 19, 626 (1944); 25, 384 (1950)). Various opinions for and against this view are discussed, and the lower toxicity of Pb chromate in paints containing it is explained, partly at least, by its behavior in the vehicle; it does not form lead soaps as e.g., alkaline lead compounds do. Where, however, exposure was limited to chrome yellow production and processing, the data showed that the MAC was of the same order as that for other Pb compounds, 0.1-0.2 mg. Pb/cu.m. Chrome yellow, according to Dutch Standards, consists mainly of Pb chromate—95% in dark yellow pigments, 70-95% in medium, and 40-75% in bright pigments—with some Pb sulfate. Graphs show the corresponding Pb and Cr concentrations in numerous air samples collected in 3 pigment factories. There was good correlation between Pb and Cr concentrations in 2 factories; the ratios Pb/Cr were 6.2 and 5.5 in these factories (B and C). There were 23 B and 3 C workers in yellow chromes almost exclusively, and the average exposure of each worker to Pb was calculated from all Pb concentrations measured. The group was classified into 7, 5, and 14 workers according to exposure to <0.1, or 0.1-0.2, or >0.2 mg. Pb per cu.m. Data for hemoglobin, basophilia and coproporphyrinuria are plotted for each class against values for 117 workers who were not exposed to Pb. From the Pb/Cr ratios it was calculated and assumed that in B about 66% of the lead intake consisted of Pb chromate, and in C 75%. There was a consistent trend of deterioration in the blood and urine data with increasing exposure in Pb chromate.

-- Cond. from Bull. Hyg.

- 246 Ferrous Sulfate Poisoning. D. M. Gimlett. Northwest Med. 61, 837 (Oct. 1962).
(Northwest Medicine, 500 Wall St., Seattle, Washington*).

Poisoning of children with medicinal iron has increased. The author reports the histories of 3 children with such poisoning, one of whom died. Observations on these 3 children and literature reports reveal a number of important points concerning iron poisoning. The mortality is high; it may reach 50%. The clinical picture is deceptive in that a period of apparent well-being precedes the rapid onset of respiratory collapse. The problem of iron poisoning is important not only to pediatricians who may be treating the victims of iron ingestion, but it applies to general practitioners, internists, surgeons, gynecologists, and obstetricians who are responsible for the inclusion of iron salts on the medicine shelves of their patients. Roentgenoscopy should be used to demonstrate the presence of iron tablets in the gastrointestinal system before emesis is induced. If no iron pills show up in the stomach on x-ray, gastric lavage will

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be pointless, and the child can be spared the trauma and potential danger of this procedure. How helpful serial x-rays can be was demonstrated in one of 3 cases presented; more than 12 hours after ingestion, 1.2 gm. of ferrous sulfate could still be detected in the stomach, and the pills were successfully removed by further induced emesis. Cathartics should be given, combined with enemas if necessary. Demulcents such as milk, oil, or egg whites may be used to prevent absorption of the iron as it passes through the gut. Bicarbonate or phosphate ions can be provided to decrease the solubility of the iron. Very rapid transit times through the intestine can be achieved so that nearly intact iron tablets can be retrieved in the stool. Exchange transfusion is probably the most sufficient method for removal of the absorbed iron from the blood stream and body tissues. -- Cond. from J. Am. Med. Assn. References & Rev.

- 247 Toxicity of Tetramethyl Lead Solutions to Mice and Rabbits. N. Castellino, A. Rossi, and R. Mole. Brit. J. Ind. Med. 20, 63-65 (Jan. 1963).

A solution of tetramethyl lead, used as an antiknock agent in gasoline, was given by injection and inhalation to mice and by injection to rabbits. The signs of poisoning are described. Deaths might be delayed until 10 days after dosing. -- Authors' abst.

- 248 Cutaneous Histopathology of Thallium Poisoning. R. M. Schwartzman and J. O. Kirschbaum. J. Invest. Dermatol. 39, 169 (Sept. 1962).

The authors describe the histopathological and gross skin changes which occur in thallium poisoning in dogs. Thirteen dogs with thallium poisoning were studied. The diagnosis in each case was confirmed by spectrographic examination of the animal's urine. Tissue specimens were obtained from 10 reddened and 3 scaling or crusted patches of axillary skin. Thallium has a toxic effect on epidermal cells and alters the process of keratinization. Striking dyskeratotic and necrolytic changes are noted in the skin and hair follicles. Massive parakeratosis, spongi-form abscess formation and induction of telogen (resting phase) follicles are the prominent features. Though the induction of telogen is characteristic of thallium intoxication, it is not unique to the disease. The presence of thallium in the biopsy specimen (from a reddened patch of axillary skin of a dog) gives added support to the argument that the metal exerts a direct toxic effect on the cutaneous system. The absence of thallium in more advanced lesions (scaling, crusted) may be explained by the fact that the metal was excreted with epidermal and follicular exfoliations. -- J. Am. Med. Assn. References & Reviews

- 249 Outbreak of Foodborne Illness Attributed to Tin. S. Warburton, et al. Public Health Repts. 77, 798-800 (Sept. 1962).

An outbreak of gastrointestinal distress among a party of women who attended a bowling league banquet led to identification of a fruit punch as the probable cause. Investigators found a high concentration of tin in the punch which they concluded had resulted from improper storage of the relatively acid beverage in a 5-gallon milk can which had been recently relined. Although tests for copper, zinc, and cadmium were negative, the possibility that other toxic chemicals were present in the retinned can was not eliminated. -- Public Health Eng. Absts.

- 250 Urinary Delta Amino-Laevulinic Acid and Porphobilinogen in Lead-Exposed Workers. A. J. de Kretser and H. A. Waldron. Brit. J. Ind. Med. 20, 35-40 (Jan. 1963).

Of 100 workers exposed to lead in varying degrees, 34 had a urinary delta amino-laevulinic acid (ALA) concentration of above 0.6 mg./100 ml. and a further 35 had an ALA concentration of between 0.3 mg. and 0.6 mg./100 ml. In only 20 of the workers was the urinary porphobilinogen concentration above 0.1 mg./100 ml., two of these being above 0.2 mg./100 ml. No significant correlation was found between the urinary concentration of ALA and coproporphyrin, nor was there correlation between the ALA and urinary lead levels, in fact the highest level of ALA was associated with a urinary lead of less than 200 micrograms/liter. A raised urinary lead was always associated with a raised ALA. -- Authors' abst.

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- 251 Excretion and Metabolism of Edible Food Colors. J. W. Daniel.
Toxicol. & Appl. Pharmacol. 4, 572 (Sept. 1962).

The present investigation deals with the metabolic behavior and excretion of 11 "azo" colors and erythrosin; all these compounds have been used as food colors. The metabolites have been identified by paper chromatography and by isolation, with subsequent characterization by melting point and by ultraviolet and infrared spectroscopy. When azo dyes were administered, only small amounts (3%) were excreted in the urine, some 60%-80% of the color being excreted as the component amines and derivatives thereof. These colors with a nonsubstituted benzene nucleus were hydroxylated and excreted as o- and p-amino-phenol. Increasing the number of substituent sulfonic acid groups, or methyl substitution, appeared to have little quantitative effect on the contribution that fission of the azo link made to the metabolism of the azo colors. The fact that unilaterally sulfonated colors are excreted as hydroxyamines, which are known to disturb the normal metabolism of hemoglobin and, in addition, induce unexplained changes in the erythrocyte, suggests that the use of these colors as food additives should be discouraged. In rats, the color erythrosin was largely (approximately 60%) excreted in the feces. A small amount of dye was excreted in the bile, but there was no evidence for the urinary excretion of this color. The significance of these observations in relation to the toxicologic properties of the colors and their metabolites is discussed. -- J. Am. Med. Assn. References & Reviews

- 252 Tetrachloroethane—A Survey. R. Lobo-Mendonca.
Brit. J. Ind. Med. 20, 50-56 (Jan. 1963).

The use of tetrachloroethane as a solvent for cellulose acetate in the manufacture of bangles in small factories in India is described. The conditions under which exposure occurs are depicted. In a survey of 380 workers no cases of serious poisoning with jaundice were encountered, but there was a high incidence of nervous complaints, and the predominant symptom was tremor. The control and prevention of excessive exposure are discussed. -- Author's abst.

- 253 Fatal Addiction in Trichloroethylene. W. R. L. James.
Brit. J. Ind. Med. 20, 47-49 (Jan. 1963).

Trichloroethylene inhalation is a common industrial hazard that involves a risk of addiction. In the present case there was evidence of indulgence of addiction at work, but not at home. The medical history suggested permanent paresis of the olfactory nerves in addition to intermittent gastric disturbance. Sudden death, not preceded by severe physical exertion, occurred some 17 hours after the last known exposure to the vapor. There was fatty degeneration of the liver and old and recent lung hemorrhages. Trichloroethylene was isolated from the tissues. The urine contained a large amount of trichloroacetic acid. -- Author's abst.

- 254 Evaluation of Exposure to Nitrobenzene. Absorption of Nitrobenzene Vapour through Lungs and Excretion of p-Nitrophenol in Urine. J. Salmowa, J. Piotrowski and U. Neuhorn.
Brit. J. Ind. Med. 20, 41-46 (Jan. 1963).

In order to obtain a quantitative test for measuring exposure to nitrobenzene, experiments on men were done, in which nitrobenzene vapors (5 to 30 micrograms/l.) were absorbed into the lungs only. During an exposure of 6 hours the retention of nitrobenzene in the lungs diminished from approximately 87 to 73%. p-Aminophenol was not detected in the urine by the method used. Another metabolite, p-nitrophenol, was estimated in the urine of the exposed subjects; the quantities present represented about 13% of the inhaled dose of nitrobenzene. It was found that the determination of p-nitrophenol in urine could be used as a quantitative test when a single exposure to nitrobenzene occurred with a precision of approximately ± 8 mg. nitrobenzene. p-Nitrophenol is excreted in urine very slowly and, therefore, it may accumulate in the body. To evaluate the results of the proposed test in the case of a repeated exposure further investigations are necessary. -- Authors' abst.

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INDUSTRIAL DUSTS

- 255 Phagocytosis, Mucous Flow, and Ciliary Action. A. C. Hilding.
Arch. Environmental Health 6, 61-74 (Jan. 1963).

The nose acts as an efficient air-cleaning and air-conditioning mechanism. Much, perhaps most, particulate matter is caught in the nose and escalated back and down on the mucous blanket by ciliary action to the "incinerator" in the stomach. The character of the lining epithelium varies with its exposure to the inflowing air. The mucous blanket is produced by the epithelium and varies in viscosity and probably, general chemical nature according to circumstances. The dense pollutant cigarette smoke, unlike most other pollutants, bypasses the nose entirely. The physiologic drainage of the bronchial tree is accomplished by the mucous blanket, which, motivated by underlying cilia, constitutes the ciliary stream. From respiratory bronchioles to esophagus, the stream bed narrows markedly, and probably the velocity of mucous flow increases as the stream bed narrows. The ciliary stream encounters a number of naturally occurring obstructions in the form of squamous islands, bronchial openings, and the vocal cords. Retardation of the ciliary stream may occur at such areas and may be enhanced by cigarette smoke or other air pollutants which slow or temporarily stop ciliary action, facilitating prolonged action of any carcinogen in the ciliary stream at these spots. Probably most of the particulate matter that gains access to the alveoli and alveolar ducts is removed by phagocytic action and carried out the tracheobronchial tree into the esophagus. Some gains access to the interstitial tissue, lymphatics, and lymph nodes. Whether this is always accomplished by phagocytic action is a moot point.

-- Author's summary

- 256 Pneumoconiosis: The Requirements for Lymphatic Dust Transport. P. Gross and T. Hatch.
Intern. Arch. Gewerbepathol. Gewerbehyg. 19, 660-666 (1962). English.
Reprints available from the Industrial Hygiene Foundation upon request.

The theory of the cellular transport of dust into lymph vessels is briefly discussed and objections to this theory of cellular dust transport are listed. Experimental evidence is summarized which indicates that dust particles may penetrate the respiratory membrane without the aid of cells. Although such penetration may offer a reasonable explanation for a minor part of the dust deposited in lymph nodes, it cannot account for the greater portion of the lymph nodal deposit. If dust particles penetrating the alveolar membrane constituted the major portion of the lymph nodal mineral content, then maximal lymph node deposition should occur shortly after the lung dust burden has become established. Experimental evidence, however, indicates that significant lymph nodal dust deposition does not occur until about 3 months after the establishment of a lung dust burden. Dust plaques or nodules attached to those alveolar walls which abut against blood vessels and bronchi are believed to be the reservoirs which furnish a continuing supply of dust particles for lymphatic transport. Because the basement membrane of the alveolar wall is probably destroyed during the formation of the dust depot the dust particles are already within the interstitium when the dust cells die and disintegrate. Because the cytotoxicity of the dust determines the probability of its extracellular status and since an extracellular status is necessary for dust transport; the greater the cytotoxicity of an inhaled dust, the greater is the tendency for its translocation to the lymph nodes. This is corroborated by experimental findings.

-- Authors' summary

- 257 Mineral Content of Lung in Certain Pneumoconioses. A. J. Vorwald, J. D. MacEwen and R. G. Smith. Arch. Pathol. 74, 267-274 (Oct. 1962).

The usefulness of chemical analysis of lung tissue in diagnosing certain pneumoconioses is emphasized. Morphological and chemical analyses are presented for lung tissues containing iron oxide, free silica, and mica. Analytical chemistry data are most useful when based

on dry pulmonary tissue. In correlating pathology of pneumoconiosis with silica content, it is important to differentiate between free crystalline silica and total silica. "Microscopic studies which utilize polarized light for identifying a birefringent crystalline substance are unreliable unless accompanied by proper techniques to identify at least the shape of the crystal, its precise angles of extinction, and index of refraction." The quantity of a mineral substance in the lung does not always parallel the severity of tissue changes in the lungs of individual cases. Caution is suggested when using analytical means in establishing a diagnosis of pneumoconiosis. As in any differential diagnosis, analytical chemical data should be supported with confirming occupational and medical history, clinical laboratory findings, roentgenographic studies, and gross and microscopic pathology.

-- Public Health Eng. Absts.

- 258 Byssinosis. L. Muller, J. B. M. Vismans and E. J. Van Blommestein.
Ned. Tijdschr. Geneesk. 106, 421-427 (Mar. 3, 1962).

At Enschede, Holland, a survey of byssinosis was carried out among 770 workers employed in 9 cotton mills. Seventy-one (9.2%) of the workers had grade 1, 9 grade 2, and none grade 3 of the disease. Four of 163 (2.5%) persons working in the cotton room, 57 of 409 (13.9%) working in the carding rooms and 19 of 198 (9.6%) working in the separating rooms had byssinosis. Symptoms usually appeared after 16 years of exposure although in 10% of the cases only 5 had elapsed. Individual sensitivity was a feature as some workers had been exposed to the cotton particles for 40 years without any untoward effects. To assess the incidence of byssinosis in other divisions of the mills 4 groups of 100 workers in each from the prespinning, spinning, weaving and textile refining divisions had determinations of vital capacity and one-second values made on a Monday. The one-second values were expressed as a ratio of normal vital capacity and plotted against years of exposure. In all divisions a diminishing Tiffeneau value in proportion to the years of exposure was obtained. Of the 100 persons in the prespinning mills, 15% gave a positive history of byssinosis but among the weavers, spinners and refiners this was not obtained. The atmosphere of the carding rooms contained 7 mg. of particles per cubic meter and of these 73.9% were less than 5 microns in size. Fine particles in this division were 7.6 times as high as in the ringspinning mills where the total quantity of particles was 2.3 mg. per cubic meter.

-- Cond. from Bull. Hyg.

- 259 Pulmonary Function Measurements in an Industry. A Follow-Up Study of 38 Diatomite Workers on the Job. H. L. Motley. Arch. Environmental Health 6, 166-177 (Jan. 1963).

Follow-up pulmonary function studies have been obtained in 38 diatomite workers on the job after 3 to 5 years. The original group of 98 workers was selected as a representative cross-section of the diatomite industry on the basis of age, chest x-ray appearance, exposure time, and type of work. Significant progression in pulmonary function changes were present in 14 of 38 cases restudied and was of a severe degree in 4 of the group. A slight improvement was noted in one case. The decrease in the arterial blood oxygen saturation was the consistent change noted in all 14 cases. The decrease in the exercise oxygen uptake was the second best measurement, and changes on the ventilatory side (timed vital capacity and maximal breathing capacity (MBC)) were of value in 2 cases. The changes observed in the residual air were not a significant factor in the evaluation of progression in this study. The follow-up study revealed no progression in the x-ray appearance in the workers, suggesting that the dust control program in the plant is effective. Routine annual chest x-rays are essential. All cases developing x-ray changes should have complete pulmonary function studies and evaluation. Spirographic recordings appear inadequate to detect significant early changes. The arterial blood oxygen saturation both at rest and with exercise appears much more valuable. The exercise oxygen uptake was helpful.

-- Author's summary

- 260 Pneumoconiosis in the Ball-Clay Industry. C. T. Brown and O. D. Beresford.
Lancet 2, 712-714 (Oct. 6, 1962).

Six cases of pneumoconiosis in the ball-clay industry are reported. The condition is apparently innocuous, but its true nature is not clear. It does not seem to be a true silicosis, but it may be a kaolinosis, a mixed dust fibrosis, or simply a nodular collection of inert dust in the lungs.

-- Public Health Eng. Absts.

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- 261 Response of the Lung to Physical Irritants. P. Gross.
Arch. Environmental Health 6, 42-44 (Jan. 1963).
Reprints available from the Industrial Hygiene Foundation upon request.

Although various physical irritants produce a uniform initial pathologic response of the alveolar wall, differences in the distribution and evolution of lesions produce different disease patterns. A classification of pulmonary response to physical irritants is proposed based on the distribution of the lesions, i.e., whether they are multifocal, diffuse, or both; and on the character of the stroma, i.e., whether the stroma is collagenous, noncollagenous, or both. Physical irritants can evoke a pathologic response of the alveolar wall only if the alveolar clearance mechanism is inadequate and allows such irritants to contact the alveolar surface sufficiently long to produce damage. Multifocal or diffuse inadequacy of the alveolar clearance mechanism determines multifocal or diffuse pathologic responses respectively. Some factors are discussed which are thought to determine whether the alveolar clearance inadequacy will be multifocal or diffuse.

-- Author's summary

- 262 The Fibrogenicity of Some Respirable Dusts Measured in Mice. D. Rivers, et al.
Brit. J. Ind. Med. 20, 13-23 (Jan. 1963).

A method of bio-assay of the fibrogenicity of respirable dust is described. Quartz, coal, and quartz-coal dust mixtures were administered to mice via the tail vein, and liver collagen was estimated chemically. Groups of mice that had received doses of 10, 15, and 20 mg. of these dusts were killed at intervals of 10, 20, and 30 weeks after injection. There was, in general, a linear relation between liver dust and collagen content, and a higher liver collagen the greater the quartz content of injected dust. At 30 weeks after injection there was good differentiation of the collagen response of liver to dust mixtures of different quartz content. These provide standard curves with which liver collagen response to any unknown dust can be compared. The fibrogenicity of two samples of respirable gold-mine dust was less than would be expected from the quartz content. Dust extracted from a region of massive fibrosis in a coal miner's lung was more fibrogenic than dust from a lung with simple pneumoconiosis.

-- Authors' abst.

- 263 The Complement Fixation, Hemagglutination and Precipitin Tests in Monkeys with Silicotic Lesions. H. Palmhert and I. Webster. Med. lavoro 53, 1-4 (Jan. 1962).

Previous experimental work on immunological reactions in animals, chiefly guinea pigs, failed to show any significant collagenization of the lungs (Webster, et al., Bull. Hyg. 36, 523 (1961)). In the present investigation a silicotic lesion was produced by inoculating silica into the right lower lobe bronchus of monkeys through a bronchoscope. In one of the monkeys collagenized nodules were found in the lobe and the sera of the surviving monkeys were tested with an antigen from the lung of a monkey which after exposure to a silica dust cloud for 18 months showed the presence of numerous silicotic nodules. The methods of preparation of antigens, estimation of protein extract and of polysaccharide extract are all fully described. In addition, the serum of a monkey which had been exposed to a cloud of mine dust for approximately 3 years was tested; sera of monkeys which had not been exposed to dust were used as controls. The result of the complement-fixation test showed that the sera of monkeys exposed to silica and one of the normal monkeys were slightly anti-complementary in the dilution 1 in 2, one serum was strongly anti-complementary in the same dilution and one serum strongly anti-complementary up to the dilution 1 in 4. No positive results were obtained with this test or with the hemagglutination and precipitin tests. Details are given of the methods used in carrying out all these investigations.

-- Cond. from Bull. Hyg.

- 264 Effect of Hydrocortisone on Experimental Silicotic Nodule. R. C. Talley and B. Burrows
Proc. Soc. Exptl. Biol. Med. 112, 119-122 (Jan. 1963).

The effect of treatment with hydrocortisone upon growth and maturation of the silicotic nodule has been studied in mouse liver. Treatment slowed growth of lesions and development of collagen and reticulin regardless of the time at which therapy was instituted. When

hydrocortisone was discontinued, however, the size of nodules returned close to control level. Histological differences were noted between control and treated nodules after 150 days. These differences (disorganization and cellularity of treated nodules) suggest a continuation of the early inflammatory response in hydrocortisone treated lesions. There are 13 references to the subject.

-- Authors' summary

- 265 Asbestosis in Experimental Animals. J. C. Wagner.
Brit. J. Ind. Med. 20, 1-12 (Jan. 1963).

Previous animal experiments with asbestos dusts have been almost entirely confined to chrysotile asbestos. It was, therefore, decided to investigate the effects of mill dusts from the three types of asbestos that are produced commercially in South Africa, namely chrysotile, amosite, and crocidolite. Chrysotile and amosite samples were relatively pure while in contrast the crocidolite dust was found to consist mainly of iron stone and silica and contained less than 10% of asbestos fiber. Guinea pigs, Vervet monkeys, and rabbits were exposed to these dusts. The results were assessed on histological criteria. It was found that, in all three species of animals, the amosite dust produced more marked lesions than the chrysotile and that these lesions occurred at an earlier period. It was not possible to compare these lesions with those caused by the crocidolite dust, owing to its impure nature. It was noted, however, that this dust caused severe lesions in guinea pigs and monkeys and that the animals in this group succumbed more readily to respiratory infections.

-- Author's abstr.

- 266 Are Pleural Calcifications Pathognomonic for Asbestosis? M. Anspach.
Intern. Arch. Gewerbepathol. Gewerbehyg. 19, 108-120 (1962). German.

The occurrence of pleural calcifications was studied during a mass x-ray survey of the Dresden area in 1960. All films showing such calcifications were noted except those obviously arising from pleurisy, empyema or chest injury. It was found that the distribution of the cases was not uniform but was concentrated largely in one or two districts in Dresden itself and to a much less extent in some other areas. The areas involved were mostly those in which asbestos works were or had been situated. The patients whose films showed plaques numbered 244; they were divided into 5 groups. In 77.78% of patients the action of asbestos dust was confirmed as the cause of calcification. In 11.54% no cause could be assigned, and in 10.68% pulmonary or pleural diseases were the cause. From these results it is concluded that pleural calcifications cannot be regarded as pathognomonic for asbestosis. There must be in addition proof of exposure to asbestos dust.

-- Cond. from Bull. Hyg.

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 267 A Vehicle for Use as an Audiology Unit. W. R. Lee, J. E. J. John and F. Fowweather.
Brit. J. Ind. Med. 20, 57-62 (Jan. 1963).

Reliable measurement of hearing by audiometry requires quiet surroundings for which suggested criteria exist. When field studies of hearing are carried out it is frequently most practicable to use a vehicle in which these desired sound levels are obtained. It was decided to incorporate in the design of this vehicle a consulting room and a waiting room so that the patient could adjust to the surroundings for what is essentially a psychological test. Ventilation is effected by input and extractor fans. As a basis for the acoustic design the sound levels in typical situations where the van was to be used were determined. From these it is possible to estimate the attenuation required. The walls and roof of the vehicle are of solid construction with a surface density of 5 lb./sq. ft., and the floor has a surface density of 6 lb./sq. ft. A commercially made booth is suspended on resilient mountings inside the consulting room. The

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total weight of all the equipment and the sound proofing is in the region of 2 to 3 tons. After construction the sound attenuation of the vehicle was measured in nearly uniform sound fields, provided by a power station and jet engines. Measurements were made simultaneously outside the vehicle, in the consulting room, and inside the booth. The readings were taken in 1/3 octave bands with a calibrated condenser microphone and audio-frequency spectrometer. The results show that the attenuation of the vehicle shell closely follows the predicted value for 5 lb./sq. ft. Subtraction of the over all attenuation from the octave band sound levels in typical factory yards gave a measure of the sound levels to be expected within the booth under field conditions. These showed that the vehicle should be suitable for audiometric measurements of frequencies above 100 cycles per second.

-- Cond. from authors' abstr.

- 268 Influence of Acclimatization to High Altitude on the Physiological Response to Stress. K. E. Klein, H. Bruner and D. Jovy. Ind. Med. & Surg. 32, 79-80 (Feb. 1963).

It can be stated that a sojourn of several weeks at an altitude of 21,000 feet induces a marked adaptation in the unspecific hypophyseoadrenocortical system, and, in addition, distinctly improves the reaction of circulation, respiration, metabolism, and other physiological functions to different stress situations. These results indicate that an increased resistance can be developed to the stressors that are of importance with regard to flying performance and survival in emergency situations.

-- Authors' comments

- 269 Bibliography of the Biological Effects of Magnetic Fields. L. D. Davis, et al. Federation Proc. Suppl. No. 12, Part II, 21, 1-38 (Sept.-Oct. 1962).

Three hundred and ninety-three pertinent recent references are included on the effects of magnetism on the human body and related aspects of biomagnetic research.

-- Nuclear Sci. Absts.

RADIOACTIVITY AND X-RADIATION

- 270 Thorotrast-Induced Meningioma. R. H. Kyle, et al. New Engl. J. Med. 268, 80 (Jan. 10, 1963).

An example of degenerated meningotheial meningioma is described. It became manifest 24 years following thorotrast ventriculography. Thorotrast particles were found in the tumor, adjacent brain, and subarachnoid space. Liquid emulsion radioautography demonstrated alpha radiation tracts within the tumor, and spectrographic examination of the ashed tumor positively identified the foreign material as thorium. Activity was still present within the tumor, at a rate of one disintegration every 2.5 min. According to the authors' opinion these circumstances were meeting the criteria for tumor induction and hence, the authors reported this case as the first example of a "thorotrast-induced meningioma".

-- J. Am. Med. Assn. References & Reviews

- 271 Early X-Ray Protection in the United States. R. L. Kathren. Health Physics 8, 503-511 (Oct. 1962).

The first decade of the x-ray is examined from the standpoint of radiation protection. The social, legal, and biological forces which underscored the need for protection are presented along with the improvements of the technical aspects of x-ray production. It is significant to note that the principles of x-ray protection so well known today were almost all elucidated in the first decade after the discovery.

-- Public Health Eng. Absts.

- 272 A Summary of Radiation Exposure Received by Workers in Medical X-Ray Departments from 1950-1960. C. K. Spalding and R. F. Cowing. *Health Physics* 8, 499-502 (Oct. 1962).

Exposure to ionizing radiation received by workers in x-ray departments in 106 hospitals in the New England area over the past 10 years has not appreciably changed even though the number of x-ray films taken has increased considerably. Data collected after monitoring a total of 1,200 persons for varying periods of time shows that 4% of the x-ray personnel experience exposure above 100 mr./week. The reasons for these exposures have been tabulated and present a definite need for education and understanding of health physics problems by technical personnel in both fields.

-- Public Health Eng. Absts.

- 273 Susceptibility to Carcinogenesis at Different Ages. R. Doll. *Gerontol. Clin.* 4, 211-221 (1962). (Gerontologica Clinica, Box 352, White Plains, New York*).

The influence of age on induction of cancer by various agents in man and animals is reviewed. It was concluded that although the incidence of cancer increases with age, in general, no clear-cut influence of age can be discerned. This is especially true of induction of cancer by ionizing radiation. Cancer occurs more frequently in the irradiated thyroid gland of children than of adults. On the other hand, the incidence of leukemia among atomic bomb survivors in Hiroshima shows no age dependence; although incidence of other types of cancer in the survivors shows an increase with aging. Incidence of cancer among patients irradiated for ankylosing spondylitis also shows an age-dependent increase.

-- Nuclear Sci. Absts.

- 274 Roentgen Treatment of Chronic Leukemia. W. P. Murphy and Isabel Howard. *Am. J. Roentgenol. Radium Therapy Nuclear Med.* 88, 902-908 (Nov. 1962).

Results are reviewed from an evaluation of the effectiveness of roentgen radiation in the treatment of 107 patients with chronic leukemia. Sixty of the group were classified as granulocytic and 47 as lymphocytic leukemia cases. The number and percentage of 3, 4, 5, and 7 yr. survivors in both groups are tabulated according to the treatment method. Best results were obtained in both groups by use of the spray technique of irradiation, and best results were obtained in the lymphocytic group. The majority of the patients were remarkably well and able to carry on their usual activities throughout most of their illness. The cause of death in 69 of 105 patients was established as other than leukemia.

-- Nuclear Sci. Absts.

- 275 Intestinal Stenosis Following Radiation Therapy. A Roentgenologic-Pathologic Study. D. E. Perkins and H. J. Spjut. *Am. J. Roentgenol. Radium Therapy Nuclear Med.* 88, 953-966 (Nov. 1962).

The clinical entity of radiation stenosis of the bowel is briefly reviewed. Nine new cases are added to the literature. The dangers of mistaking this entity for persistent cancer is noted. The radiologist has jurisdiction over the essential means by which the diagnosis can be made, namely, the barium enema examination. The roentgenographic and pathologic features are presented. The presence of foam cells in the subintimal areas of small arteries is mentioned as being a possible specific finding in vascular damage from radiation. A longer and curved probe scintillation counter rather than those currently in use would give a more accurate location and reading of the highest rectal and sigmoid dose delivered by the radium applicator in the treatment of carcinoma of the cervix.

-- Nuclear Sci. Absts.

- 276 Late Damage to the Spinal Cord after X-Irradiation. A. F. H. Girgensohn and R. Engel. *Med. Klin. (Munich)* 57, 740-743 (1962). German.

Late x-ray damage to the spinal cord after therapeutic irradiation of neighboring tumors occurs after one to two years, passes through varying, often uncharacteristic neurological symptom complexes, and then changes gradually into a total transverse paralysis. A

* Address not in current List of Periodicals.

clinical, pathological, and anatomical description is given of a myelomalacia of the lower dorsal and lumbar parts of the spinal cord, which developed two years after x-ray therapy of a deep-lying esophagus carcinoma. The late x-ray damage of the spinal blood vessel with secondary myelomalacia is definable in comparison with the other forms of vascular restricted spinal cord necroses. It can be confused with intraspinal tumor metastases. -- Nuclear Sci. Absts.

- 277 Radioactive Fission Products and Animal Foodstuff. B. Aberg.
Kgl. Skogs Lantbruksakad. Tidskr. 101, 119-124 (1962). Swedish. (Kungliga Skogs och Lantbruksakademiens Tidskrift, Journal of the Royal Swedish Academy of Agriculture and Forestry, Kungl. Lantbruksakademien, Hovslagargatan 2^{III}, Stockholm C, Sweden*).

The three most dangerous radioactive fission products are iodine, strontium, and cesium. Physical data for isotopes of these elements are tabulated. Then physiological properties of these elements which make them of concern are reviewed, and the quantities found in various parts of the body are discussed. -- Nuclear Sci. Absts.

- 278 Osteogenic Sarcoma in a Luminous Watch Dial Painter. C. Davis, Jr., R. G. Brown and R. W. Alexander. Arch. Surg. 86, 190 (Feb. 1963).

A 52-year-old woman developed radiation osteitis of numerous bones, presumably as the result of her previous occupation as a luminous watch dial painter. Over a period of years she experienced pain and limitation of motion in the shoulder and hip joints. She had received treatment for "rheumatoid arthritis". Marked bone changes were found in roentgenograms of the skeleton, suggestive of carcinoma metastases. After the possibility of carcinoma in the thyroid and other usual sites of malignancy had been eliminated, the history of radium contact was established, indicating the true etiology of the pathological changes in the bones. Subsequent surgical intervention demonstrated an osteogenic sarcoma of the right ilium which resulted in death. -- J. Am. Med. Assn. References & Reviews

- 279 The Radiation Dose from Inhalation of Radium-Emanation. E. Pohl.
Strahlentherapie 119, 77-96 (Sept. 1962). German.

The radiation exposure during the inhalation of air containing radon depends not only on the concentration of the emanation, but also on their content of solid decay products of the radon. A method for the determination of the content of the decay products of the air and the values (for radon) used for the calculation are reported. Moreover the additional radiation exposure received by the lung tissue and the blood from the decay products which are inhaled and filtered by the lung has been calculated. The calculated values for the radon inhalation therapy in the thermal gallery of Badgastein/Bockstein (Austria) are given as numerical examples. It has been shown that the radiation hazards of the patients are negligible in any case. -- Nuclear Sci. Absts.

- 280 Stack Gas Beta Monitor. W. H. Ray. Am. Ind. Hyg. Assn. J. 23, 496-502 (Nov.-Dec. 1962).

A large-area, flat-plate counter is designed to obtain a sensitivity of 10^{-7} microcurie per cc. to radioactive gases in a reasonably small volume of sample. The counter operates in the proportional mode on its beta plateau and is relatively insensitive to background gamma radiation. Incremental volumes of gas sample at appreciable distances within the beta range are subtended with relatively large solid angles. An electrostatic precipitator is devised to monitor radioactive particulates which may penetrate an absolute filter. The sensitivity is greater than is needed to evaluate noble gas release. Count rate may be recorded continuously while collecting and concentrating the contaminants. -- Author's abst.

* Address not listed in current List of Periodicals.

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ENVIRONMENTAL MEASUREMENTS

- 281 Analysis of Polycyclic Hydrocarbons in Particulate Pollutants. J. L. Monkman, G. E. Moore and M. Katz. Am. Ind. Hyg. Assn. J. 23, 487-495 (Nov.-Dec. 1962).

A simplified procedure for the analysis of polycyclic hydrocarbons in air samples is suggested. The sample, on glass fiber sheet, is extracted for 3 hours at room temperature using cyclohexane. The extract is analyzed for benzo(a)pyrene (BaP) by measurement of fluorescence emission intensities at optimal wavelengths. The BaP values found agree reasonably well with results obtained by ultraviolet chromatographic techniques, despite the fact that preliminary column separation of the hydrocarbons is omitted. -- Authors' abst.

- 282 Measurement of Automobile Exhaust Gas Hydrocarbons. J. L. Jones, et al. J. Air Poll. Control Assn. 13, 73-77 (Feb. 1963).

The non-dispersive infrared hydrocarbon analyzer essentially measures the saturated hydrocarbon fraction of the total hydrocarbon concentration in exhaust. Since the ratio of saturated to unsaturated components in exhaust is not constant, the hydrocarbon concentrations obtained with this instrument are not necessarily proportionate to the total hydrocarbon concentration in the exhaust. Specifically, this instrument is insensitive to certain short-chain unsaturated aliphatic hydrocarbons which are the principal reactants in photochemical smog. Thus, this instrument could indicate that an exhaust was relatively free of hydrocarbons when in reality it contained high concentrations of smog precursors. The flame ionization hydrocarbon detector, the infrared spectrophotometer, and the gas chromatograph can measure most of the hydrocarbon components in exhaust. Using the flame ionization hydrocarbon detector in conjunction with the n-hexane-sensitized non-dispersive infrared analyzer prevents erroneous conclusions concerning hydrocarbon concentrations. If the flame ionization hydrocarbon detector measures the total hydrocarbon concentration in the exhaust and the non-dispersive infrared instrument measures saturated hydrocarbons, then the difference between the concentrations will provide a rough measure of the unsaturated hydrocarbons (plus methane) in an exhaust. In analyses of exhaust gas hydrocarbons, the method of direct 5:1 dilution of the hot exhaust gas with nitrogen gas, followed by parallel analysis with the non-dispersive infrared and flame ionization instruments, is suggested in preference to the method utilizing condensate traps, or heated exhaust sampling. -- Authors' summary

- 283 A Centrifugal Particle Size Analyzer. C. Slater and L. Cohen. J. Sci. Instr. 39, 614-617 (Dec. 1962).

A new instrument for the measurement of particle size in the 0.1-5 millimicrons range is described. It consists of a shallow bowl centrifuge with sampling tubes built into the base through which samples are taken while the centrifuge is rotating. Tests have given consistent and reproducible results on a wide variety of materials. -- APCA Absts.

03121197

PREVENTIVE ENGINEERING

- 284 A Baghouse Test Program for Oxygen Lanced Open Hearth Fume Control. R. A. Herrick.
J. Air Poll. Control Assn. 13, 28-32 (Jan. 1963).

The findings of the study indicate that the iron oxide fumes generated by an oxygen lanced open hearth furnace are collected very efficiently by glass cloth filter bags of any of the usual fabric weaves, with no visible dust plume ever seen at the test unit outlet. The dust-fabric combination returns to an intermediate rather than low pressure drop after the bag cleaning cycle, but the slow rise in pressure drop as the dust cake is built up tends to offset this disadvantage. The level of the pressure drop after cleaning is most affected by the physical intensity of the cleaning operation, although the weave of the glass fabric bags does have an effect on this value. The operation of the valves which isolated the test unit from the furnace was found to be very important, for a slight amount of leakage can be detrimental to a collapse-type cleaning method. Condensation of the furnace gases on the filter bags can cause a buildup of water soluble salts which increase the resistance of the bags. Therefore, steps should be taken to eliminate condensation possibilities. Based on these tests, there should be no major difficulties which would prevent the satisfactory operation of a baghouse type dust collector on an oxygen lanced open hearth furnace. Representative filter drag values indicate that a baghouse sized for 2 cfm per square foot could have a pressure drop of 5 inches of water or less.

-- Author's summary

- 285 The Beneficiation of Raw Materials in the Steel Industry and Its Effect Upon Air Pollution Control. J. M. Uys and J. W. Kirkpatrick. J. Air Poll. Control Assn. 13, 20-27, 32 (Jan. 1963).

The use of beneficiated burdens in blast furnaces has increased during recent years and is expected to accelerate in the near future. Burden beneficiation is practiced through improving the physical nature of the material and through increasing the iron content of the charge. This has led to improved furnace performance, "slips" have been reduced, dust rates, slag volumes, and coke rates have been decreased, and production rates increased. All these factors materially reduced possibilities of air pollution by the steel industry. -- Authors' summary

- 286 A Review of Certain Design Standards for Dust Exhaust Systems. J. F. Knudsen.
Am. Ind. Hyg. Assn. J. 23, 503-508 (Nov.-Dec. 1962).

For large-scale materials-handling dust control systems design criteria are not yet standardized. Airflow induced by falling material, adequate enclosures to insure collection of only airborne dust and to avoid "vacuum-cleaning", and ease of maintenance are important considerations. -- Author's abst.

- 287 Fume and Dust Collection in the Mining Industry. H. W. Lange.
Ind. Water & Wastes 7, 60-62 (May-June 1962).

Based upon the experience of the mining industry, the author presents the basic applications of the 4 major means of stack gas cleaning: baghouse or filters, electrical precipitators, washers and scrubbers, and centrifugal collectors. -- Public Health Eng. Absts.

- 288 Industrial Hygiene Design in Raw Materials Handling Systems. W. V. Andresen.
Am. Ind. Hyg. Assn. J. 23, 509-513 (Nov.-Dec. 1962).

Operations leading to problems of dust exposures during materials handling are mentioned. The problems and methods of control are presented with emphasis on closed-systems and ventilation. Illustrative examples are included. -- Author's abst.

- 289 Handling Hazards of Organic Finishes. D. C. Sayles. Metal Finishing 60, 55-61 (1962).

Fires are categorized into 3 classes: from materials that smoulder; inflammable liquids; and electrical hazards. The appropriate fire fighting agents and their use are described. Various hand fire extinguishers, atmospheric contamination detection devices and techniques to eliminate or reduce toxic environments for those handling organic finishes are described. Tables of the nature and severity of the hazards met and recommended control measures and of toxic effects are given.

-- Public Health Eng. Absts.

- 290 Prospects for Exhaust Control by Engine Modification. A. C. Stern. J. Air Poll. Control Assn. 13, 91-92 (Feb. 1963).

Of the 3 paths to the prevention of the emission of combustibles from motor vehicle exhaust, two seem to be mere stopgaps. Improving the performance of the conventional rich-mixture engine by gadgeteering the carburetor and the distributor is self-limiting in its possibilities for emission reduction by the fact that even when improved there is insufficient air to burn the fuel supplied. The use of afterburners is to admit failure in engine design. Only the path of designing completeness of combustion into the engine itself has long term attractiveness as a means for control.

-- Author's conclusion

COMMUNITY AIR HYGIENE

- 291 Pollution. A Problem in Economics. R. B. Engdahl and F. C. Croxton. Battelle Tech. Rev. 11, 11-16 (Aug. 1962).

The production and consumption of many products involve some pollution of atmosphere, water, or soil. Major industry is concerned with the problems of environment pollution in coal mining, petroleum refining, chemical production, electric power generation, paper manufacture, and others. The nature of industrial pollution, the types of problems and the costs involved in eliminating the various kinds of pollution are discussed.

-- APCA Absts.

- 292 Short-Term Air Pollution Studies. F. A. Bell, Jr. Civil Eng. 33, 48-51 (Feb. 1963). (Civil Engineering, American Society of Civil Engineers, 33 W. 39th St., New York 18, N.Y. *).

Useful, though limited, air pollution data can be obtained by state and local agencies using short-term, low-budget air pollution measurement programs. These studies provide valuable training and orientation for technical personnel regarding air pollution measurement programs. Cooperative short-term air pollution measurement studies can be utilized to acquaint the public with local air pollution needs and programs. While such studies of short duration are not designed to reveal the prevailing pattern of air pollution, they can serve to give a preliminary estimate of the types and amounts of air pollution present in the locale studied. Short-term studies have revealed the presence of the photochemical type of air pollution in 4 of the 5 cities here discussed, that is, in Tucson, Phoenix, Fresno, and Washington, D.C. Results of the short-term studies indicate that excessive amounts of particulate matter, haze, and smoke occur in the air of the 5 cities discussed at one time or another, according to such standards for air quality as those of Oregon and California. Sulfur dioxide levels were found to be generally low in cities using primarily natural gas and, to a lesser extent, fuel oil for heating and combustion. However, Lynchburg, although it is the smallest city in the group included in this report, uses a considerable amount of coal and had the highest measured levels of sulfur dioxide.

-- Author's conclusion

* Address not in current List of Periodicals.

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- 293 Air Pollution Control in Industry. Application of Air Cleaning Equipment to Industrial Processes. Anon. Michigan's Occ. Health 8, 1-3, 12 (Fall 1962).

The selection and application of air cleaning equipment is at least as involved as the selection and use of a piece of production machinery. There are times when it is more important. In a few cases, air cleaning equipment design is at best rather bad. Usually, such design results from lack of experience and knowledge as is sometimes the case with the homemade or "prototype" unit. Air cleaning equipment, like other plant machinery, is relatively expensive and should receive equally as good maintenance once it is placed in use. This is often not the case and is one basic reason for equipment failure. Commonly, the dust collector is neglected until a breakdown occurs. Often, it is installed in such a way that it cannot be maintained because it is inaccessible and it is not installed with any kind of scheduled maintenance procedure in mind. Also, some equipment does not lend itself to some simplified method of inspection and repair. Instead, it is a time-consuming and costly procedure everytime nozzles plug or a unit has to be cleaned. Selection of air cleaning equipment should be based on a carefully prepared and detailed analysis of the operation with consideration given to long range use, the effluent concentration, and the appearance of the exit plume. There are many pitfalls in choosing the right equipment. A careful review of the material as has been presented in this article should be helpful.

- 294 Air Pollution and Its Control in the Steel Industry. V. H. Sussman. Iron Steel Engr. 39, 80-85 (May 1962).

The control of contaminants from blast furnaces, beehive and by-product coke ovens, coal burning operations, electric furnaces, open hearth, and other air pollution problems in the steel industry are discussed. Recommendations that plant management should provide for air pollution control in the design and preconstruction of new plants, processes, and that control devices be an integral part of the plant rather than an unproductive appendage. Public information and public relations programs should also be included. -- APCA Absts.

- 295 Polynuclear Aromatic Hydrocarbon Composition of Air Polluted by Coal-Tar Pitch Fumes. E. Sawicki, et al. Am. Ind. Hyg. Assn. J. 23, 482-486 (Nov.-Dec. 1962).

Coal-tar-pitch pollution can be characterized by the large amounts of anthracene, phenanthrene, pyrene and carbazole present in collected airborne particulates. Carbazole has not yet been found in pollution due to incomplete solid fuel combustion products or auto exhaust fumes. Car-tar-pitch pollution is characterized by much higher pyrene/benzo(a)-pyrene (P/BaP), benzo(a)pyrene benzo (ghi) perylene (BaP/Bghi P) and benzo-(a)pyrene/coronen (BaP/Cor) ratios when compared to other types of pollution. The large amounts of polynuclear hydrocarbons (and especially benzo(a)pyrene) often present in coal-tar-pitch polluted air indicate the necessity of a thorough study of this problem as it affects lung cancer. -- Authors' abst.

ACCIDENTS AND PREVENTION

- 296 The Brookhouse Colliery Disaster. R. McL. Archibald and A. F. Oakley. Trans. Assn. Ind. Med. Officers 12, 93-100 (Oct. 1962).

A shaft accident involving 44 men at the Brookhouse Colliery, near Rotherham, Yorkshire, England, is reported. The evacuation of the injured and their admission to the hospital is described. Details are given of the 7 cases not sent to the hospital. Two men left the industry without returning to work. At the end of March 1959, 24 of the remaining 35 had returned to work and 11 were still absent. At the end of 1959, the figures were 27 and 8 respectively. The economic and social consequences of the accident are discussed and working time lost computed. The role of the knee joint in such accidents is stressed. -- Authors' summary

MISCELLANEOUS

- 297 Pharmaceutical Waste Disposal by Soil Injection. R. R. Melcher.
Biotechnology and Bioengineering 4, 147-151 (June 1962).
(Biotechnology and Bioengineering, Interscience Publishers, 20th and Northampton Streets,
Easton, Pa. *).

From the standpoint of a chemical plant problem, the injection well is practical under the certain specific circumstances: when the volume of wastes is not excessive, the underground strata are of the proper nature, the chances of contamination are negligible, the wastes are of a nature that can be properly assimilated into the strata, and finally, no surface method of treatment appears possible or adequate to handle the problem. -- Public Health Eng. Absts.

- 298 Petrochemical Wastes Effects on Water. Part I. E. F. Gloyna and J. F. Malina, Jr.
Ind. Water & Wastes 7, 134-138 (Sept.-Oct. 1962).

This paper reviews the present and past status of petrochemical wastes and includes projections of their possible future effects on water systems. The high oxygen demands exerted by some petrochemical wastes dictates that aqueous wastes be held at an absolute minimum. These wastes will be oxygenated to some extent, and in all probability involve some form of biological treatment. -- Public Health Eng. Absts.

- 299 Submerged Combustion Evaporation of Acid Wastes. D. Krofchak.
Ind. Water & Wastes 7, 63-65 (May-June 1962).

Evaporation for chemical recovery or by-production is one of the time honored methods of waste treatment. The development of submerged combustion evaporation has given additional impetus to acid waste treatment. The release of combustion gases below the surface of the liquid to be evaporated creates turbulence and results in good mixing and better heat transfer. The simplicity of construction and operation give this method advantages in acid waste treatment. This paper presents the details of two applications of this method in connection with titanium oxide manufacturing wastes and steel pickling wastes. -- Public Health Eng. Absts.

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INDEX

<u>Accident(s), Brookhouse colliery disaster</u>	296	<u>Dust collector(s), collection</u> in the mining industry for open hearth furnaces	286 288
<u>Air pollutant(s)</u> analysis of polycyclic hydrocarbons	281	<u>Dust control, suppression</u> design standards industrial hygiene design	286 288
<u>Air pollution</u> control air cleaning equipment in steel industry problem in economics short-term studies	293 285, 294 291 292	<u>Dust sampling, samplers</u> centrifugal particle size analyzer	283
<u>Alcoholism</u> hepatocellular cytoplasmic changes	213	<u>Eczema, occupational electrocutaneometry</u>	236
<u>Allergic state, comments regarding</u>	227	<u>Emphysema</u> pathogenesis of pulmonary pulmonary in non-smoking population	229 225
<u>Allergy(ies)</u> food and inhalant origin in house dust treatment with betamethasone	235 241 237	<u>Exhaust gases, automotive engines</u> control by engine modification measurement of gas hydrocarbons	290 282
<u>Asbestosis</u> in experimental animals and pleural calcifications	265 266	<u>Eye, management of corneal lesions</u>	216
<u>Asthma, effect of simulated altitude</u>	219	<u>Ferrous sulfate poisoning</u>	246
<u>Atherosclerosis, effects of vegetable fats</u>	222	<u>Fire, hazards in organic finishes</u>	289
<u>Audiology unit, use of vehicle in</u>	267	<u>Flash points index of liquids</u>	207
<u>Azo food colors</u> excretion and metabolism	251	<u>Food colors, excretion and metabolism</u>	251
<u>Ball-clay industry, pneumoconiosis in</u>	260	<u>Hearing tests, use of vehicle in</u>	267
<u>Beat knee, etiology and pathology of</u>	214	<u>Heart and physical exercise</u>	221
<u>Book(s)</u> flash points index of trade name liquids fundamentals of accident prevention maintenance and safety	207 209 208	<u>House dust, allergy from</u>	241
<u>Burn(s)</u> chemotherapy for Ivalon for burn wounds treatment	240 239 238	<u>Hydrocortisone, effect on silicosis</u>	264
<u>Byssinosis, in Dutch cotton mills</u>	258	<u>Hydrogen sulfide, effects on eyes</u>	242, 243
<u>Chromate, health standards for lead chrom.</u>	245	<u>Influenza, vaccination against</u>	218
<u>Dermatitis, dermatosis(es)</u> atopic, an appraisal in cucumber growers from abrasion from fish tank occupational eczema so-called margarine illness	231 234 233 236 232	<u>Intestinal obstruction, clinical diagnosis</u>	223
<u>Diatomite workers</u> pulmonary function tests	259	<u>Intestinal stenosis, after x-ray therapy</u>	275
		<u>Iron poisoning</u>	246
		<u>Lead chromate</u> health standards for	245
		<u>Lead poisoning</u> urinary delta amino-levulinic acid	250
		<u>Lead tetramethyl</u> toxicity to mice and rabbits	247
		<u>Leukemia</u> effect of nitrous oxide roentgen treatment of chronic	244 274

<u>Lung(s)</u>		<u>Safety in industry</u>	
horous proteins of	211	fundamentals of accident prevention	209
mechanism studies	217	maintenance and safety	208
microstructure of	210		
pulmonary mechanics	220	<u>Sclerosis</u>	
response to physical irritants	261	disseminated rehabilitation	212
<u>Magnetic fields</u>		<u>Silicosis</u>	
bibliography of biological effects	269	complement fixation in monkeys	263
<u>Margarine, so-called illness from</u>	232	effect of hydrocortisone	264
		fibrogenicity of respirable dusts	262
<u>Nitrobenzene, evaluation of exposure to</u>	254	<u>Smoking</u>	
<u>Nitrous oxide and leukemia</u>	244	clinical and public health challenge	224
<u>Nose and phagocytosis</u>	255	<u>Space flight, physiological response</u>	268
<u>Ophthalmology</u>		<u>Stack gas beta monitor</u>	280
management of corneal lesions	216	<u>Staphylococci infections</u>	
<u>Organic finishes, hazards in handling</u>	289	in rural patients	230
<u>Phagocytosis and the nose</u>	255	<u>Tetanus</u>	
<u>Pneumoconiosis</u>		treatment in Deep South	226
in ball-clay industry	260	<u>Tetrachloroethane, a survey</u>	252
lymphatic dust transport	256	<u>Thallium poisoning</u>	
mineral content of lung	257	cutaneous histopathology	248
pulmonary alveolar mural sclerosis	228	<u>Thorotrast-induced meningioma</u>	270
<u>Pressure, effects of high altitude</u>	268	<u>Tin</u>	
<u>Pulmonary function measurements</u>		outbreak of foodborne illness from	249
on diatomite workers	259	<u>Trauma</u>	
<u>Pulmonary mechanics</u>		etiology of beat knee	214
physical and biochemical factors	220	of the hand	215
<u>Radiation (ionizing, nuclear, x-rays, etc.)</u>		<u>Trichloroethylene</u>	
carcinogenesis at different ages	273	fatal addiction to	253
<u>Radioactive, stack gas beta monitor</u>	280	<u>Waste disposal</u>	
<u>Radioelements, radioisotopes</u>		from pharmaceutical plant	297
in animal foodstuff	277	petrochemical wastes	298
<u>Radium dial painting</u>		submerged combustion	299
osteogenic sarcoma	278	<u>X-ray(s)</u>	
<u>Radon, radiation dose from</u>	279	early protection in the U. S.	271
<u>Rehabilitation in disseminated sclerosis</u>	212	exposure received by medical workers	272
<u>Respiratory disease, pathology</u>	217	intestinal stenosis after therapy	275
		late damage to spinal cord	276
		treatment of leukemia	274

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