

IN RE: ABRAMS
November 1992



NHBB-0019487

Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

DECEMBER, 1963

(Vol. 27, No. 12)

INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

4400 FIFTH AVENUE -- PITTSBURGH 13, PA.

03121319



INDUSTRIAL HYGIENE FEATURES

The confidentiality of occupational health records is discussed in Abst. No. 1109.

See Abst. No. 1110 for information on the psychological complications in industrial injuries.

Abst. No. 1113 reports on health services for civilian governmental employees.

Data on chronic lung disease and changing concepts are presented in Abst. No. 1117.

Immunization in occupational health programs is investigated in Abst. No. 1118.

Abst. No. 1119 is concerned with acute myocardial infarction in a large industrial population.

Bronchial asthma associated with air pollutants from the grain industry is the title of Abst. No. 1128.

Information on the toxic hazards of epoxy resins is given in Abst. No. 1134.

See Abst. No. 1137 for a description of therapy for chlorine gas inhalation.

Hydrogen fluoride inhalation and burns are discussed in Abst. No. 1138.

Abst. No. 1140 considers bronchitis due to acute mercury inhalation.

Abst. No. 1142 considers the toxicity of catalytically active zinc oxides.

A report on the treatment of lead poisoning with oral penicillamine is given in Abst. No. 1143.

Abst. No. 1144 presents a report on three cases of acute chlorobromomethane toxicity.

A case of benzene exposure followed 15 years later by leukemia is described in Abst. No. 1145.

Abst. No. 1171 is concerned with quantitative odor measurement.

FOUNDATION FACTS

A Report on the 28th Annual Membership Meeting and Summary of 1963 Activities is now being mailed to I-H-F members.

A number of our member companies have expressed interest in the availability of American Speech & Hearing Association's Monograph Supplement No. 9 on "Identification Audiometry" which was referenced in the Foundation's Engineering Series Bulletin No. 5 on "International Audiometric Zero". We have just received word from Dr. Kenneth O. Johnson, Executive Secretary of ASHA, that copies of the Monograph are available upon request from: American Speech & Hearing Association, 1001 Connecticut Avenue, N.W., Washington, D.C. 20036.

Dr. Robert T. P. deTreville participated in the 15th Annual Selby Discussional on Occupational Health at the University of Michigan, December 6 and 7.

William J. Schreiber represented I-H-F in a workshop meeting on "Stack Sampling and Monitoring" sponsored by the Engineering Foundation Coordinating Committee on Air Pollution in New York City, November 25-26.

29th Annual Meeting of I-H-F will be held in Pittsburgh on October 21-22, 1964.

03121320

IN RE: ABRAMS November 1992

NHBB-0019488

TABLE OF CONTENTS

	<u>Page</u>
EDITORIAL— The Walsh-Healey Public Contracts Act.	i
News Items	1
Occupational Disease Statistics	2
Coming Events.	3
Legal Developments	3
Books, Pamphlets and Notices.	4
Industrial Medical Practice	5
Skin Diseases and Burns	10
Chemical Hazards	12
Industrial Dusts	16
Physical Aspects of the Environment.	20
Radioactivity and X-Radiation	21
Environmental Measurements	22
Preventive Engineering	25
Community Air Hygiene.	25
Management Aspects	27
Accidents and Prevention	27
Miscellaneous	29
Index	30

03121321

EDITORIAL

THE WALSH-HEALEY PUBLIC CONTRACTS ACT

The subject of Walsh-Healey Act revisions proposed by the U.S. Department of Labor was discussed at the November 8, 1963 meeting of the Foundation's Legal Committee in New York. Representatives of several member companies had expressed concern and a desire to learn as much as possible about the current status of legislation. Reports were presented to the Legal Committee on the position of the National Safety Council, reached at their meeting in Chicago on October 31, 1963, and the evolution of the Walsh-Healey Act since 1936.

The position of the National Safety Council, expressed in their report dated November 5, 1963 is reproduced below with their permission.

The history of the Walsh-Healey Act is described in the latest bulletin in the Legal Series entitled "The Walsh-Healey Public Contracts Act", which is currently in distribution.

Comments from companies or industrial associations wishing to express themselves in this matter should reach the Office of the Secretary of Labor (Division of Public Contracts) no later than December 31, 1963.

National Safety Council Report on the Proposed Revision of
Safety and Health Standards for Federal Supply Contracts, Walsh-Healey Act

On October 31, representatives of the Industrial Conference and the Labor Conference met in the Hilton Hotel and agreed on the following report:

I. The proposed revision of Safety and Health Standards for Federal Supply Contracts published by the Department of Labor on October 1, 1963 contains a number of improvements over the regulations issued December, 1960. The revision states many general safety requirements which are, in effect, performance requirements for various kinds of equipment and facilities. The revision makes substantial use of standards and codes produced by the American Standards Association, National Fire Protection Association, and other organizations. A provision for variations has been inserted.

II. Although the improvements in the proposed regulations are commendable, especially the use of physical performance requirements, the Committee reaffirms its belief that regulation over physical conditions alone cannot attain the safety objective of the Walsh-Healey Act because of the limitations described in the Council's report dated August 31, 1962.

III. The sources of the regulations were predominately derived from the American Safety Standards and National Fire Protection Association Codes. Eighty-nine of the regulations were derived from the following sources:

American Standards Association	American Conference of Governmental
National Fire Protection Assoc.	Industrial Hygienists Association
American Society of Mechanical Engineers	U. S. Bureau of Mines
National Electrical Manufacturers Assoc.	National Safety Council

The regulations, or parts thereof, may be described under one or more of several headings.

Comparison with Source

- 28 Regulations were more stringent than the source. Sixteen of these were considered more stringent because the word "should" appearing in the source was changed to "shall" in the regulations.
- 8 Regulations were less stringent than the source.
- 51 Regulations were of the same stringency.
- 27 Regulations have inadequate coverage in comparison with their source.

03121322

IN RE: ABRAMS November 1962

MHBB-0019489

Nature of Regulations

- 114 Regulations are subject to judgment by the investigator or safety engineer.
- 104 Regulations fell within our definition of "physical performance requirements".
- 84 Regulations are considered acceptable provided proper judgment by the investigator or safety engineer is exercised.

Deficiencies

- 21 Regulations are considered inadequate.
- 20 Regulations are considered unreasonable.
- 12 Regulations are obsolete, all in the fire area because the definitions in Regulation 204.81 have been revised by NFPA.
- 5 Regulations are vague because the intent is not clearly understood.

There are still deficiencies, principally in the areas covering guarding of machines and mechanical equipment. These deficiencies are most noticeable in regulations for mechanical power transmission apparatus, conveyors, and power presses. These deficiencies arise out of the fact that an attempt was made to condense and abstract American Standards covering such equipment. This results in insufficient coverage and inadequacies.

Advisory material from recognizable publications, originally presented as goals to be sought, has been incorporated into the regulations as mandatory requirements. (See Regulations 50-204.180, 50-204.181, and 50-204.275).

Many of the criticisms contained in our first report have been eliminated. No longer are there any restrictive or invalid regulations. The Appendix provides a detailed analysis.

IV. The National Safety Council urges the Department of Labor to develop and improve its administrative and enforcement procedures along the following lines.

A. The safety objective of the Walsh-Healey Act can be attained by using modern management techniques:

First, use injury rates to measure attainment of the objective of the Act. Valid statistical techniques are available to evaluate the reliability of such rates.

Second, concentrate attention on establishments which have high injury rates, and which, therefore, have not attained the objective.

Third, use a sound basis for judging what is to be recommended in high injury rate establishments to correct the basic accident problems.

Specifically, initiate pre-contract determination of the level of safety attained by prospective contractors to determine their eligibility for contracts subject to the Walsh-Healey Act.

B. With regard to regulations governing physical conditions:

1. Particular emphasis should be placed on that portion of the Act which says, "Compliance with the safety, sanitary, and factory inspection laws of the state in which the work or part thereof is to be performed shall be prima-facie evidence of compliance."

2. If the Department of Labor finds that state requirements are inadequate and if it has the authority to establish higher standards to attain the objective of the Act, the Department should reply on general physical performance requirements.

(a) Where there are standards and codes produced by American Standards Association, National Fire Protection Association, and similar groups, a contractor's compliance with such codes should be considered to be compliance with the general performance requirement. If a contractor is not in compliance with such standards or codes, the contractors should be allowed to show that an existing condition is not hazardous.

(b) Where standards and codes of the above types do not exist, the recommendations of professional associations and other qualified organizations, and the judgment of professional engineers should be utilized to determine whether a specific set of conditions is hazardous under the actual circumstances of operation.

(c) Where nationally recognized codes are not available and the Department of Labor decides to develop a code, it should adhere to the procedures recommended to the states by the President's Conference on Occupational Safety (1950). If such a code is developed, appropriate arrangements for variations which will not increase the hazard should be provided.

V. The Council urges the Department of Labor to create a nationally representative Advisory Committee to advise and consult on continuing improvement of the administration and enforcement procedures which will attain the safety objective stated in the Walsh-Healey Act.

INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

1095 American Industrial Health Conference.

The 1964 American Industrial Health Conference will be held April 13-16 at the Pittsburgh-Hilton Hotel in Pittsburgh, Pa., it has been announced by the Industrial Medical Association and the American Association of Industrial Nurses. This medical-nursing conference, which is comprised of the annual meetings of the two sponsoring Associations, will bring together approximately 2,000 persons which, in addition to industrial physicians and nurses, will include industrial hygienists, safety engineers, public health officials, military service medical personnel, university faculty members, management representatives and others who have an interest in the health of the working population. The scientific program, in which many of the nation's experts in the field of occupational health will participate, will be augmented by both scientific and technical exhibits. Intensive courses in selected areas of medical practice and industrial hygiene also will be presented. Further information about the Conference may be obtained by writing American Industrial Health Conference, 55 East Washington Street, Chicago, Ill. 60602.

1096 Industrial Ventilation Short Course.

The Center for Continuation Study at the University of Minnesota has announced a short course in Industrial Ventilation to be held January 13-15, 1964. Those interested in registering or obtaining detailed information regarding this course may write directly to the Center at the University of Minnesota, Minneapolis, Minn. 55414.

-- Am. Ind. Hyg. Assn. J. 24, 480 (Sept.-Oct. 1963)

1097 California Weed Control Conference.

The 16th Annual California Weed Control Conference will be held January 21 to January 23 at the El Rancho Hotel, Sacramento, California. A highlight of the conference will be a panel of industry representatives discussing "What's New in Weed Control." For further details write Richard D. VanBrackle, Division of Agricultural Sciences, University of California, Riverside, Calif.

-- Chem. Eng. News 41, 100 (Nov. 18, 1963)

1098 Industrial Water and Waste Conference.

The Fourth Industrial Water and Waste Conference will be held January 23 and 24, 1964 at the University of Texas, Austin. Cooperating agencies are Texas Water Pollution Control Association, Texas Department of Health, and the University's civil engineering department. General chairman of the meeting is Dr. J. F. Malina, Jr., of the University. The 8th Conference on Industrial Hygiene and Air Pollution Concerning In-Plant Problems will be held immediately, following on January 25. Address inquiries to Joe O. Ledbetter, 305 Engineering Laboratories Building, University of Texas, Austin, Texas.

-- Chem. Eng. News 41, 78 (Oct. 21, 1963)

1099 400 Alcoholics Studied.

An initial report on what Maryland officials regard as one of the most intensive research projects into alcoholism ever undertaken in the U.S. is expected before the year's end.

The first report on the 3-year study at Maryland's Spring Grove State Hospital will concern the financial toll alcoholics exact from the state's resources. Due later is a comprehensive analysis of who the alcoholic is, what causes his disease, and how best he can be treated. It is hoped the research project will answer these questions: Are there significant differences between alcoholics? To what extent can they maintain sobriety after treatment? In what ways can they improve? Can alcoholism be explained through social medical psychological or physiological causes? The study began in 1960 and involved 400 alcoholics admitted to Spring Grove Hospital under a special treatment program which included medical, social, psychological and laboratory tests. After release from the hospital, the men were approached again by researchers to determine what difference time and treatment had made. Records of the men—welfare, death, motor vehicle, arrest and any medical treatment records—were examined and individual interviews begun. The interviews are expected to take another year or two to complete. -- AMA News 6, 2 (Nov. 11, 1963)

1100 Leading Health Hazards Noted by Industrial Hygienists.

Major industrial health hazards encountered during 1962 by State Industrial Hygienists in Indiana were lead hazards in storage battery and casket manufacturing, asbestos hazards in brake lining manufacture, silicosis hazards in ferrous foundries, toluene diisocyanate hazards in polyethylene foam manufacture, dermatitis hazards from exposure to epoxy resins and oils (soluble and insoluble), chromic acid exposures in electroplating, trichloroethylene exposures in metal degreasing operations and carbon monoxide from lift trucks in industry and from autos in service garages. -- Air Eng. 5, 21 (Nov. 1963)

OCCUPATIONAL DISEASE STATISTICS

1101 Occupational Disease Statistics. (Cases reported to the respective Health Departments).

	Conn. Sept.	Pa. Oct. - Nov.	Tenn. Oct.	Total
Anthraco-silicosis		1		1
Bronchitis		1		1
Carbon disulfide poisoning			1	1
Chromic acid poisoning	14			14
Dermatitis	13*	43	13	69
Fibrosis (pulmonary)		1		1
Glue solvent fumes			1	1
Lead poisoning			1	1
Mercury sensitization		1		1
Radium exposure		1		1
Silicosis		1		1
Silicosis (suspected)		2		2
Tuberculosis		1		1
Total	27	52	16	95

* Causes are listed as follows:

Connecticut: Occupational dermatitis due to plants: foods 1, poison ivy 1; occupational dermatitis due to oils and greases (and cutting metal compounds) 3; occupational dermatitis due to solvents 3; occupational dermatitis due to other chemicals: acids 1, multiple chemicals 1, nickel and compounds 2; occupational dermatitis—other: unidentified 1.

03121325

COMING EVENTS

- 1102 1964
- | | |
|------------|---|
| Jan. 8 | Los Angeles Radiological Society, Los Angeles, Calif. |
| Jan. 9-11 | International Symposium on Anticoagulant Therapy in Ischemic Heart Disease, Miami Beach, Fla. |
| Jan. 18-23 | American Academy of Orthopaedic Surgeons, Chicago, Ill. |
| Jan. 20-23 | 13th Exposition of the Air-Conditioning, Heating, and Refrigeration Industry, Chicago, Ill. |
| Jan. 22-25 | Neurological Society of America, Phoenix, Arizona |
| Jan. 23-24 | Industrial Water and Waste Conference, University of Texas, Austin, Texas |
| Jan. 25 | Conference on Industrial Hygiene and Air Pollution, University of Texas, Austin, Texas |
| Jan. 27-29 | American College of Surgeons (Sectional Meeting), Baltimore, Maryland |
| Jan. 27-29 | Semi-Annual Meeting of American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc., New Orleans, La. |
| Jan. 27-31 | American Protestant Hospital Association, St. Louis, Missouri |

LEGAL DEVELOPMENTS

1103 Air Pollution Control Bill Approved.

An air pollution control bill has been approved by the Special Subcommittee on Air and Water Pollution of the Senate Public Works Committee. Additions to S. 432 made by the subcommittee include provisions for research on extracting sulfur from fuel, research on determining harmful levels of individual air pollutants, and creation of a joint industry-government technical committee to study air pollution caused by automobile exhausts and fuel combustion. Still in the bill is a provision which permits the Government to step into interstate air pollution problems without waiting for a request for intervention from state or local authorities. This provision was opposed by the chemical industry at earlier hearings on the bill.

-- Chem. Eng. News 41, 19 (Nov. 11, 1963)

1104 New Legislation on Water Pollution.

Tough new legislation on water pollution was approved recently by the Senate Public Works Committee. The so-called Muskie bill (S. 649) would establish a new and powerful Federal Water Pollution Control Administration within the Department of Health, Education, and Welfare, which would be responsible for planning, enforcement, and federal-state relationships. The bill leaves it to the discretion of the HEW Secretary whether to transfer additional responsibilities to the new body, such as responsibilities for water pollution research and construction grants. It provides for an additional assistant secretary of HEW to be the principal adviser to the Secretary on water pollution matters. In addition, it authorizes the HEW Secretary to ban the use of non-biodegradable detergents. It would set up a joint government-industry technical committee to work up acceptable standards for detergents which would go into effect by January 1, 1965.

-- Chem. Eng. News 41, 19 (Oct. 7, 1963)

03121326

BOOKS, PAMPHLETS AND NOTICES

- 1105 Leukemia: Key to the Cancer Puzzle? Pat McGrady. Public Affairs Pamphlet No. 340. 20 pp. (1963). AVAILABLE FROM: Public Affairs Committee, 22 East 38th Street, New York, N. Y. 10016 PRICE: 25 cents.

What leukemia is, its possible causes, and current treatment and research are described in this pamphlet. Although at present "leukemia is uncurbed and incurable, some authorities regard leukemia as the key to the control of all cancers. Its course often is so rapid that it can be followed from day to day; its characteristics are an exaggeration of the insidious start and subtle signs of many other cancers." Leukemia, the author explains, "is cancer of the organs which manufacture blood—the lymphatic organs and tissue and the bone marrow. How it begins is a mystery. By the time the doctor diagnosis leukemia, the disease has become incurable; its genesis is impossible to trace among the myriad ordinary events, minor symptoms and small complaints of the patient." Thus far, intensive study seems to support the view that leukemia is virus-caused. Still, the author stresses, "No qualified investigator would content from present evidence that a virus is the sole cause of the disease in humans. The evidence of other causal factors—radiation, hormones, and cancer-causing chemicals, among them—is too firmly established in both animal experiments and human studies to countenance a 'leukemia virus' as the exclusive agent." "Nevertheless, a growing number of scientists are leaning to the theory that viruses play a role in some, or possibly all, cases of leukemia-like diseases in humans. Some believe the virus may act in concert with other agents to produce the disease and give it its presently invincible qualities."

- 1106 Occupational Health Services for Employees. A Guide for State and Local Governments. Margaret F. McKiever and G. S. Siegel. U.S. Department of Health, Education, and Welfare, Public Health Service, Division of Occupational Health, PHS Publication No. 1041. 91 pp. (May 1963). AVAILABLE FROM: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 PRICE: 35 cents. Single copies are available from the Division of Occupational Health, Public Health Service.

State and local governments now employ over 6 million workers engaged in a wide variety of occupations. The need to conserve health and promote efficiency has increased the interest of both state and local government officials in good safety and health programs. This publication has been prepared to answer requests from government officials on program content, to inform them of what other agencies are doing in the field, and to stimulate greater interest in the health needs of government workers. It should, however, be useful to anyone who is interested in occupational health services for an employee group, since the general objectives of all occupational health programs are the same. Material was secured from publications, and through correspondence and personal interviews. It is limited to data on health services available to employees at their work place, or nearby, in health units staffed by physicians and nurses. Suggestions on program planning are also included. A number of programs now being operated by state and local governments are described in detail.

- 1107 Preventing Dermatitis If You Work with Epoxy Resins. U.S. Department of Health, Education, and Welfare, Public Health Service, Division of Occupational Health, PHS Publication No. 1040. 19 pp. (May 1963). AVAILABLE FROM: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 PRICE: 10 cents each with a discount of 25% for orders of 100 or more. Single copies are available from the Division of Occupational Health, Public Health Service.

Since epoxy resins were introduced to American industry a few years ago, they have gained widespread usage. However, epoxy resins may cause troubling and disabling dermatitis in employees who do not observe certain safeguards in working with the resins. This new booklet

describes for the worker and his supervisor the hazards inherent in working with epoxy resins. Precautions for handling the materials, plant housekeeping procedures, and personal hygiene rules are outlined briefly and illustrated by simple line drawings. A listing of sources of additional information on the resins completes the leaflet.

INDUSTRIAL MEDICAL PRACTICE

- 1108 Environmental Factors in Anesthesia. L. D. Vandam.
Arch. Environmental Health 7, 391-401 (Oct. 1963).

Environmental factors in anesthesia have been treated in their possible relationship to anesthetic morbidity and mortality. Only nonspecific influences were considered in the host-agent interaction of the patient, anesthetist, and the hospital environment. Factors of importance in the patient are the socioeconomic background, fears and superstitions, age and sex in their general connotations, possible racial influences, and iatrogenic disease. The anesthetist, his personality, working conditions, and apparatus were grouped as the agent in an epidemiological approach to host-agent relationships. Finally, factors in the external environment were shown to bear an influence. These comprise changes in temperature, the effects of high altitude, air pollution, tobacco smoking, conditions leading to accumulation of static electricity, anesthesia as a vector in spread of hospital infection, and problems involving radiation and radiation sickness. It is believed that one or more of these environmental factors may be acting in some instances of anesthetic mortality.

-- Author's summary

- 1109 Confidentiality of Occupational Health Records. J. N. Gallivan.
Arch. Environmental Health 7, 469-472 (Oct. 1963).

The confidentiality of the patient-physician relationship is protected by law and medical ethics, but many physicians lack practical guidelines particularly for situations wherein a third party has an obviously valid interest. Seven guidelines to the confidentiality of occupational health records are offered for use by the physician, who at some time, deals with the health of employees in relation to their work.

-- Author's summary

- 1110 Psychological Complications in Industrial Injuries. J. C. Nemiah.
Arch. Environmental Health 7, 481-486 (Oct. 1963).

In the patient with excessive dependency needs, disability initially produced by a physical lesion may be complicated and prolonged by emotional needs, unless steps are taken to prevent such complications. In our complex industrial society, many people and agencies contribute to the patient's care. Highly important among these are the physician, the employer, the insurance company, his family, his lawyer, and his union. In the management of the patient with an industrial injury, the company physician can and should play a central role in coordinating these agencies to provide a psychologically therapeutic environment.

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

- 1111 Metabolic and Nutritional Effects of Alcoholism. C. M. Leevy and H. Baker.
Arch. Environmental Health 7, 453-459 (Oct. 1963)

Ethanol produces a variety of metabolic and nutritional changes in man. Observed metabolic effects have been divided into those due to physical-chemical effects of ethanol on the cell membrane which results in release of enzymes and substrates, hydrogen ion transfer resulting from oxidation of ethanol and acetaldehyde, and decreased food consumption. Of major importance is its secondary effect in reducing diphosphopyridine nucleotide, since relative changes in the amount of this substance may have a profound effect on intermediary metabolism. The role

03121328

of acetaldehyde accumulated during the oxidation of ethanol in the pathogenesis of acute and chronic symptoms of alcoholism should be studied further. Nutritional abnormalities associated with alcoholism may be partly due to changes incident to metabolism of ethanol but principally result from an inadequate food intake. This may lead to either subclinical or clinical disturbances of protein, fat, and carbohydrate metabolism and evidence of hypovitaminosis. Control of alcoholism and provision of an adequate diet will correct these alterations. If supplemental vitamins are employed prophylactically, they should be given in balanced physiological quantities; large doses of B complex vitamins in absence of a large deficiency appear to be neither necessary nor desirable.

-- Authors' summary

- 1112 The General Practitioner in Prepaid Group Practice Plans. I. S. Neiman.
Am. J. Public Health 53, 1635-1643 (Oct. 1963).

The results of a study of the utilization of physician services and hospitalization in a comprehensive private physician sponsored prepayment service plan is reported. It is indicated that despite the relative absence of deterrents to the use of the physicians by all persons eligible for care under the plan, the physicians were not overtaxed or overburdened in supplying all necessary medical care. At the same time hospitalization, under the terms of the coverage, is reported as less than with other types of medical care plans. The relative merits of medical care provided by general practitioners in group practice and utilizing the insurance principle of prepayment is discussed and commented upon.

-- Author's summary

- 1113 Health Services for Civilian Governmental Employees. J. F. Kilgus, Jr.
Arch. Environmental Health 7, 477-480 (Oct. 1963).

A program of health services for civilian governmental employees is analogous to an occupational medical service in industry. Some advantages of such a program to the governmental agency and to the employees have been outlined. The results of a questionnaire sent to the various states to determine what each one was doing in the way of health services for its employees have been presented.

-- Author's summary

- 1114 Automation and Repetitive Work. Their Effect on Health. P. A. B. Raffle.
Lancet 1, 733-737 (April 6, 1963).

The introduction of industrial power eliminated many manual repetitive tasks but produced mechanical repetitive tasks. With a few minor exceptions there is no evidence that repetitiveness per se has any adverse effects on physical health, though in some cases, it may be the cause of frustration and dissatisfaction. The advent of automation in which the work of machines is governed and coordinated by electronic devices will eliminate in turn much of the present machine-tending. The effect of its inevitable, albeit gradual, growth in industry is discussed, and the author concludes that the physical effects are likely to be few (though there may be an increase of ischemic heart disease due to inactivity), that "job enlargement" may eliminate some of the possible mental effects while others may be forestalled by the use of applied psychology, and finally that the most important effects are likely to be on our social life in bringing the benefit or more leisure which we must learn to use wisely.

-- Bull. Hyg.

- 1115 Pneumatic Splinting of Hand Injuries. A Preliminary Report. A. P. Kelly, Jr. and J. I. Fox.
Arch. Environmental Health 7, 282-285 (Sept. 1963).

An excellent first aid pneumatic dressing splint can be safely and rapidly applied by personnel with minimal training. It will permit control of hemorrhage and transport to proper medical facilities without the risks associated with improperly applied conventional splints or tourniquets. It should prove a worthwhile addition to equipment for industrial first aid stations, ambulance services, and practitioners' offices. The extension of its use beyond the point of definitive surgical care is open to question.

-- Authors' summary

- 1116 Cold Dilatation and Raynaud's Phenomenon. L. Magos and Gizella Okos.
Arch. Environmental Health 7, 402-410 (Oct. 1963).

In contrast to vasoconstriction, there is a marked difference in cold dilatation between patients with Raynaud's phenomenon and control persons. While in normal persons vasoconstriction is followed by dilatation in 6 minutes in the majority of the patients the cooled digital vessels did not dilate within 15 minutes, and in the rest dilatation was delayed and much less marked than in normal subjects. Similar to the frequency and seriousness of Raynaud's attacks, the cold dilatation also shows a seasonal dependence. In a period free from complaints, the cold dilatation usually reappears. After short-term vibratory exposure (3,000 cycles per minute and 2 mm. peak-to-peak amplitude) increased heat content and increased cold dilatation were found in the exposed finger. These effects do not occur in patients with Raynaud's phenomenon. After vibratory exposure venous occlusion plethysmography failed to detect any increase in the finger blood flow. The results are discussed related to the pathomechanism of Raynaud's phenomenon of occupational origin. There are 31 references cited.

-- Authors' summary

- 1117 Chronic Lung Disease and Changing Concepts. P. Gross.
Diseases of Chest 44, 385-390 (Oct. 1963). Reprints available from Industrial Hygiene Foundation upon request.

Some of the newer concepts of chronic lung diseases are briefly described. The following new concepts are included: (1) The pulmonary clearance mechanism. (2) Pneumoconiosis. (3) Tuberculopneumoconiosis. (4) Chronic interstitial pneumonitis. (5) Organizing pneumonia and the Hamman-Rich syndrome. (6) Intrapulmonary lymphatic transport. There are 27 references to the subject.

-- Author's summary

- 1118 Immunization in Occupational Health Programs. G. M. Saunders.
Arch. Environmental Health 7, 487-492 (Oct. 1963).

Occupational health services are concerned primarily with the preservation and improvement of the health of the employees in industry. Some diseases which may be important to public health or to industrial operations may be prevented by immunizations. Many companies offer to all employees, or to selected groups, immunizations against infectious diseases to which they may be exposed by reason of their jobs, or which may cause excessive lost time, or in co-operation with mass immunization programs. Employees who are sent out of the country, and their dependents, are given appropriate immunizations by the company health services or at company expense. Over the past decade there has been increasing participation of occupational health services in immunization programs, particularly in relation to influenza, poliomyelitis, and tetanus. It is expected that in the future participation will expand further with the growth of implant health services and with the development of new vaccines against old and new diseases.

-- Author's summary

- 1119 Acute Myocardial Infarction in a Large Industrial Population. Report of a 6-Year Study of 1,356 Cases. S. Peil and C. A. D'Alonzo. J. Am. Med. Assn. 185, 831-838 (Sept. 14, 1963).

Some clinical and epidemiologic aspects of myocardial infarction were examined in 1,356 employed patients from 25 to 64 years of age. Among salaried employees, the risk of infarction appeared to be inversely related to job level. The chances of developing an attack were increased during the waking hours and among persons with hypertension, diabetes, and certain electrocardiographic abnormalities. Overweight increased the risk of infarction among men under 45 years, but not in older persons. The case fatality rate in the entire series was 30%. The rate was significantly elevated among older hypertensives, when the attack occurred at night, and among patients with pre-existing bundle-branch block or premature ventricular contractions. The immediate prognosis was not affected by overweight or physical activity at the time of the attack, but was more favorable when the attack occurred at work.

-- Authors' abst.

IN RE: ABRAMS November 1992

MWBB-0019493

03121330

- 1120 Epidemiologic Studies of a Large Urban Outbreak of Infectious Hepatitis. W. H. Mosley, et al. *Am. J. Public Health* 53, 1603-1617 (Oct. 1963).

Since 1952, Des Moines, Iowa, has had two significant epidemics of infectious hepatitis. A detailed study of these two epidemics has demonstrated several classical features associated with hepatitis: the cyclic occurrence, in this instance 8 years; the tendency for the disease to occur in peak incidence in winter; the slow rise and fall of the epidemic curve; and the high attack rate in the 5 to 14-year age group. These features are generally characteristic of person-to-person spread. Significant factors associated with a high attack rate in the 1952-1953 epidemic are again found to be operative in the 1960-1961 epidemic. These were socioeconomic status, type of sewage disposal, family size, and degree of household congestion. A reduction in the attack rate in the 1960-1961 epidemic as compared to the 1952-1953 could be demonstrated in certain areas of the city where there was a significant improvement in the socioeconomic status coupled with improved sewage disposal facilities and removal of privies. These factors, which are all associated with sanitation, suggest the intestinal-oral as the major mechanism of spread. The role of the school was evaluated, and it was demonstrated that close interpersonal contact was a more significant factor than mere classroom association with a case. Finally, the efficacy of gamma globulin in reducing the secondary attack rate among family contacts was demonstrated.

-- Authors' summary

- 1121 A Physician Related Outbreak of Hepatitis. W. J. Dougherty and R. Altman. *Am. J. Public Health* 53, 1618-1622 (Oct. 1963).

An outbreak of viral hepatitis involving at least 41 patients and 15 deaths has been described. The use of contaminated disposable intravenous tubes is believed to be the mechanism of spread of the infection.

-- Authors' summary

- 1122 Surgical End Results of Cervical Ridge and Disk Problems. H. Haft and H. A. Shenkin. *J. Am. Med. Assn.* 186, 312-315 (Oct. 26, 1963).

A series of 73 cases involving operations, for syndromes due to herniated cervical disks or cervical spondylosis, from 1950 to 1960, has been reviewed. The series has been divided into 4 categories depending on whether the lesion was a soft displaced disk or a hard arthritic spur or ridge, and whether the presenting complaint was of root origin or spinal cord embarrassment. In addition, results of similar cases described in the literature have been collected and categorized. It has been found that results of surgery for the radicular syndromes, whether originating from herniated soft disks or arthritic spurs, are uniformly good. Of patients harboring midline lesions manifesting symptoms of spinal cord compression, only 33% have satisfactory results following surgical decompression. However, these latter patients had progressive neurological syndromes, that, in many instances, were arrested after surgery. Because the predetermined classification of results applicable to the entire series depends on recovery from the presenting symptoms, this favorable effect on the course of the illness is not reflected in the data.

-- Authors' abst.

- 1123 A Method for Determining Ciliastatic Components in Cigarette Smoke. E. L. Wynder, et al. *Cancer* 16, 1222 (Sept. 1963).

To discover if the cilia-toxic effect of cigarette smoke resides nonspecifically in the smoke particles or is due to specific smoke components, an assay method was developed using the ciliated epithelium (gill) of the mussel *Lamellibranchiata unio*. The testing of the condensate and its fractions, nicotine, and individual phenols, revealed a significant cilia-toxicity of the tested acidic portions as well as the phenols. Nicotine in the concentration found in cigarette smoke was not cilia-toxic.

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

- 1124 Experimental Aspects of Tobacco Carcinogenesis. E. L. Wynder and D. Hoffman. *Diseases of Chest* 44, 337-344 (Oct. 1963).

Experimental studies have demonstrated that tobacco smoke condensate is carcinogenic to a variety of animal tissues. Chemical constituents have been determined which at least in part,

03121331

may account for the tumorigenic activity. It can also be shown that some of these constituents can be reduced in the smoke. It is not the primary purpose of the laboratory experiment to establish cancer causation in man—a problem which is approached today only with human data—but rather its purpose is an attempt to explain the possible mechanism in terms of laboratory animals. If these results are applied to the human setting, caution must be used. In view of the massive epidemiologic and statistical evidence linking smoking to several types of human cancer, particularly that of lung cancer, the results of the animal work and the chemical analysis gain in importance. The conclusions one may derive have not only academic significance in defining the observed carcinogenic activity in terms of chemical components, but may also some day prove to be of practical importance.

-- Authors' summary

- 1125 Schistosomiasis in American Tourists. H. Most and D. I. Levine.
J. Am. Med. Assn. 186, 453-457 (Nov. 2, 1963).

Schistosomiasis is not entirely unknown to those in practice in this country. However, the principal association in the mind of the physician is almost entirely limited to its occurrence in Puerto Ricans, although following World War II there was a flurry of activity relative to schistosomiasis japonica acquired in the Philippines. The present report deals with three cases of schistosomiasis mansoni acquired in the course of a Caribbean vacation and one of Schistosomiasis haematobium acquired by a student during a trip around the world. (Schistosomiasis acquired by American tourists is being recorded for the first time.) The clinical aspects in each case were compatible with a diagnosis of schistosomiasis. However, no consideration was given to this as a possibility and as a result there was considerable delay in diagnosis and initiation of treatment. Emphasis is placed on the importance of global pathology in the evaluation of disease of travelers. The clinical aspects and treatment are presented.

-- Authors' abst.

- 1126 Analysis of 149 Cases of Tetanus. H. Stirnemann.
Schweiz. med. Wochschr. 93, 601 (Apr. 20, 1963).

A total of 149 cases of tetanus, treated between 1918 and 1962 at the surgical department of Bern University Clinic, are analyzed. It was found that the disease had lost only little of its danger when treated with curare. New and previously unknown complications with a fatal outcome were seen in patients treated with curare. In recent years—as compared with earlier experiences—many patients had no visible lesions which could be considered as site of entrance of the infection. The length of incubation time is no longer of prime importance with regard to prognosis; rather the patient's age has now become more significant. An analysis of the failures of the various methods of prophylaxis is presented. Follow-up studies show that almost 20% of the surviving patients suffer from prolonged, vague, but occasionally severe sequelae. The investigations prove the urgent need for prophylactic immunization of the whole population. The author believes that this is the only practical way of eradicating tetanus. One of his patients had retained a high degree of immunity 21 years after active immunization as proven by the fact that after injury he contracted only a very mild, abortive tetanus infection.

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

- 1127 Treatment of Caustic Burns of the Esophagus. Early Esophagoscopy and Adrenocortical Steroids. W. W. Cleveland, J. R. Chandler and R. B. Lawson.
J. Am. Med. Assn. 186, 262-264 (Oct. 19, 1963).

In a group of 130 children who had ingested lye, the majority were managed by a regime including early esophagoscopy to determine the extent of burns and treatment with prednisone of those with significant esophageal lesions. Of 99 patients so treated, 37 with esophageal burns had treatment with steroids and two of these developed stricture. The remaining 62 without esophageal burns had no complications. It is concluded that early esophagoscopy, properly done, is safe and essential to the management of such patients. It is also concluded that steroids are probably beneficial in preventing stricture, although this is not proved at the present time.

-- Authors' summary

TIN RE: ABRAMS November 1993

- 1128 Bronchial Asthma Associated with Air Pollutants from the Grain Industry. D. W. Cowan, et al. J. Air Poll. Control Assn. 13, 546-552 (Nov. 1963).

A possible association of grain industry air pollutants with student asthma has been studied at the University of Minnesota for the past few years. Environmental data have been collected on weather parameters, on particulate pollution and on certain gaseous concentrations in the campus vicinity. Clinical data are being gathered to determine the incidence of asthma and the possible development of new sensitivity to certain allergens in a group of persons with a history of asthma. Detailed analysis of the data for January-February, 1962 and for the specific date, January 25, 1962, was made. Thirteen patients developed asthma on this date on which the weather and sampling data indicated an increase of air pollutants. Further study should develop the degree of association of asthma to this environmental situation. Fifteen references are listed.

-- Authors' summary

SKIN DISEASES AND BURNS

- 1129 Arachnidism in the United States. W. P. Horen. J. Am. Med. Assn. 185, 839-843 (Sept. 14, 1963).

The black widow spider and other species of the Latrodectus genus are mainly responsible for arachnidism in the U.S. Although not recognized in most medical texts, the bites of members of the genus Loxosceles also can cause severe reactions. These spiders may be a more frequent source of arachnidism than is realized at present, particularly in the Midwest and Southwest. Spider venoms are either cytotoxic or neurotoxic in action, although Latrodectus and Loxosceles venoms may have mixed effects. The kind and severity of reaction depend primarily on the type of venom and secondarily on such factors as the victim's age and health. Antivenin (Lactodectus mactans) is the preferred therapy in latrodectism. Injectible antihistamines are useful for symptomatic relief in loxoscelism. General measures include avoidance of excessive local treatment, mild antibacterial therapy, and use of muscle relaxants.

-- Author's abst.

- 1130 The Importance of Serum-Histamine Tests in Occupational Dermatoses. C. Huriez, et al. Berufsdermatosen 11, 85-92 (April 1963). German.

The diagnosis of occupational dermatosis is often difficult, particularly if skin tests are negative. In this paper the authors advocate the use of 2 tests in diagnosis—a histamine-fixation test of serum (Parrot's method) and the test of serum agglutination by histamine on latex (Mikol's method). These tests are described with a statement of their findings in a large number of tests in different types of eczema and in other diseases. The first of these tests is difficult to perform and needs costly apparatus whereas the second test is easy to carry out in a routine laboratory, and is highly specific. The findings of these 2 tests must be considered with great care before coming to a conclusion in respect of the diagnosis. In general, however, it was determined that whereas in allergic eczema abnormal serum reactions are frequent, viz. reduction in the power of fixation of histamine and of serum agglutination, in contact and other types of eczema these abnormal findings are much less common.

-- Bull. Hyg.

- 1131 Prevention of Occupational Skin Disorders. A. Siboulet. Arch. maladies profess. 24, 341-343 (Jan.-Mar. 1963) French.

Results of 10 years of trials are presented to show the value of sprayed silicone fluids in the prevention or lessening of occupational skin disorders. The dimethylpolysiloxanes were used most. Dispensers operated by hand or foot delivered the spray by means of a non-toxic propellant, so avoiding elaborate excipients. Rapid covering and prolonged contact on the skin (except the face) were possible because of the low surface tension of the silicones, their immiscibility with water, fat or oils, their inertness and the absence of toxic or allergenic effects. For the face,

03121333

a 20-40% silicone cream was preferred, to avoid interference with lachrymal secretion and conjunctivitis; the base, which is not specified, had been tested and found to be the least allergenic. Against the cost of the spray could be set the saving in skin medicament previously necessary for the treatment of pruritis, fissures, sepsis, etc. Some of the hundreds of subjects had been under supervision continuously. There were groups working with glass-fiber textiles, polyamine hardeners, synthetic resins, and oils of many kinds, and a small group of apprentice hairdressers.

-- Bull. Hyg.

- 1132 The Detection of Early Sensitization to Dichromate by the Tearing-Off Test, in Persons Suffering from Bricklayers' Itch. E. G. Jung. *Berufsdermatosen* 11, 93-103 (Apr. 1963). German.

The value of the "tearing-off" test (Abrisstest) reported by Spier and Natzel (*Arch. Dermatol. Syphilol.* 193, 537 (1952)) for the diagnosis of early sensitization to dichromate in persons with bricklayers' itch is here described. There are some case reports to illustrate the results obtained with the test in different groups of workers, 75 in all. The test consists in putting a 1% solution of dichromate in water on the skin from which about 50% of the cuticle has been removed by means of 8 successive applications of Cellux gum strips which are then torn off. This procedure is regarded as giving positive evidence of sensitization when a clear eczematous reaction of reddening, infiltration and the development of nodules appears in 24 hours.

-- Bull. Hyg.

- 1133 Observations on the Problem of Bricklayers' Itch. V. Matanic. *Berufsdermatosen* 11, 104-109 (Apr. 1963). German.

In this paper there is a report on the excellent results obtained in the treatment of acute and chronic cement eczema by means of Bepanthen ointment (Roche). In cases where there is a secondary bacterial infection, the addition of tetracycline to the ointment has been found to bring about rapid healing. Some experiments carried out before the therapeutic trials in 70 subjects showed that the erythematous reactions which followed the intradermal injection of a 0.5% solution of potassium dichromate in workers suffering from cement dermatosis disappeared in 2 days or so when the ointment was applied 3 or 4 times a day. There are some colored photographs to illustrate the progress obtained in 2 patients with severe cement eczema treated with Bepanthen ointment.

-- Bull. Hyg.

- 1134 The Toxic Hazards of Epoxy Resins. H. H. Borgstedt. *Ind. Med. & Surg.* 32, 426-429 (Oct. 1963).

The epoxy resins are useful agents with properties that make them desirable, if not indispensable, for certain applications. However, the components are endowed with certain toxic properties which, at present, appear to be inseparable from their desirable ones because a high degree of chemical reactivity in the basic ingredients is partially responsible for the great bonding strength of the finished product. The best way of avoiding the toxic hazards is good housekeeping. Special care must be taken to prevent exposure to vapors if the adhesive is heated during preparation. The treatment of oral intoxications must concentrate on the neutralization of the alkaline material in the gastrointestinal tract. Inhalation exposures are infrequent but may cause respiratory tract irritations which should be treated by established procedures according to severity. The treatment of external exposure must be directed toward rapid and complete removal from the affected areas of the agents, which may be difficult because of their sticky character. Particular attention has to be paid to the removal from the nail beds, the eyes, and the mucous membranes.

-- Author's summary

03121334

CHEMICAL HAZARDS

1135 Determination of Phenolic Constituents of Cigarette Smoke by Gas Chromatography.

R. H. Crouse, J. W. Garner and H. J. O'Neill. *J. Gas Chromatog.* 1, 18-22 (Feb. 1963).
(*Journal of Gas Chromatography*, 1718 Sherman Avenue, Evanston, Ill. 60201*)

This report presents the research in establishing quantitative methods for analysis of several phenols in cigarette smoke and in determining the effectiveness of cigarette filters in removing such phenols. Steam distillable phenols were determined in the condensed smoke from 13 brands of filter cigarettes. The cigarettes were smoked with intact filters and with the filter elements removed from the cylindrical paper filter shell. Analyses of smoke condensates from the 13 major brands of cigarettes, filters removed, indicate that the steam distillable phenols were comprised of 10-15% phenol, 16-32% identified alkyl phenols, primarily cresols, and 55-75% other phenols. Smoke obtained with the filters intact showed a reduction in phenols to 30-50% for 12 of the cigarettes; the filter in one permitted 15% of the identified phenols to pass through. The amounts of phenols depended primarily on the smoke produced by the cigarette rather than the action of the filter. There are 23 references.

-- APCA Absts.

1136 Benzo(a)Pyrene Production During Controlled Combustion. R. W. Boubel and L. A. Ripperton.
J. Air Poll. Control Assn. 13, 553-556 (Nov. 1963).

The results confirm previous work by others who have shown measurable benzo(a)pyrene production during incomplete combustion. They also indicate that benzo(a)pyrene is produced even at high percentages of excess air. The difficulty of measuring the relatively small values at high excess air has been overcome by a technique adaptable to extremely small concentrations. The statistical method of this experimental design was very efficient for indicating the significant differences of the variables and magnitude of these differences. The curvilinear regression equations can be used in any future work with this system to predict the mean value of benzo(a)pyrene produced by any combination of the variables used in this experiment. The fact that the benzo(a)pyrene can be minimized for any one fuel used in the apparatus is highly significant. A word of caution is in order, however, because one should never extrapolate curvilinear regression lines beyond the experimental bounds used to determine them, in this case, 15 to 150% excess air. The procedures used in this study can be applied to any combustion process to determine the effects of the system parameters on the quantity of benzo(a)pyrene produced. The procedure can be adapted for use in field studies and utilized to predict the quantity of this carcinogen emitted by each of the many sources contributing to its atmospheric concentration. There are 11 references.

-- Authors' conclusion

1137 Therapy for Chlorine Gas Inhalation. J. T. Noe. *Ind. Med. & Surg.* 32, 411-414 (Oct. 1963).

A technique for the treatment of chlorine inhalation is described. References are cited to explain the rationale of this approach as well as the alterations of physiology. Considerable study, both research and clinical, has been accomplished in various disease categories comparable to the problem in chlorine. In summary, the following are the alterations, physiologically, and the therapeutic approach: (1) Pulmonary edema: Use of intermittent positive pressure. (2) Bronchial spasm: Use of nebulized bronchial dilators. (3) Increased mucous secretion: Use of a nebulized bronchial detergent. (4) Pulmonary congestion: Use of a decongestant (nebulized and free of ephedrine). (5) Central stimulation and emotional distress: Use of oral or parenteral sedation.

-- Author's summary

03121335

* Address not in current List of Periodicals.

- 1138 Hydrogen Fluoride (HF) Inhalation and Burns. L. Mayer and J. Guelich.
Arch. Environmental Health 7, 445-447 (Oct. 1963)

Hydrofluoric acid burns are unique chemical burns because of the effect of the acid on human tissue. The burns are of different degrees of severity when caused by different acid strengths. The immediate care of the burn by the patient includes copious flushing of the burned area in a safety shower, followed by reirrigation with water in the plant first-aid room. When irrigation is completed, iced saturated solution of magnesium sulfate is used to compress the burned area. Sedatives are given if required. The patient is also inspected for other possible unrecognized burned areas to which the same treatment might be applied. Application of the special hydrofluoric acid burn ointment is then in order. The area affected by the acid is liberally covered with the ointment, which tends, because of its procaine content, to afford a degree of relief from pain. According to the severity of the burn as determined at the plant, the patient is then transported either to the doctor's office or to the emergency room of a local hospital, where intradermal and subcutaneous injections of 10% solution calcium gluconate are carried out. The solution is liberally injected into the entire burned area in order to neutralize the effects of the hydrofluoric acid in the tissues. The patient is then given a semipressure dressing, again with the water-soluble hydrofluoric acid burn ointment. His care from that time on more or less relates to the severity of the burn. Burns of the eye are treated with irrigation and tetracaine (Pontocaine) anesthesia, and the patients are immediately transported to an ophthalmologist. Opinion differs as to the necessity for debridement of the cornea as immediate procedure.

-- Cond. from authors' comment

- 1139 Therapy in Cases of Skin Contacts with Hydrogen Fluoride. I. Hoogendam and M. C. Van Dijk.
Ned. Tijdschr. Geneesk 107, 781-783 (April 27, 1963). Dutch.

Hydrogen fluoride is increasingly used in industry and agriculture. In contact with the skin it causes extensive necrosis. Prompt treatment of the affected skin is essential. The following measures are recommended in view of experiences with 77 hydrofluoric acid accidents:

- (1) Rinse immediately with water for 2-3 minutes.
- (2) Infiltrate with a calcium preparation.
- (3) Rinse again for 15 minutes.
- (4) Apply a skin ointment containing a corticosteroid.

-- Bull. Hyg.

- 1140 Bronchitis Due to Acute Mercury Inhalation. A Report of Two Cases.
J. K. Haddad and E. Stenberg, Jr. Am. Rev. Resp. Dis. 88, 543-545 (Oct. 1963).

Chronic mercury inhalation has long been recognized in a variety of occupations. Its occurrence in furriers and hatters, with its associated symptoms, is the basis of the phrase which is often used, "mad as a hatter". Acute mercury inhalation differs markedly from the chronic type and has been reported infrequently. A review of the literature, together with the 2 present cases, reveals a total of 54 cases of exposure to high concentrations of mercury vapor. Although only one adult-death could be attributed to mercury vapors, 6 of the 7 cases in infants had a fatal outcome. The most frequent symptoms reported of acute mercury vapor inhalation are pharyngeal ulcerations and cough; less frequently, fever, chest pain, abdominal pain, headache, dyspnea, central nervous system symptoms, and vomiting. A metallic taste may be noted by the patient. The irritative effects on the tracheobronchial tree constitute the prime danger to life at this time. Unlike the situation in oral mercury poisoning, renal abnormalities are unusual. Prompt recognition of the irritative effects of mercury vapor on the tracheobronchial tree should receive greater emphasis. The greatest danger exists in infants. The institution of appropriate supportive therapy directed at maintaining ventilation may be life saving.

- 1141 Mercury in House Paint as a Cause of Acrodynia. Effect of Therapy with N-Acetyl-D, L-Penicillamine. S. Z. Hirschman, M. Feingold and G. Boylen.
New Engl. J. Med. 269, 889-893 (Oct. 24, 1963).

A case of acrodynia in a patient who had increased urinary excretion of mercury is presented. New methods for mercury analysis are described. The source of mercury was found in house paint, and the epidemiologic implications of this finding are discussed. The patient was treated with N-acetyl-D, L-Penicillamine, which markedly increased the urinary output of mercury.

The rationale for this form of therapy in acrodynia is presented and compared with previously reported therapeutic methods. Increased excretion of catechol amines was found in the urine. The relation of this finding to theories of the pathogenesis of acrodynia is considered.

-- Authors' summary

- 1142 Toxicity of Catalytically Active Zinc Oxides. J. M. Beeckmans and J. R. Brown.
Arch. Environmental Health 7, 346-350 (Sept. 1963).

Results of inhalation experiments using catalytically activated zinc oxide samples, as well as unaltered samples, suggest that electron excess may reduce the biological activity of zinc oxide. Irradiation of the zinc oxide aerosols with ultraviolet light increased the toxicity, sometimes very markedly. The significance of this result is underlined by the very short exposure period, of the order of 50 seconds, during which the aerosols were irradiated.

-- Authors' conclusions

- 1143 Treatment of Lead-Poisoning with Oral Penicillamine. A. Goldberg, Jacqueline A. Smith and Ann C. Lochhead. Brit. Med. J. 1, 1270-1275 (May 11, 1963).

Good results were obtained in these trials, though one patient developed proteinuria. Capsules of D-penicillamine were given to 9 patients with subacute or chronic lead poisoning in a hospital, and later on to 5 of them when they were at work. These were 4 oxyacetylene metal-burners in a ship-breaking yard and a foreman in an accumulator factory; they wore masks. Marked excretion of urinary lead—with concurrent decrease in previously high levels of urinary coproporphyrin (CP) and delta-aminolaevulinic acid (ALA) and of blood lead—was caused by penicillamine in dosages of 600-1,500 mg. daily (divided into 3 doses). Serial values are given, and also values for 20 normal subjects. Fecal lead was not increased. There was relief of neurological and abdominal signs and also of anemia. Hospital treatment generally lasted for 7 days. The foreman, however, being penicillin-sensitive, was treated for 23 days with doses increasing from 150 to 1,200 mg. Then, at work, he had 600 mg. daily for 4 months. By this time his wrist drop and anemia were cured. Urinary excretion of lead remained high and CP and ALA were normal. This suggested that penicillamine could release stored lead since CP and ALA are sensitive biochemical indices of "metabolically active" lead, although latterly, the CP and ALA had increased slightly. The monthly urine test showed 0.4% protein; blood urea and cholesterol were increased. Treatment and exposure to lead were discontinued; 2 months later there was still 0.1% protein in the urine. The effective dose at work for the 4 metal-burners (10 days and 3 months after leaving the hospital) was 600 mg. daily for 6 weeks after 300 mg. for 3 weeks had been ineffective. When the chelating agent was discontinued, CP and ALA increased again. There were no untoward effects. Oral penicillamine should not be given for longer than 4 weeks at a time, and the urine should be tested for protein. It may be of value for children with lead poisoning.

-- Bull. Hyg.

- 1144 Acute Chlorobromomethane Toxicity. Report of Three Cases. H. R. Rutstein.
Arch. Environmental Health 7, 440-444 (Oct. 1963).

This report on acute chlorobromomethane toxicity in human beings is thought to be the first so documented in the American medical literature. Toxicity followed inhalation of the chemical and its thermal decomposition products. The toxic syndrome was characterized by irritative gastrointestinal symptomatology and by irritative and narcotic central nervous system manifestations. These led to deep coma in two patients, one of whom exhibited uncontrollable convulsive movements. The second patient became totally apneic and was kept alive for 2 hours with oxygen and artificial respiration. The treatment for chlorobromomethane poisoning is supportive. Drug therapy failed to alleviate the toxic symptomatology. Respirations must be supported until spontaneous breathing recurs, and convulsive movements must be controlled by manual restraint to prevent physical injury to the patient. No specific antidote for this type of poisoning is known, although dimercaprol has been shown to protect laboratory animals subsequently exposed to toxic halide compounds. Chronic pathophysiologic derangements following chlorobromomethane exposure in man are not known. In view of the cited animal exposure studies, it is suggested that patients be followed closely on an outpatient basis to detect possible, subsequent hepatic or renal damage.

-- Author's summary

03121337

- 1145 Benzene Exposure and Aplastic Anemia Followed by Leukemia 15 Years Later.
R. L. DeGowin. J. Am. Med. Assn. 185, 748-751 (Sept. 7, 1963).

A painter who was exposed to benzene for 13 years developed a hypocellular bone marrow and pancytopenia. During the 15 years after recovery from aplastic anemia, there were found in the peripheral blood leukopenia, thrombocytopenia, and anemia. Night sweats, petechiae, splenomegaly, and pancytopenia prompted examination of the marrow, which was found to be characteristic of acute myelogenous leukemia.
-- Author's abst.

- 1146 Data for Substantiating the Maximum Permissible Concentration of Aniline in the Atmospheric Air.
P. G. Tkachev. Gigiena i Sanit. No. 4, 3-11 (1963). Russian.

The work was aimed at determining the maximum permissible concentration of aniline in the atmospheric air of residential districts. The threshold value of olfactory perception and that of reflex action for aniline were determined by means of functional electroencephalography. The resorption effect of aniline was studied in 24-hour poisoning of white rats for a period of 80 days. The plant was examined for aniline contamination of the atmospheric air. The investigation results obtained showed the olfactory threshold value of aniline to comprise 0.37 mg./cu.m. and that of reflex action to amount to 0.07 mg./cu.m. Aniline in a concentration of 0.03 mg./cu.m. proved to be ineffective in prolonged 24-hour poisoning tests. The maximum permissible one-time concentration of aniline in the atmospheric air is suggested to comprise 0.05 mg./cu.m. and the daily average concentration 0.03 mg./cu.m.
-- Public Health Eng. Absts.

- 1147 Pneumopathy from Inhalation of Isocyanates. M. Marchand, et al.
Arch. maladies profess. 24, 381-384 (April-May 1963). French.

A case from Lille of a worker in the plastics industry who developed dyspnea with bronchospasm after two separate accidental exposures to Desmodur T is described. The condition was severe enough to require treatment in a hospital. Five months later a tendency to bronchospasm remained.
-- Bull. Hyg.

- 1148 Effects of Pesticides on Human Health. W. J. Hayes, Jr.
Natl. Agr. Chemicals Assn. News and Pesticide Rev. 22, 3-5 (Oct. 1963). (National Agricultural Chemicals Association News and Pesticide Review, National Agricultural Chemicals Association, 1145 19th St. N.W., Washington, D.C. 20036*)

The very existence of highly active compounds poses potential, if not real, problems. Our primary protection is based on the extensive animal experiments required under present law. However, ultimate assurance about human safety must come from study of people with intensive and prolonged exposure. Such studies should give adequate warning of even the slightest danger to people in the general population exposed to traces of the same compounds. Much research remains to be done. The professional toxicologist must stay alert to danger, no matter how remote. But the time has passed when it may be usefully said that little is known about the toxicity of pesticides, or that no legal control of their use exists, or that a wide variety of illnesses from which mankind has suffered for generations are now caused by the newer pesticides.

-- Author's conclusion

- 1149 Chlorinated Insecticides in the Body Fat of People in the United States.
W. E. Dale and G. E. Guinby. Science 142, 593-595 (Nov. 1, 1963).

Benzene hexachloride and dieldrin are present in the body fat of people in the general population of the United States. The mean concentration of dieldrin is 0.15 ± 0.02 parts per million, which is in good agreement with the concentration reported for southern England. The mean concentration of benzene hexachloride is 0.20 ± 0.04 ppm, which is considerably lower than the mean concentration reported for France. Paired analyses of DDT by gas chromatographic and colorimetric methods show that the results of the latter may give incorrectly high results when applied to human fat.
-- Authors' abst.

* Address not listed in current List of Periodicals.

- 1150 Hypoglycemia Resulting from Insecticide Poisoning. Report of a Case. Z. Hruban, et al. J. Am. Med. Assn. 184, 590-593 (May 18, 1963).

This paper gives in great detail an account of the complicated clinical picture seen in a child aged 8 1/2 months who became listless and then unconscious and cyanotic. Among other findings it was noted that the blood sugar was 17 mg. per 100 cc. The child died 8 hours after admission and it was discovered only then that 3-4 days before the listlessness began the child's room had been sprayed with insecticides containing organic phosphates and chlordane. On that day, excessive sweating, thirst and urination had been noted. Autopsy findings are given in full. The possible causes of hypoglycemia are considered. Theoretically, parathion poisoning could cause hypoglycemia by direct stimulation of "islet secretion". It is suggested that insecticide poisoning should be considered as a possible factor of idiopathic hypoglycemia in infants.

-- Cond. from Bull. Hyg.

- 1151 Fatal Poisoning in a Child from Ingestion of Lindane and Malathion. G. Desbuquois, J. Lutier and G. Lebretevillos. Arch. maladies profess. 24, 409-411 (April-May 1963). French.

A child of 2 1/2 years accidentally ingested an insecticide preparation containing 6% lindane and 3% malathion. A typical syndrome of organo-phosphorus poisoning developed and despite appropriate treatment, the child died 7 hours later.

-- Bull. Hyg.

- 1152 Toxicological Studies of Organophosphorus Malathion in the Field for Louse Control. A. El-Refai, et al. J. Egypt. Med. Assn. 45, 1038-1046 (1962). (Journal of the Egyptian Medical Association, 42 sh. Kasr el Aini, Cairo, Egypt*).

A 1% malathion dust was used for louse control in 9 villages, 30 g. of the dust per person being applied inside the clothes. In an attempt to assess any possible hazards in this procedure, plasma and red cell cholinesterase activity and the excretion of ether-extractable phosphorus in the urine were estimated both in treated persons and in the dusting operators who did not take any special protective measures. The treatment with malathion did not lead to any significant change in the cholinesterase activity of the blood. Occasionally, treated persons with low levels of enzyme activity were found, which suggested the need for some surveillance if frequent dustings were made. Small amounts of ether-extractable phosphorus were found in the urine during the first 3 days after treatment. No cholinergic symptoms were reported in the treated persons or in the operators.

-- Bull. Hyg.

INDUSTRIAL DUSTS

The following letter by Dr. Paul Gross, which was published in the British Medical Journal, November 2, 1963, pertains to an article by J. G. Thomson, et al., an abstract (No. 662) of which appeared on page 21 of the July 1963 issue of the Industrial Hygiene Digest.

- 1153 Chronic Pneumonitis and Asbestosis. P. Gross. Brit. Med. J. 2, 1130-1131 (Nov. 2, 1963).

Sir, In a letter (January 12, p. 123) Professor J. G. Thomson discussed the "new pulmonary condition, basal asbestosis," which he had described in a paper¹ then in press.

Professor Thomson's diagnosis of basal asbestosis seems to depend upon the recognition of a limited slight chronic interstitial pneumonitis in conjunction with finding one or several isolated asbestos bodies in the lung juice. However, various degrees of chronic interstitial pneumonitis which are not necessarily limited to the basal portions of the lungs, of unknown aetiology, and not associated with asbestos bodies, are common findings in unselected necropsied hospital deaths², particularly if the silver impregnation technique for reticulin is routinely employed in the study of the lung sections.

* Address not in current List of Periodicals.

There can be no disagreement with Professor Thomson's statement that the presence of asbestos bodies in the lung merely indicates exposure to asbestos fibres and not the existence of asbestosis. When numerous asbestos bodies are regularly found in conjunction with a diffuse chronic interstitial pneumonitis, the probability that the two findings are related would appear to be overwhelming. When, however, only one or two asbestos bodies can be found and the association with chronic pneumonitis is infrequent, there would appear to be a possibility that the pneumonitis is non-specific and the asbestos body a fortuitous finding. This possibility could become a strong probability if it can be ascertained that the person in whom this lesion is found had no significant exposure to asbestos dust. In view of the commonness of chronic interstitial pneumonitis of some degree in the lungs of adults, particularly in the older age groups, it may be wise to adopt a conservative attitude regarding the significance of isolated rare asbestos bodies in the lungs.

Professor Thomson's assumption that the very small amount of asbestos dust which may be found in urban air is sufficient to produce "basal asbestosis" raises the question. "How much asbestos dust must be inhaled in order to produce asbestosis?" Although we have no answer directly applicable to man, we do have some indirect evidence that fairly heavy concentrations of asbestos dust are required to produce alveolar fibrosis in animals.

Thus, in one experimental investigation³ exposure to inadequate concentrations of asbestos dust has been held responsible for the dictum that short-fibred asbestos dust was non-pathogenic⁴, a concept now believed erroneous⁴⁻⁶. We have found 10 mg. of short-fibred chrysotile dust injected intratracheally in rats to produce only transient focal fibrosis⁶ and exposure of guinea-pigs and rats to extremely fine chrysotile dust (19 mg./c.mm.) for three and a half months resulted in barely perceptible fibrosis in some animals and none in others as long as 10 months later⁷.

The implications in Professor Thomson's communications point up the need for more direct data than are now available on the minimal amount of asbestos dust required for the production of recognizable asbestotic alveolar fibrosis. Our present information, although indirect, suggests that asbestos dust is less pathogenic than is quartz dust on a weight for weight basis.

References

1. Thomson, J.G., Kaschula, R.O.C. and MacDonald, R.R., S. Afr. Med. J., 1963, 37, 77.
2. Anderson, A.E. and Foraker, A.G., Arch. Path., 1960, 70, 79.
3. Vorwald, A.J., Durkan, T.M. and Pratt, P.C., Arch. Industr. Hyg., 1951, 3, 1.
4. Holt, P.F., Mills, J. and Young, D.K., in Fortschritte der Staublungenforschung, 1963, p. 201. (Bericht über die IV Internationale Staublungentagung von 3-5 April 1962 in Münster (Westfalen).) Edited by H. Reploh and W. Klosterkötter, Niederrheinische Druckerei, Dinslaken.
5. King, E.J., Clegg, J.W. and Rae, V.M., Thorax, 1946, 1, 188.
6. Gross, P., Westrick, M.L. and McNerney, J.M., Amer. J. Path., 1955, 31, 579.
7. ----- Unpublished data.

- 1154 How to Maintain Cloth-Type Collectors. R. L. Adam.
Air Eng. 5, 20, 22, 24, 48 (May 1963).

Practical tips are given on the maintenance of basic components of cloth collectors, including hoods, ductwork, exhausters, collector, shaker mechanism, cloth tubes, housing, hoppers, and moisture control problems.

-- Public Health Eng. Absts.

- 1155 Farmer's Lung. R. M. E. Seal, G. O. Thomas, and J. J. Griffiths.
Proc. Roy. Soc. Med. 56, 271-273 (Sect. Radiol. 5-7) (April 1963).

This paper is based on the experience of over 100 patients in Wales suffering from the results of inhaling dust from moldy vegetable matter. In farmers the dust arises from hay or cereals but an identical illness may result outside the farming industry from exposure to dust from other vegetable material. In the attacks occurring after the threshing of moldy hay, the patient complains of cough, chills and dyspnea and he may show severe cyanosis. There is little wheezing and the condition is readily distinguishable from asthma. The classical x-ray picture is the appearance of ill-defined patchy opacities in the middle or lower lobes. More rarely a miliary type is found. Biopsy in one case quoted revealed sarcoid granulomata and a thickening of the alveolar walls. Spontaneous recovery usually takes place, with the x-ray appearance becoming normal in 4 weeks or so. Patients suffering repeated attacks recover less quickly. The disease seems to be an allergic inflammatory response to antigens in the dust. Neither bacteria nor proliferating fungi are found in biopsy material. In patients serum-precipitating antibodies can be demonstrated. Part, at least, of an attack can be reproduced in a farmer when he inhales a watery extract of the dust. There is a response to steroid therapy. Gamma globulin is increased. In some patients, either after a single attack or after several attacks, chronic changes occur. The radiological picture is then not specific; it may become that of a diffuse pulmonary fibrosis; there may be honeycombing or even a coarse cystic change. -- Bull. Hyg.

- 1156 Suberosis: A Pneumoconiosis Due to Cork Dust—The Present Stage of the Problem.
L. DeCarvalho Cancellaria. Ind. Med. & Surg. 32, 435-445 (Oct. 1963).

Suberosis is an occupational pneumoconiosis among cork workers. In Portugal, where suberosis was first recognized as a pathologic entity by the author in 1949, there are some 980 factories employing 20,500 employees. This condition arises among beginning workers as an acute affection and is of little clinical significance in the early stage. After some years, such as 20, of gross exposure, the chronic stage develops and is of pronounced clinical significance although seldom totally disabling or fatal. It is possible to produce the typical pathological picture in guinea pigs and rabbits after various forms of experimental introduction of the cork dust. Clinically, the chronic stage chiefly is characterized by bronchitis and emphysema associated with pronounced pulmonary function changes. Much of the damage relates to mechanical impairment, but specific injury is induced by some unknown factor. Cor pulmonale is a rare sequela and subsequent malignancy is practically unknown. The reports here presented on tissue examinations derive from 11 individuals, with deaths chiefly from accidents, for whom there were no previously clinical records. The true incidence of suberosis is unknown, but it may be suspected that some degree of impairment is near to universal in long exposed workers. There is no specific therapy, and preventive measures at the present time is the only prospect of avoiding this disease. -- Author's summary

- 1157 Current Aspects of Silicosis. M. Lob.
Schweiz. med. Wochschr. 93, 639-644 (April 27, 1963). French.

An attempt is made to summarize current views on the morbid anatomy and pathogenesis of silicosis. The controversy surrounding emphysema and bronchitis in silicotic patients is discussed, and brief mention is made of tuberculosis, lung cancer, and right heart failure. After recalling the international radiological classification, the author goes on to discuss, in this connection, some unusual radiological appearances, e.g., egg-shell calcification, Caplan's syndrome, and paralysis of the diaphragm. Practical aspects of diagnosis and work capacity are discussed. Work capacity often poses difficult problems as regards the extent and nature of the complications, the patient's psychological condition, and the discrepancies which may exist between functional disorders and the radiological findings. -- Bull. Hyg.

03121341

- 1158 Silicosis in Females in Mining Areas. K. W. Köster.
Intern. Arch. Gewerbepathol. Gewerbehyg. 20, 88-112 (1963). German.

In 3,198 autopsies in women over the age of 30 years, changes in the lungs due to the inhalation of silica dust was found in 324. Full details are given of these lesions and of the complications found. The most affected sites were the lymphatic glands and in 223 patients the glands were the only places affected. This was probably due to the exposure being slight in degree but continued over a long period of time. The exposure was small enough to allow complete removal of the dust from the lungs to the glands. A history of industrial employment which would account for a silica exposure was obtained only in relatively few instances. In a very large number it could be assumed that the condition was a non-occupational pneumoconiosis. Other authors are quoted as finding evidence of such a condition. Silica dust may be inhaled during household work in involving the handling of coal and cleaning materials. Such dust may be present in the atmosphere of towns arising from roads or from factories using siliceous materials. The ages of these women were greater than the average age of all the patients; the effects of aging processes and the possibility of a special susceptibility are discussed. Such glandular changes may be the cause or a contributory cause of death. Glands become matted together and to neighboring organs causing damage to bronchi, vessels, and nerves. Softening of the glands may occur and they may then discharge into bronchi, lungs and vessels. Tuberculosis is probably not so common as in patients with silicosis generally, possibly owing to the minor degree of silicotic change. It may also run a more chronic course.

-- Cond. from Bull. Hyg.

- 1159 Paralyses of the Diaphragm in Silicosis. M. Lob and C. Guerdjikoff.
Intern. Arch. Gewerbepathol. Gewerbehyg. 20, 77-87 (1963). French.

Cases of eventration of the diaphragm in silicosis are rare and in none had the lesion in the phrenic nerve been verified anatomically. Three instances of this condition are described, two in which it occurred on the left side and one on the right side. The first patient, a miner for 42 years, was found to have a silicosis of radiological category 3m. Twelve years afterward, he developed a paralysis of the right diaphragm which greatly increased his disability. Tomographic films showed that this paralysis probably arose from a compression of the phrenic nerve by silicotic masses situated below the right hilus. In the second patient, a silica-brick maker, silicosis was diagnosed in 1948, and the paralysis of the left diaphragm was discovered in 1951. He died in 1962. The autopsy showed that the phrenic nerve had been compressed in an extrapulmonary silicotic mass situated in the tissue of the anterior mediastinum, the pericardial sac and the pleura. This mass was independent of lymph nodes. The third patient had been employed as a dry driller in mines for 5 years 9 months. When in a hospital for a knee injury in 1946, he was discovered to have a silicosis category 3 mA. Later in the same year he developed a paralysis of the left diaphragm. A diagnosis of superadded tuberculosis was made later in 1953. Tomographic examination suggested, as in the first patient, a compression of the phrenic nerve by a glandular mass. It might have been due to compression by silicotic masses of the mediastinal pleura or even of the mediastinum. This condition should be regarded as one of the rare complications of silicosis.

-- Cond. from Bull. Hyg.

- 1160 The Relationship Between Emphysema and Silicosis. W. Kühne.
Intern. Arch. Gewerbepathol. Gewerbehyg. 20, 36-40 (1963). German.

Post-mortem examinations in 142 patients with mixed dust silicosis due to work in the pottery and grinding industries, showed that emphysema was present in them all. The silicosis was classified according to the radiological classification of 1930 into grades O-I, I, II, and III. Emphysema was classified pathologically into similar grades: O-I, very slight; I, diffuse fine vesicular emphysema (diameter of spaces up to 2 mm.); II, somewhat coarser emphysema (diameter of spaces, 3 to 4 mm.); III, coarse vesicular type (up to 6 mm.); and bullous (over 6 mm.). A comparison of the numbers and percentages in each of these grades of silicosis and emphysema showed that the degree of emphysema was not related to the degree of silicosis. When silicosis had reached grade I, the emphysema had reached its greatest severity. In grades II and III silicosis, the emphysema declined numerically and in severity and was least in grade III silicosis. Exposure to dust acts more quickly in producing emphysema than in producing silicosis. The drop in the frequency of severe emphysema in the late stages of chronic silicosis may be due to the

failure of emphysema subjects to survive an earlier stage of exposure. There may, of course, be a number of patients who are less inclined to the development of emphysema and, therefore, live to develop a grade III silicosis. Emphysema develops from conditions quite independent of the silicotic process.

-- Bull. Hyg.

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 1161 Pulmonary Function in Welders Exposed to Ozone. W. A. Young, D. B. Shaw and D. V. Bates. Arch. Environmental Health 7, 337-340 (Sept. 1963).

Seven men engaged in argon-shielded electric arc welding were examined clinically and by measurements of pulmonary function for evidence of respiratory damage attributable to ozone. The mean concentration of ozone in the welding shop was 0.2 to 0.3 ppm. One man had symptoms associated with the argon-shielded electric arc welding. Three had a slight cough associated with smoking, and two of these, both of whom gave a past history of pneumonia, had abnormal physical signs in the chest. The measurements of pulmonary function were: vital capacity, functional residual capacity (FRC), maximal midexpiratory flow rate, indirect maximum breathing capacity, and carbon monoxide diffusing capacity at rest and on exercise. Four of the seven showed no abnormality in any of the pulmonary function measurements. Three men had vital capacities below those predicted. In one, the only subject with symptoms possibly attributable to ozone, it was an isolated finding. In a second it was accompanied by a diminished FRC and in a third by a slight-to-moderate diminution in all the other measurements. However, the history and physical examination suggested that this man had some pre-existing pulmonary disease. These findings indicate that exposures to these low concentrations of ozone do not cause impairment of airflow or of pulmonary diffusion. However, recent evidence that slightly higher levels of ozone produced a decrease in the one-second forced expiratory volume suggests that they are approaching the limit of safety.

-- Authors' summary

- 1162 Bioastronautic Research in the Air Force. W. C. Marett. Arch. Environmental Health 7, 448-452 (Oct. 1963).

The word "bioastronautics" is of fairly recent origin and may be defined as the application of the life and physical sciences to manned space flight. That research and development which explores the capability and promotes the effectiveness of man-in-space flight operations is bioastronautic research. Recent organizational consolidation of USAF research facilities is explained, and the numbers and kinds of people involved and the amount of money invested in Air Force bioastronautic research are enumerated. The broad categories of life science research are listed and the principal research facilities described. Finally, examples of specific areas of research being performed at several of these facilities are discussed.

- 1163 The Hostile Aerospace Environment: Dangers to Man in the Environment of Fliers—Past, Present and Future. J. C. Lane. Med. J. Australia 1, 419-421 (March 23, 1963).

Space flight has introduced a new sequence of biological problems. Some of these are listed and current approaches to their solution are discussed. Typical are the problems associated with heat dissipation, reduced atmospheric pressure, contaminant removal from the air in a sealed system, disorientation due to tumbling, posture in relation to high rates of acceleration, psychological stresses, body functioning under zero gravity, and exposure to radiation. It is concluded that engineered micro-environments are needed for survival and good performance.

-- Public Health Eng. Absts.

03121343

- 1164 Human Tolerance Limits for Some Thermal Environments of Aerospace. W. C. Kaufman. Aerospace Med. 34, 889-896 (Oct. 1963).

Experiments performed under thermal conditions simulating those of aerospace emergencies have shown that unacclimatized, mildly exercising man's tolerance to thermal stress is approximately twice that previously reported for sitting resting men. In long term, moderately severe thermal conditions, and in short intense periods of thermal stress associated with reentry, tolerance times were approximately doubled. Limits of tolerance to the long term experiments were determined by general malaise. Symptoms appeared to be directly related to the quantity of heat stored which was approximately 2.3 kcal./kg. body weight in both long term and heat pulse experiments.

-- Author's conclusion

- 1165 Is It Impact or Continuous Noise? H. L. Williams and A. J. Majer. Arch. Environmental Health 7, 411-414 (Oct. 1963).

In conducting numerous noise evaluations in industry, the investigators were sometimes uncertain as to whether the noise should be treated as an impact or as continuous. An investigation was conducted using improvised impact producing equipment. An oscilloscope was used to generate impulses, and these were increased in frequency until readings on the sound pressure level meter and the impact meter were the same. The auditory response of a group of individuals was determined. Results of tests using the oscilloscope and the human response were in close relationship. Tables and graphs of the data are presented.

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

- 1166 Psychogenic Deafness. Evaluation and Management. W. C. Livingood. Arch. Environmental Health 7, 415-423 (Oct. 1963).

In this study of 126 patients with auditory inconsistencies out of a 6-year total of 794 cases, 99 patients revealed a psychogenic overlay to variable degrees of organic hearing impairment and 27 patients were found to have no organic hearing impairment. From a total of 73 neuropsychiatric consultations, 43 patients were found to have a definite neuropsychiatric condition and an additional 17 were found to have definite psychoneurotic or behavior traits and tendencies. All 43 neuropsychiatric conditions were found to be classified in the two major classes of psychoneurotic disorders and personality disorders. A study of the different phases of test procedure revealed that 116 out of the 126 inconsistencies were definitely resolved by means of adequate testing equipment in the hands of experienced audiologic personnel. A contemporary study of treatment methods revealed that 71 out of the 126 patients were treated adequately by the attending otologist while in the testing and evaluation situation. Another 33 patients required neuropsychiatric evaluation and treatment, while another 22 patients required prolonged treatment in which 8 showed a final poor response. The treatment response revealed that 104 out of 126 patients could be satisfactorily rehabilitated to useful social adjustments with minimal treatment outlay.

-- Author's summary

RADIOACTIVITY AND X-RADIATION

- 1167 Hodgkin's Disease Following Administration of Thorotrast. J. V. Verner, Jr. and A. G. Smith. Southern Med. J. 56, 524-528 (May 1963).

A case of Hodgkin's disease developing 12 years following administration of thorotrast (ThO_2) is reported, representing the only known example of this disease associated with thorium. Radiography of the abdomen showed increased density of the liver and spleen, as well as radio-paque densities in the abdomen presumably representing nodes which were heavily infiltrated with ThO_2 . The densities in the liver and spleen were also ascribable to ThO_2 deposits. The tumor

consisted of pleomorphic round and polyhedral cells and Reed-Sternberg cells, along with areas of fibrosis, necrosis, hemorrhage, and mononuclear cell reaction. Pleomorphic cellular changes were frequently found adjacent to deposits of ThO_2 . ThO_2 was also found throughout the reticulo-endothelial system, as in the reticulum cells of the liver, spleen, and lymph nodes. Using a gas-flow counter, significant counts of radiation were detected in the spleen and periaortic lymphoid tissues, sites histologically demonstrated to contain thorium and tumor. Proliferated bile ducts in hepatic portal areas were of interest because of reported bile duct carcinoma of the liver in patients previously receiving thorotrast. The presence of tumor cells in the reticuloendothelial system surrounding granules of ThO_2 suggests that thorium induced or initiated the development of Hodgkin's disease with spread to the kidneys and other organs containing little or no thorium. A table is given listing anatomic sites where tumors associated with thorotrast have been found in the commonly recognized types of tumors in rough order of incidence. It is suggested that there is ample evidence to incriminate thorotrast as a definite oncogenic agent.

-- Nuclear Sci. Absts.

- 1168 The Effective Use of X-Ray Radiation in Dentistry. J. H. Barr, R. E. Silha and A. G. Richards. Oral Surg. Oral Med. Oral Pathol. 16, 294-304 (March 1963). (Oral Surgery, Oral Medicine, Oral Pathology, C. V. Mosby Company 3207 Washington Blvd., St. Louis, Mo. 63103*).

A report of the Radiation Protection Committee of the American Academy of Oral Roentgenology on recommendation for reducing exposure to patient and dentist during oral radiographic procedures is reviewed. The following aspects of the problem of exposure reduction are considered: maximum permissible exposures to operators and patients, sources of radiation in dental offices, recommended building materials to be used for wall construction (with their lead equivalents), and detailed statements of procedures for protecting operators and patients.

-- Nuclear Sci. Absts.

- 1169 The Amount of Sr-90 in the Bones of People Who Have Died of Leukemias. J. Aleksandrowicz, et al. Blood 22, 346-350 (Sept. 1963).

The amounts of Sr-90 in the bones of persons who died of leukemias and in the bones of those deceased from causes other than tumors or hemocytopathic diseases were compared. The first group shows an abnormally low level of Sr-90. It was concluded that disturbed calcium metabolism in leukemia patients caused low Sr-90 values.

-- Nuclear Sci. Absts.

- 1170 Radiation Control Aboard the USS Enterprise CVA(N)65. L. H. Seaton. Arch. Environmental Health 7, 320-324 (Sept. 1963).

The radiation control program aboard the Enterprise is based principally on three factors: (1) The adequate training of all personnel in good radiation control practices; (2) Careful application of time-proved procedures and strict adherence to the regulations concerning radioactive materials; (3) Design and establishment of the billet of Radiation Control Officer with the responsibility of coordinating and controlling all phases of the radiation control program. To date, the program has been entirely successful, and, because of the firm foundation on which it is based, there is reason to believe that it will continue to be so in the future.

-- Author's summary

ENVIRONMENTAL MEASUREMENTS

- 1171 Quantitative Odor Measurement. J. L. Mills, R. T. Walsh, K. D. Luedtke and L. K. Smith. J. Air Poll. Control Assn. 13, 467-475 (Oct. 1963).

The most satisfactory device available for quantitative odor measurement is the human olfactory system. It is much more sensitive than chemical measurements in most cases where

* Address not in current List of Periodicals.

odors are nuisance problems, and results are obtained where chemical tests fail. Threshold response odor measurements produce quantitative results more quickly than other types of tests. The definition of the odor concentration as "the dilution factor at the odor perception threshold for 50% of the odor panel" is believed to be a more reproducible standard than that described in the ASTM method. The odor unit should be redefined from "one cubic foot of air at the odor threshold" to "the quantity of any odorous substance or of any given mixture of odorous substances which, when completely dispersed in one cubic foot of odor-free air, produces a median threshold odor detection response in humans." The modifications to the ASTM odor measurement method described herein are believed to improve the speed, reliability, and reproducibility of the method. Careful application of this method and the use of good laboratory techniques should produce results considerably more reproducible than + 50%. Control of odors from the "offensive trades" can be achieved by proper incineration for 0.3 sec. at 1200°F, but certain of the objectionable organic chemical industry odors require higher temperatures of incineration before adequate odor control is accomplished. Chlorination followed by intensive scrubbing has been found satisfactory under controlled conditions for the off-gases from a direct-fired, rotary fish meal drier. Odor nuisances from animal matter reduction equipment used in the "offensive trades" can be prevented by reducing the odor concentrations in the off-gases to a point where the average is not more than 25 to 50 odor units/cu. ft. and the absolute upper limit is 150 odor units/cu. ft.

-- Cond. from authors' summary

- 1172 Volumetric Determination of Concentrations of Sulfuryl Fluoride in Air. S. G. Heuser. Anal. Chem. 35, 1476-1479 (Sept. 1963).

Sampling from atmospheres containing increased carbon dioxide from insect respiration is discussed, and corrections required for these conditions are considered. The additive relationship of thermal conductivity meter readings obtained for mixtures of sulfuryl fluoride and carbon dioxide is described. The reaction of the fumigant, sulfuryl fluoride, with alkalies, and two volumetric methods of determining its concentration in air are also described.

-- APCA Absts.

- 1173 Five New Methods for the Spectrophotometric Determination of Alkylating Agents Including Some Extremely Sensitive Autocatalytic Methods. Application to Air Pollution. E. Sawicki, et al. Anal. Chem. 35, 1479-1486 (Sept. 1963).

The presence of alkylating agents in the air and in various air pollution sources has been demonstrated. Four new sensitive reagents for the determination of alkylating agents are introduced. A more sensitive 4-(4-nitrobenzyl)-pyridine procedure is described for the determination of the relative reactivity of over 90 alkylating agents. A new type of spectrophotometric method for the analysis of organic compounds involves an autocatalytic reaction for determining alkyl iodides in trace quantities. Many alkylating agents have been shown to be toxic to the animal body, as lachrymators, sternutators, or vesicants, mutagens, nerve gases, antimitotic agents, cocarcinogens, or carcinogens. A more thorough investigation of the composition of the air in terms of alkylating agents is necessary, since so many of these chemicals are toxic to human beings and other forms of life.

-- APCA Absts.

- 1174 Determination of Particulate Acid in Town Air. B. T. Commins. Analyst 88, 364-367 (May 1963).

Studies have been made of the acidity of urban air since regular observations of atmospheric pollution began in 1913. When particulate acid can be detected in town air, small amounts of free basic gases, ammonia and amines, are also found. Samples for the determination of sulfuric acid in air were collected on 1-inch diameter filter papers using an airflow rate of 30 liters per minute for periods up to 6 hours. The method described has been suitable for the measurement of particulate acid in urban air. Concentrations of particulate acid at times of fog have reached levels of 678 micrograms as sulfuric acid per cubic meter of air in the city of London.

-- APCA Absts.

03121346

- 1175 Gas Chromatography in Air Pollution Studies. A. P. Altshuler.
J. Gas Chromatog. 1, 6-20 (July 1963). (Journal of Gas Chromatography, 1718 Sherman Ave., Evanston, Ill. 60201 *).

Gas chromatography has proved to be a powerful tool in the determination of the chemical composition of trace constituents in sources of pollution and in the atmosphere. Analysis for hydrocarbons in auto effluents with and without attached control devices, in crankcase effluents, and in incinerators become practical with gas chromatography. Most of the techniques generally used in gas chromatography are applicable to air pollution studies. Techniques of immediate and critical concern in air pollution and related trace analysis areas include calibration methods, concentration procedures, column stability, and detector sensitivity and specificity considerations. Identification and qualitative analysis, atmospheric analyses, synthetic atmospheres, auto exhaust analysis, blowby emissions, diesel exhaust, incinerator effluents, other applications, and future applications of gas chromatography in air pollution are discussed. There are 92 references.

-- APCA Absts.

- 1176 Effect of Sampling System Temperature on Total Hydrocarbons Measurement in Auto Exhaust.
E. A. Houser and R. L. Chapman. J. Air Poll. Control Assn. 13, 535-537 (Nov. 1963).

The data from this investigation show that many components in engine exhaust adsorb strongly on metallic sampling system surfaces, resulting in greatly increased response to changes in sample composition. Although temperatures as high as 150°C do not eliminate adsorption lags, they can be significantly reduced by high temperature operation. Further experimental efforts should be directed toward determination of materials of construction with less affinity for adsorbing components. The possibility also exists that the system temperature could be increased considerably above 150°C if suitable constructional materials can be found. Theoretically, the analysis system should be higher in temperature than the sample source. This is obviously impossible if cylinder or even manifold temperatures are considered. However, most direct sampling takes place after system so that reasonable temperatures should be sufficient to eliminate adsorption as a significant source of error.

-- Authors' conclusion

- 1177 Procedure for Calibrating a Continuous NO₂ Analyzer. A. T. Rossano, Jr. and Hal B. H. Cooper.
J. Air Poll. Control Assn. 13, 518-523 (Nov. 1963).

A method is described for calibrating a Beckman K 1008 portable analyzer, an instrument for the continuous measurement of low concentrations (parts per million by volume) of nitrogen dioxide (NO₂) in the atmosphere. The instrument is also applicable for the determination of nitric oxide (NO) by conversion to an equivalent amount of nitrogen dioxide. The basis for the method is the absorption of nitrogen dioxide in Saltzman solution, which produces a red dye whose color intensity increases with the amount of nitrogen dioxide. The intensity is then measured by means of a ratio photometer which compares the absorption reacted with unreacted reagent at 560 millimicrons. Nitrogen dioxide is determined by scrubbing an air sample with Saltzman solution, consisting of sulfanilic acid and N-(1-naphthyl)ethylenediamine dihydrochloride dye in dilute acetic acid. Sulfanilic acid is diazotized by the nitrogen dioxide and then coupled with the dihydrochloride to form an azo dye. The color intensity of this dye is measured by the ratio photometer. Nitric oxide may be oxidized to an equivalent amount of nitrogen dioxide by means of an acid-permanganate solution in a bubbler. The method then proceeds the same as with nitrogen dioxide.

- 1178 Note on the Measurement of Ozone in the Atmosphere. G. M. B. Dobson.
Quart. J. Roy. Meteorol. Soc. 89, 409-411 (July 1963).

The absorption coefficients of ozone for ultraviolet wavelengths which have previously been accepted as correct, do not agree with measurements made on the ozone in the atmosphere. New laboratory measurements are now reported, in which the same spectroscopic apparatus is employed as used in the atmospheric work. The absorption coefficients found agree with the atmospheric values. The possibility that there may be other gases in the atmosphere, in addition to ozone, which absorb in the ultraviolet region is examined. Only sulfur dioxide might give trouble, but the amount present is too small to cause appreciable errors in the ozone measurements.

-- APCA Absts.

* Address not an current List of Periodicals.

- 1179 The Optical Evaluation of Smoke or Particulate Matter Collected on Filter Paper.
H. P. Sanderson and M. Katz. J. Air Poll. Control Assn. 13, 476-482 (Oct. 1963).

There is considerable doubt whether a truly satisfactory expression exists for the translation of optical density readings into units related to smoke and haze concentrations. The simple linear relation between absorbance of smoke stains and the volume of air sampled for a given area of stain, although often used, has limited value for comparison purposes. The curvilinear relationship of absorbance of smoke stain and air sample suggested by the authors and others appear to offer to date, the most satisfactory means of comparing smoke density. Until a more fundamental relation is found, it is desirable to standardize the sampling time cycle, air flow, and area of the spot so that the face velocity and linear feet of air sample are constant for all sampling sites in measurements of this type. In Canada, A.I.S.I. smoke samplers are operated on a time cycle of 2 hours at most sampling stations. -- Cond. from authors' summary

PREVENTIVE ENGINEERING

- 1180 Air Conditioning and Health. E. C. Riley and R. L. Riley.
Arch. Environmental Health 7, 359-366 (Sept. 1963).

The air-conditioning engineer must attempt to provide an indoor environment which satisfies a wide variety of needs. These may differ because of clothing, physical activity, social custom, or the requirements of an industrial process, or they may differ because of physiological variations. For example, metabolism, which warms the body from within, tends to slow down with age; the delicate regulation of blood flow to the skin, which is important in conserving or dissipating heat, varies widely between individuals, and sweating, which cools by evaporation, does not occur to the same extent in different people. Providing the appropriate indoor environment for the human species is a demanding task. Standards are useful only as guides and should have enough flexibility to care for the normal variations of individuals or groups.

- 1181 Waste Gases Can Be Cleaned at Low Cost. H. J. Prass.
Power 107, 74-77 (April 1963).

Exhaust from most industrial processes contains volatile solvents, bad-smelling fumes, and obnoxious gases in addition to soot, fly ash, and other aerosols. Depending on the nature of the contaminants, gases must be dispersed by high chimneys or cleaned by mechanical or electrostatic precipitation, filtration (for example, through fiberglass bags), scrubbing or absorption, chemical treatment or incineration. This article tells about the process of incinerating only.

-- Public Health Eng. Absts.

COMMUNITY AIR HYGIENE

- 1182 The Contribution of the Open Burning of Land Clearing Debris to Air Pollution.
M. Feldstein, et al. J. Air Poll. Control Assn. 13, 542-545, 564 (Nov. 1963).

Consideration of the contribution of the open burning of land clearing debris to air pollution should include localized effects as well as area-wide effects. The effects, whether localized or area-wide, are the result of incomplete combustion products formed during the burning of organic matter that are either disturbing in their original form or after they "react" in the atmosphere.

Generally, these combustion products are quite similar, regardless of the type of fuel burned. Thus, the kinds of air polluting products formed during open dump burning, burning of land clearing debris, burning in single chamber incinerators and combustion in the automobile engine are quite similar, differing generally in the quantities of each component produced. Localized effects resulting from direct-acting pollutants from such burning operations include visible air pollution plumes, eye irritating aldehydes and phenols, soiling by fallout of particles of partially burned, carbonized organic matter and local vegetation damage due to the presence of vegetation-damaging chemicals in the combustion products. The most obvious localized effect of course, is the pall of smoke rising from burning sites. Such plumes may cover many square miles with a visibility reducing, eye irritating mixture of microscopic dusts, droplets, and gases. Unpleasant local effects also occur when the plume blows along the ground and into homes and stores in the area. Smoke odor in a furniture store may also result in economic loss.

- 1183 Effects of Emission on Animals. G. Rosenberger.
Staub 23, 151-155 (March 1963). German.

Although animals are exposed to industrial emissions the same as humans, there are differences in the effects. Gas and dust emission scarcely cause direct damage to the health of animals, but act indirectly through meadow feed, other plants, or hay. General phenomena of illness exist in retarded development, loss of appetite, digestive disturbance, reduction of milk yield, loss of weight, weak offspring, and sterility. The most important illnesses of animals resulting from lead, zinc, arsenic, copper molybdenum, and fluorine are discussed, and proposals are made for reducing losses and controlling damage. -- APCA Absts.

- 1184 Criteria for Certification of Motor Vehicle Pollution Control Devices in California.
J. T. Middleton. J. Air Poll. Control Assn. 13, 78-80 (Feb. 1963).

The motor vehicle control act stipulates that motor vehicle emission shall be controlled for those sources which the State has established standards. The certification of devices to control motor vehicle pollution emissions has been made possible through the adoption by the Motor Vehicle Pollution Control Board criteria and test procedures. It is estimated that crankcase emission control systems are installed on approximately 10% of the State's 8 million motor vehicles and effect a 2 1/2% reduction in hydrocarbon emissions. Criteria for crankcase emission control systems and exhaust emission control are discussed. -- APCA Absts.

- 1185 Local Air Pollution Control Programs—A Survey and Analysis. H. C. Ballman and T. J. Fitzmorris. J. Air Poll. Control Assn. 13, 486-495 (Oct. 1963).

Every effort should be made to evaluate the air pollution problems of the 765 communities of 25,000 and more population, and the problems of smaller communities with self-evident problems. State governments should establish air pollution agencies to assist communities in monitoring and surveying problems, to consult with smaller communities, and to supplement wherever possible, local or district air pollution control programs. State governments should enact statutes making it possible to form air pollution control districts covering a metropolitan area or megapolis. The Federal government should make funds available on a matching basis to states and large cities, counties and districts for the specific purpose of supporting monitoring and surveys to determine area air pollution problems. Air pollution control is a policing program to overcome present problems and prevent future ones; it must be sound, continuing and firm. Established at the local level of a city, county, or district, without involvement with other levels of government, the program can be accomplished. -- Cond. from authors' conclusion

MANAGEMENT ASPECTS

- 1186 The Accident Process. 1. Etiological Considerations of Industrial Injuries.
A. H. Hirschfeld and R. C. Behan. J. Am. Med. Assn. 186, 193-199 (Oct. 19, 1963).

Approximately 300 cases of industrial accidents and injuries were reviewed to determine causation. The study revealed that physical injury resulted from a psychological process which is defined and documented. The significance of this process is suggested by the fact that it was identified in almost every case. Since physical disturbance is a solution to the problems of the patient, he is unlikely to give up his illness. In addition, when chronicity supervenes, the patient actually seeks physicians who will not cure him and rejects others who appear capable. The use of illness as a solution to the problems of life is now reinforced by legal factors which make incapacity the cornerstone of continued financial support. -- Authors' abst.

- 1187 The Accident Process. 2. Toward More Rational Treatment of Industrial Injuries.
R. C. Behan and A. H. Hirschfeld. J. Am. Med. Assn. 186, 300-306 (Oct. 26, 1963).

In the first part of this series the authors described the review of approximately 300 cases of industrial accidents and injuries which demonstrated the physical disturbances to be solutions of the patients' life problems. Because of this and of legal factors, patients become very hostile to their would-be therapists. This produces remarkable and often non-therapeutic reactions in the physician. These reactions are described and their remedy suggested. Particular emphasis is placed on referral to non-psychiatrists. -- Authors' abst.

ACCIDENTS AND PREVENTION

- 1188 Sudden Death in Explosive Workers. P. Carmichael and J. Lieben.
Arch. Environmental Health 7, 424-439 (Oct. 1963).

This article reviews the toxic effects of absorption of nitroglycerin and ethylene glycol dinitrate which have been previously summarized in the literature. An investigation of several deaths in dynamite workers which appeared to fit a pattern previously described in reports originating from Sweden, Germany, and Italy is described. The available occupational, clinical, and post-mortem information in 12 cases is summarized, as well as evidence that increased incidence of sudden death attributed to coronary disease occurs in workers exposed to the nitroglycerin-nitroglycol sensitizing component of dynamite. Several theories as to the toxic mechanism involved are offered. -- Authors' summary

- 1189 Safe Handling and Storage of Organic Peroxides in the Laboratory. D. C. Noller and D. J. Bolton. Anal. Chem. 35, 887-893 (June 1963).

Proper and safe methods for handling, storage, and disposal of laboratory quantities of organic peroxides are discussed. The safety characteristics of some peroxides are tabulated from data derived from the specialized tests described. Methods are given for the detection and removal of residual or trace quantities of peroxides as well as precautionary measurements to be followed in their purification. A brief discussion of some physiological aspects is included. There are 14 references. -- Public Health Eng. Absts.

- 1190 Safe Handling of Hydrogen Peroxide. R. P. S. Black.
Mfg. Milk Products J. 54, 10, 13 (April 1963). (Manufactured Milk Products Journal, Olsen Publishing Company, 1445 N. Fifth Street, Milwaukee, Wisconsin 53212*).

Precautions and hazards related to usage of hydrogen peroxide by cheesemakers are discussed. Basic precautions listed include: (1) usage of protective clothing; (2) dilution of accidentally spilled hydrogen peroxide solutions; (3) avoidance of contamination of stored hydrogen peroxide with unused portions; and (4) avoidance of contact of hydrogen peroxide with waste organic chemicals. Among the hazards indicated are: (1) effect of concentrated hydrogen peroxide solutions on the eyes and mucous membranes; (2) combustibility as a result of contact with certain materials when the hydrogen peroxide concentration reaches or exceeds 62-65%; (3) decomposition of hydrogen peroxide in the presence of certain materials such as copper, iron, and manganese; and (4) feasibility of hydrogen peroxide forming explosive mixtures when it comes in contact with many organic chemicals. A short discussion pertaining to handling of hydrogen peroxide in drums is included.

-- Public Health Eng. Absts.

- 1191 Gassing Accidents in a Tannery Tank. V. Raymond, et al.
Arch. maladies profess. 24, 307-310 (Jan.-March 1963). French.

When a man, apparently engaged in removing sludge from a tank (No. 2), was seen to fall, an alarm was given and within 20 minutes there were 8 would-be rescuers in the tank. Removal of the 9 bodies took 15 minutes. Only 4 men were resuscitated and 2 of these died later. Investigation showed that one hour before the alarm, another worker had set a pump in motion in an adjoining tank (which had been emptied and flushed) to remove tanning liquor from tank No. 2 and he had then gone away. It could only be assumed that the first victim, seeing the tank empty, had descended into it to remove sludge. The tank measured 3.8 x 2 x 2.45 meters. The only 2 survivors had edema of the lungs, cyanosis, cardiac embarrassment and conjunctivitis followed by weakness, bronchitis and ocular symptoms attributed to hydrogen sulfide. The tanning process and agents are described and the literature of similar tannery accidents is reviewed. Serial analyses of hydrogen sulfide and carbon dioxide are given during emptying and cleaning operations in a similar set of tanks in the tannery. Until pumping of liquor was finished, air concentrations were below or near the MAC values for 8 hours. When the sludge was disturbed, the maximum values were 100 cm³. hydrogen sulfide per m³. and 16,000 cm³. carbon dioxide per m³. This was less than the concentration of each gas which is lethal within 0.5-1 hour, and still less than rapidly lethal concentrations. The effect was greater than additive; there may also have been lack of oxygen. The safety precautions, which should be well known, include responsibility, authorization, safety belts, air-line respirators, mechanization, stand-by help, etc., and rapid transport of casualties to medical care.

-- Bull. Hyg.

- 1192 Epidemiology of Summer Camp Accidents. R. J. Meyer, et al.
Arch. Environmental Health 7, 325-330 (Sept. 1963).

An accidental injury survey of three summer camps was undertaken in order to determine the frequency, severity, and circumstances of traumatic injury in such a setting. The study revealed a remarkably low accident rate among the campers, with a contrastingly high rate among the staff. The web of circumstances which led campers to injury included many human factors which played a larger role than the physical environment. The opportunity for further investigation in summer camps in this important area is cited.

-- Authors' summary

- 1193 World Air Safety. J. M. Ramsden. Flight (London) 83, 775-780 (May 30, 1963).
(Flight (London), Hoffer Transport Publications, Ltd., Dorset House, Stamford St., London SE1, England*).

Various aspects of the accident records of air crashes involving one or more fatalities in 15 countries since January 1, 1953 are discussed and analyzed. Each country is listed separately, and the number of fatalities and the circumstances of each accident are given. From those factors analyzed, it is concluded that the world's safest air transport countries are Australia, Scandinavia (Denmark, Norway, and Sweden), and the U.S.A. in that order.

-- Aerospace Med. Absts.

* Address not listed in current List of Periodicals.

- 1194 Now 5,000,000 Jet Hours. A. E. Smith. Flight (London), 83, 781-783 (May 30, 1963). (Flight (London), Iliffe Transport Publications, Ltd., Dorset House, Stamford St., London SE1, England*).

The worldwide record of the jet airliner safety record covering the first 5 million hours of flight time is compared and analyzed. The dates of all known jet accidents from February 2, 1959, to February 20, 1963, are given along with number of fatalities and cause of the accident. In regard to fatalities per million flight hours, the jet period is 3 times worse than the pre-jet period. Most of the jet accidents have occurred during landing and show an accident rate of 2.5 per 100,000 landings. -- Aerospace Med. Absts.

- 1195 An Analysis of Cardiovascular Injuries Resulting from Accelerative Force. W. D. Gable and F. M. Townsend. Aerospace Med. 34, 929-934 (Oct. 1963).

Cardiovascular injuries resulting from abrupt accelerative force occurring in fixed-wing aircraft, rotary-wing aircraft, and parachuting accidents are summarized. The predominant sites of heart and major vessel injury are described, and etiologic factors are discussed. Suggestions are made concerning parameters that should be given due consideration in the design of restraint systems and environmental configurations. -- Authors' summary

MISCELLANEOUS

- 1196 Industrial Waste Stabilization Ponds in the United States. R. Porges. J. Water Pollution Control Fed. 35, 456-468 (April 1963).

This article presents an evaluation of data on the use of 827 industrial waste stabilization ponds. Thirty-one industry groups in 44 states were reported to be using this treatment method. The data are summarized by the following types of ponds: aerobic, anaerobic, combined aerobic-anaerobic, and unclassified. Information includes cell arrangement, physical dimensions, detention time, biological oxygen demand (BOD) loadings, BOD removals, effectiveness, and reported nuisances. -- Public Health Eng. Absts.

* Address not in current List of Periodicals.

03121352

INDEX

<u>Accident(s)</u>		<u>Bioastronautic research</u>	1162
etioloical considerations	1186	<u>Book(s)</u>	
jet airliners	1194	leukemia: key to cancer puzzle?	1105
summer camps	1192	occupational health services for employees	1106
treatment of industrial injuries	1187	preventing dermatitis from epoxy resins	1107
world air safety	1193		
<u>Air conditioning</u>		<u>Bricklayers' itch</u>	1132
and health	1180	treatment	1133
<u>Air pollutants</u>		<u>Bronchitis</u>	
alkylating agents	1173	due to mercury inhalation	1140
<u>Air pollution</u>		<u>California</u>	
burning of land clearing debris	1182	motor vehicle pollution control	1184
control		<u>Cancer</u>	
cleaning waste gases	1181	tobacco carcinogenesis	1124
local control programs	1185	<u>Chlorine</u>	
motor vehicle devices	1184	therapy for inhalation of	1137
effects on animals	1183	<u>Chlorobromomethane</u>	
gas chromatography in studies	1175	toxicity	1144
measurement(s)		<u>Chromate</u>	
optical evaluation of smoke	1179	bricklayers' itch	1132
particulate acid in town air	1174	treatment of bricklayers' itch	1133
<u>Alcoholism</u>		<u>Cork dust</u>	
metabolic and nutritional effects	1111	pneumoconiosis from	1156
<u>Alkylating agents</u>		<u>Dermatitis, dermatosis(es)</u>	
in air pollution	1173	dichromate tearing-off test	1132
<u>Anesthesia</u>		prevention of occupational	1131
environmental factors	1108	serum-histamine tests	1130
<u>Aniline</u>		treatment of bricklayers' itch	1133
determination of MAC in air	1146	<u>Emphysema</u>	
<u>Arachnidism</u>		relationship to silicosis	1160
in the United States	1129	<u>Epoxy resins</u>	
<u>Asbestosis</u>		preventing dermatitis (bk. rev.)	1107
and pneumonitis	1153	toxic hazards	1134
<u>Asthma</u>		<u>Ethylene glycol dinitrate</u>	
grain industry	1128	toxic effects	1188
<u>Automation</u>		<u>Exhaust gases, automotive engines</u>	
effect on health	1114	effect of sampling temperature	1176
<u>Aviation</u>		<u>Explosive workers</u>	
jet accidents	1194	sudden death in	1188
world air safety	1193	<u>Farmer's lung</u>	1155
<u>Back injuries</u>		<u>Filter(s)</u>	
surgical results of cervical ridge prob-		maintaining cloth-type collectors	1154
lems	1122	<u>Gas chromatography</u>	
<u>Benzene poisoning</u>		air pollution studies	1175
followed by leukemia	1145		
<u>Benzo(a)pyrene</u>			
production during combustion	1136		

<u>Gases</u>		<u>Leukemia</u>	
cleaning of waste	1181	benzene poisoning	1145
<u>General practitioner</u>		key to cancer puzzle? (bk. rev.)	1105
group practice plans	1112	Sr-90 in persons who died of	1169
<u>Grain industry</u>		<u>Lindane-malathion mixture</u>	
bronchial asthma	1128	fatal poisoning by	1151
<u>Health</u>		<u>Lung(s)</u>	
general practitioner group practice plans	1112	chronic disease and changing concepts	1117
immunization in occupational health programs	1118	<u>Lye</u>	
occupational health services for employees (bk. rev.)	1106	treatment of esophagus burns	1127
services for civilian governmental employees	1113	<u>Malathion</u>	
<u>Health records</u>		toxicological studies in louse control	1152
confidentiality of occupational	1109	<u>Malathion-lindane mixture</u>	
<u>Hearing loss</u>		fatal poisoning by	1151
psychogenic deafness	1166	<u>Medical records</u>	
<u>Heart disease</u>		confidentiality of occupational	1109
in large industrial populations	1119	<u>Mercury poisoning</u>	
<u>Heat</u>		bronchitis due to inhalation	1140
human tolerance in space flight	1164	house paint	1141
<u>Hepatitis</u>		<u>Nitrogen dioxide</u>	
contaminated intervenous tubes	1121	calibrating continuous analyzer	1177
epidemiologic studies in urban outbreak	1120	<u>Nitroglycerin</u>	
<u>Hydrofluoric acid</u>		toxic effects	1188
treatment of burns	1138, 1139	<u>Noise</u>	
<u>Hydrogen peroxide</u>		measurements(s), impact and continuous	1165
safe handling	1190	<u>Odor(s)</u>	
<u>Hydrogen sulfide</u>		quantitative measurement	1171
gassing accident in tannery tank	1191	<u>Ozone</u>	
<u>Immunization</u>		determination in the atmosphere	1178
in occupational health programs	1118	pulmonary function of welders on exposure	1161
<u>Injury(ies)</u>		<u>Penicillamine</u>	
accelerative force in aircraft	1195	treatment in lead poisoning	1143
psychological complications in industrial	1110	<u>Peroxides</u>	
<u>Insecticides</u>		safe handling and storage of organic	1189
human body fat	1149	<u>Pesticide(s)</u>	
hyperglycemia resulting from	1150	effects on human health	1148
<u>Insects</u>		<u>Phenols</u>	
arachnidism in the U. S.	1129	determination in cigarette smoke	1135
<u>Isocyanates</u>		<u>Pneumatic hand splint</u>	
pneumopathy from inhalation of	1147		1115
<u>Lead poisoning</u>		<u>Pneumonitis</u>	
treatment with penicillamine	1143	and asbestosis	1153
		<u>Psychology</u>	
		industrial injuries	1110

<u>Radiation (ionizing, nuclear, x-rays, etc.)</u> control aboard USS Enterprise	1170	<u>Tannery tank</u> gassing accident	1191
<u>Raynaud's phenomenon</u> cold dilatation	1116	<u>Tetanus</u> analysis of 149 cases	1126
<u>Schistosomiasis</u> in American tourists	1125	<u>Thorotrast</u> and Hodgkin's disease	1167
<u>Silicosis</u> current aspects	1157	<u>Trauma</u> pneumatic splinting of hand injuries	1115
females in mining areas	1158	<u>USS Enterprise</u> radiation control aboard	1170
paralysis of the diaphragm	1159	<u>Waste disposal</u> waste stabilization ponds	1196
<u>Smoking</u> determining ciliastatic components	1123	<u>Welding</u> pulmonary function and ozone	1161
determination of phenols in cigarette smoke	1135	<u>X-ray(s)</u> effective use in dentistry	1168
tobacco carcinogenesis	1124	<u>Zinc oxide</u> toxicity of catalytically active	1142
<u>Sodium hydroxide</u> treatment of esophagus burns	1127		
<u>Space flight</u> bioastronautic research	1162		
hostile aerospace environment	1163		
human tolerance limits under thermal conditions	1164		
<u>Strontium-90</u> in persons who died of leukemia	1169		
<u>Suberosis</u> a pneumoconiosis from cork dust	1156		
<u>Sulfuric acid</u> determination in town air	1174		
<u>Sulfuryl fluoride</u> determination in air	1172		

03121355