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# *Industrial Hygiene Digest*

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

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INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

4400 FIFTH AVENUE -- PITTSBURGH, PA. 15213

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## INDUSTRIAL HYGIENE FEATURES

Private psychiatric services for miners in the Appalachian area are discussed in Abst. No. 741.

Personality traits and coronary heart disease are studied in Abst. No. 745.

Abst. No. 747 is concerned with rehabilitative care of stroke patients.

Information concerning cigarettes, cough, and cancer of the lung is presented in Abst. No. 753.

Abst. No. 756 presents five cases of pneumonitis due to maple-bark disease.

Abst. No. 760 reviews the diagnosis and management of industrial chest disease.

Abst. No. 768 reports on three cases of fatal hydrogen sulfide poisoning.

Bromide residues from methyl bromide fumigations are investigated in Abst. No. 780.

An outbreak of jaundice in the Epping district of Essex, England, is described in Abst. No. 782.

A report of a fatality due to a new carbamate pesticide is given in Abst. No. 783.

An episode of food poisoning attributed to imported mushrooms is presented in Abst. No. 785.

Abst. No. 790 discusses asbestos as an urban air contaminant.

The symptoms and therapy of heat stroke are described in Abst. No. 791.

A study of infections acquired in medical wards is given in Abst. No. 802.

Abst. No. 813 gives information on the principals of management applied to industrial safety.

Consult Abst. No. 814 on how to develop a sound safety program.

## FOUNDATION FACTS

**NEW MEMBER:** The Foundation is pleased to announce the membership of the Laundry and Cleaners Allied Trades Association.

**STAFF ACTIVITIES:** On July 18-19, Dr. deTreville was a moderator and Dr. Gross read a paper at the Hatch Symposium (see page i, this issue). On August 22 Dr. Gross chaired the opening session of the Gordon Conference in Tilton, New Hampshire and on August 23 gave a paper at a Symposium on Physiological Characterization of Health Hazards in Man's Environment held in Bretton Woods, New Hampshire, August 22-25. Dr. deTreville lectured students in the third Bio-Environmental Engineering Course at the School of Aerospace Medicine, Brooks Air Force Base, San Antonio, Texas on the "Diagnosis of an Occupational Disease" on August 25. This course is intended to orient and indoctrinate newly inducted engineers into the U.S. Air Force program of environmental and occupational health. Approximately 29 students attend the highly structured 16 week course. Graduates are assigned duty as industrial hygienists at installations and headquarters throughout the Air Force.

**NEW PUBLICATION:** Medical Series Bulletin No. 10, "Emphysema in Industry." PRICE: \$2.50 to members; \$5.00 to non-members.

**NEW REPRINTS AVAILABLE UPON REQUEST:** "On the Theory of Silicosis," Heinrich Brieger and Paul Gross. Arch. Environmental Health 13, 38-43 (July 1966). "Alveolar Clearance: Its Relation to Lesions of the Respiratory Bronchiole," P. Gross, E.A. Pfitzer, and T.F. Hatch. Amer. Rev. Resp. Dis. 94:1, 10-19 (July 1966).

**ANNUAL MEETING:** The invitational preliminary programs and advanced registration forms for the Foundation's 31st Annual Meeting on October 18-19 at Pittsburgh's new Chatham Center will soon be mailed. This meeting marks a first on two counts—the first time an IHF Annual Meeting was held any place other than Mellon Institute and the first convention meeting held at Chatham Center which opens in September.

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PROFESSOR THEODORE F. HATCH  
IHF TRUSTEE HONORED



At a Symposium honoring Professor Theodore F. Hatch, held on July 18-19 on the occasion of his retirement from his academic duties, a portrait commissioned by his former students and associates was presented to be hung in the University of Pittsburgh's Graduate School of Public Health. Pictured with Professor and Mrs. Hatch at the time of the award were Dr. and Mrs. James A. Crabtree. Dr. Crabtree is Dean of the Graduate School of Public Health, established by the University of Pittsburgh in 1948 with a grant of \$13,600,000 from the A.W. Mellon Educational and Charitable Trust. It is one of 12 institutions in the United States accredited for public health education. During the period he has been at the University of Pittsburgh, Professor Hatch has served as Professor of Industrial Health Engineering and, upon the death of Dr. A.G. Kammer in 1961, he served as Acting Chairman of the Department of Occupational Health until the appointment of the new Chairman in 1963. (See Industrial Hygiene Digest 29:10, page 1, Oct. 1965.)

At the Symposium which was held in the Graduate School Auditorium, the following subjects were presented by speakers, all of whom had been closely associated with Professor Hatch in research and educational activities.

|                                                                                                                     |                                                     |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| "Some Warm and Particular Reminiscences:<br>Footnotes and Speculations on Dissimilar Topics"                        | Dr. Norton Nelson                                   |
| "Epidemiology of Staphylococcal Infection—<br>Some Intriguing Problems"                                             | Dr. Horace M. Gezon                                 |
| "Experimental Asbestosis: Studies on the<br>Progressiveness of the Pulmonary Fibrosis<br>Caused by Chrysotile Dust" | Dr. Paul Gross<br>and<br>Dr. Robert T.P. deTreville |
| "Some Contributions to Understanding of<br>Heat Stress and Strain"                                                  | Dr. Harwood S. Belding                              |
| "Sickness Absence in a Steel Mill<br>Population—1963-1965"                                                          | Dr. Barry E. Dunphy                                 |
| "An Experimental Investigation of the Uptake,<br>Storage, and Elimination of Inspired Vapors in the Rat"            | Dr. Theodore R. Torkelson                           |
| "Functional Injury in Pneumoconiosis"                                                                               | Dr. Mario C. Battigelli                             |

As mentioned previously, Professor Hatch has agreed to continue as Advisory Fellow of Mellon Institute serving the Industrial Hygiene Foundation, and also as Trustee and Treasurer of the Foundation.

ADVISORY FELLOWS TO ASSIST  
INDUSTRIAL HYGIENE FOUNDATION RESEARCH



Dr. W. Donald Ross, Professor of Psychiatry and Assistant Professor of Industrial Medicine at the University of Cincinnati College of Medicine, Attending Psychiatrist and Clinician OPD (Psychiatry and Medicine) at the Cincinnati General Hospital, and Consultant Psychiatrist at the Veterans Administration Hospital in Cincinnati, has been named Advisory Fellow of Mellon Institute to assist the Industrial Hygiene Foundation.

Dr. Ross heads up the Psychosomatic Service of the Departments of Psychiatry and Medicine at the Cincinnati General Hospital; he has directed the training program in group psychotherapy of the Department of Psychiatry; and has participated in research in psychopharmacology in collaboration with the Department of Pharmacology and in the psychiatric and psychological aspects of metabolic research on a General Clinical Research Center at the Cincinnati General Hospital.

He has had training and experience in Physiology (Research Prize in Physiology, University of Manitoba, and a year at the Research Institute of Endocrinology at McGill University), Internal Medicine (Fellow of the Royal College of Physicians of Canada), Neurology (Montreal Neurological Institute), and Clinical Psychology (research with the projective techniques, especially the Rorschach Method) as well as in Psychiatry and Psychoanalysis (Institute for Psychoanalysis, Chicago).

Dr. Ross belongs to a number of national and international scientific societies; he is a Fellow of the American Psychiatric Association and a member of its Program Committee. He was President of the Ohio Psychiatric Association (1965-1966) and is now Program Director of a training program in Psychiatry and Psychosomatic Medicine for residents in Medicine, Dermatology and Obstetrics and Gynecology at the Cincinnati General Hospital.



Dr. Jack A. Wolford, Chief, Social Psychiatry, Western Psychiatric Institute and Clinic, Associate Professor of Psychiatry at the University of Pittsburgh School of Medicine, and Director of Community Study Center Hazelwood, Western Psychiatric Institute and Clinic, has accepted an appointment as Advisory Fellow of Mellon Institute to serve the Industrial Hygiene Foundation.

Dr. Wolford was previously associated with Warren State Hospital, first as a Senior Physician and then as Clinical Director. Next he was Superintendent at Hastings State Hospital. Dr. Wolford served two years with the U.S. Army as a captain.

Committees on which Dr. Wolford works include: Chairman, Membership Committee, American Psychiatric Association; President, Pennsylvania Psychiatric Society; Editorial Board, Pennsylvania Psychiatric Quarterly; Comprehensive Program Planning and Executive Committee; Advisory Council for Mental Health Construction; and various community activities.

Dr. Wolford is associated with the following organizations: American Medical Association; Allegheny County and Pennsylvania Medical Society; American Psychiatric Association—Fellow; Pennsylvania Psychiatric Association—Fellow; and G. A. P. —Board of Directors.

A native of Brookville, Pennsylvania, Dr. Wolford did his undergraduate work at Allegheny College, received his M.D. at the University of Pennsylvania and interned at Allegheny General Hospital, Pittsburgh. He was certified in Psychiatry in December 1953.

INDUSTRIAL HYGIENE DIGEST  
Literature and News

NEWS ITEMS

722 Report of an Investigation of Threshold Limit Values and Their Usage.

In a special report in the May issue of the Journal of Occupational Medicine, the Industrial Medical Association (IMA) calls attention to the "increasing tendency to use Threshold Limit Values (TLV's) in ways and for purposes which they were never intended." As examples of such misuse, the article lists the following: (1) At least one attempt has been made to incorporate the entire list of TLV's in Federal legislation as standards of performance. (2) Many state and local health, labor, and safety departments give both the "Recommended" and the "Tentative" Values quasi or even de facto regulatory status. (3) TLV's are being cited increasingly in litigation and workmen's compensation actions as an official standard of performance, with the result that levels which exceed the TLV's are regarded as evidence of negligence. An American Conference of Governmental Industrial Hygienists (ACGIH) policy statement was published with the TLV's in 1964 but this appears to have been ineffective, as the 1964 list has already been incorporated into some State Legislative Codes. According to the IMA, the existence of TLV's invites misuse, which can affect industry adversely in at least four ways: (1) by creation of unwarranted problems in labor relations; (2) by stimulation of unjustifiable claims in workmen's compensation actions; (3) by use of the values as evidence of negligence in legal actions; and (4) by forcing industry to institute unnecessary and costly changes in process and equipment, as well as in monitoring systems. The article provides a list of ten conclusions and recommendations for the guidance of industry and the AGIH Threshold Limit Committee, the last of which suggests an independent or industry-supported clearinghouse for toxicological data to assist the Threshold Limit Committee to set and validate realistic threshold values.

-- J. Occ. Med. 8, 280-283 (May, 1966)

723 Cutaneous Anthrax—Massachusetts.

The recent case of anthrax reported from Massachusetts occurred in an employee at a mill that prepares yarn from goat and camel hair imported from Asia. The patient, a 20-year old male, has worked in the fiber analysis laboratory for 2-1/2 years. On April 14, he developed a small "pimple" on his right temple. During the next several days he noted an increase in the size of the pimple and recalled that it was pruritic. He did not see a physician until April 18, by which time the pimple was 2-1/2 to 3cm. in size and showed the typical appearance of a cutaneous anthrax lesion; swelling of the lymph nodes in the right side of the neck was noted. A smear from the lesion was reported to show Bacillus anthracis organisms and, subsequently, a culture confirmed the diagnosis. The patient was treated with tetracycline 500mg. every six hours and made a rapid and complete recovery. Since 1953, 13 cases of cutaneous anthrax have been reported among employees of this company whose average employment is 100 people. The company concerned had initiated an anthrax immunization program in 1962, but this laboratory employee had received only a single inoculation of the anthrax antigen in September 1965. The most recent case prior to the current case was reported in December 1963 in an employee who had received no vaccine and developed a lesion on his left fore finger. Previous studies have indicated that a single inoculation of the vaccine will not give protection against cutaneous anthrax lesions.

-- Morbidity & Mortality, Weekly Rept. U.S. Dept. of Health Education & Welfare 15, 201-208 (June 18, 1966)

724 Conference on Air Pollution.

A National Conference on Air Pollution has been called by John Gardner, Secretary of Health, Education, and Welfare. The conference will be held in Washington, D. C., December 11-14. The theme of this conference is: "The Development, Establishment and Improvement of Air Pollution Programs at all levels of government—local, state and Federal." Similar conferences were held in 1958 and 1962. Representatives of 1,500 business, labor, civic organizations and many state and local officials will be invited to attend. Arthur C. Stern, Assistant Chief, Division of Air Pollution, Department of Health, Education, and Welfare, is acting as executive secretary of the conference.

-- Air Eng. 8, 6 (June, 1966)

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725 Joint Symposium of New York Industrial Health Societies.

A Joint Symposium of New York Industrial Health Societies is scheduled for Thursday, October 13, 1966 in the Red Room, Sheraton-Atlantic Hotel, New York, N. Y. The program begins at 4:00 p. m. with a paper on "Fundamentals and Applications of Lasers." Following the formal presentation of the papers and a discussion period, there will be a social hour and dinner. Guest speaker at the dinner will be Dr. Murray Brown, Chief, Division of Occupational Health, U.S. Public Health Service, Washington, D.C. Dr. Brown's topic will be "Protecting the Health of Eighty Million Americans." Sponsoring Societies for the Symposium are: American Industrial Hygiene Association; New York State Society of Industrial Medicine; Greater New York Association of Industrial Nurses, Inc.; and New York Chapter of the Health Physics Society.

726 Concern for Air Pollution.

"Chemical engineers have a professional responsibility in the control of air pollution," states the American Institute of Chemical Engineers (A.I.Ch.E.). In a statement made by the Council of the Institute, it urged that the "development of new technology be accelerated in order to deal more effectively and economically with the problem." Legislative standards for control of pollutants, the Council observed, ought to be based on existing levels of technology and these standards should be raised as new technology becomes available. Chemical engineers have a "unique technological capability that can be provided by this profession to achieve the prevention and abatement of pollution."

-- Safety Maint. 132, 40 (July, 1966)

727 Computer Study of How Chemicals Affect Humans.

President Johnson has ordered a computer study of how chemicals affect humans. His directive follows recommendations made recently by the toxicology panel of his Science Advisory Committee. Given the responsibility is the Department of Health, Education, and Welfare, which will try to integrate all sources of toxicological data into one machine, probably housed in the Food and Drug Administration. (The panel notes, incidentally, that one fourth of the abstracts that appear in Chemical Abstracts contain information on biological effects of chemicals.) Curiously, however, the panel recommends that the Government call on nongovernment help for setting up the automatic data system. Such computer services are already available in the National Bureau of Standards in a program set up to aid other federal agencies in their data processing problems.

-- Chem. Eng. News 44, 35 (June 27, 1966)

728 Nonnutritive Ingredients in Candy.

Nonnutritive ingredients may be added to candy, under the provisions of a bill awaiting the President's signature. Present law requires that any ingredient of candy must be nutritive or have food value, except for compounds such as colors and flavors, which are exempt by statute. H. R. 7042 would permit the use in candy of nonnutritive food additives approved by the Food and Drug Administration, provided the additive has some "practical functional purpose in the manufacture, storage, or packaging of such confectionary and does not promote deception of the consumer."

-- Chem. Eng. News 44, 35 (June 27, 1966)

729 Poison and You.

A new booklet Poison and You has recently been published by the Channing L. Bete Co., Inc., Greenfield, Mass. The booklet points out that 2,500 Americans will die this year from poisoning—and the discouraging fact is that 95% of these deaths could have been prevented! In its 16 pages, the booklet explains what poison is, the two groups of poisons, types of poisons, how to keep them from children of all ages, what causes home poisoning accidents, and what treatments to administer in case of poisoning. The booklet is designed for use via employee information racks, as part of on and off job safety programs, via safety councils, through youth organizations, in schools, as handouts by police and fire departments and via newspaper, radio or TV advertising. Poison and You is two colors, 16 pages 5-1/2" x 8" in size. Single copy is 25 cents. (Discounts allowed for bulk orders.) Obtainable from the Channing L. Bete Co., Inc., Greenfield, Mass.

-- J. Am. Soc. Safety Eng. 11, 17 (July, 1966)

730 Electric Shock.

What You Should Know About Electric Shock, a 16-page booklet that deals with 115-volt electric grounding hazards, has been published by Dray Publications, Inc., Deerfield, Mass. Using colorful, easy-to-understand illustrations and terminology, the booklet explains the fundamentals of

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electricity—how electricity flows normally, and how "leaking electricity" can cause severe electric shock. The booklet can be used in educational activities by safety directors, insurance companies and safety organizations. For a free sample and quantity prices write to Dray Publications, Inc., Fire and Accident Division, Deerfield, Mass. 01342.-- J. Am. Soc. Safety Eng. 11, 18 (July, 1966)

### 731 Acoustic Enclosure Systems.

Understanding Acoustic Enclosure Systems, a 4-page report written for the layman, describing the three types of acoustic enclosures commonly used to measure or contain noise or to provide a soundproof shelter, has been issued by Industrial Acoustics Co., Inc., Bronx, N.Y. The report discusses the acoustic properties of anechoic (echo-free) reverberant (live), and quiet (dead) room and clarifies their application and differences in their performance. Guidelines are given for the selection of the enclosure best suited for a particular need, together with data on the acoustic characteristic to be considered in the design and construction of each system. For a copy of Bulletin No. 6.104.10, without charge, write to Industrial Acoustics Co., Inc., 380 Southern Blvd., Bronx, N.Y. 10454.

-- J. Am. Soc. Safety Eng. 11, 18 (July, 1966)

### 732 Booklet on Noise.

Noise, an 8-page booklet on industrial noise with reference to compressed air exhausts, has been published by the C.W. Morris Company, Detroit, Michigan. The booklet discusses problems in analyzing noise, combining noises, noise control and hearing conservation. Copies of the booklet are available from the C.W. Morris Co., 10628 Cloverdale, Detroit, Mich. 48704.

-- J. Am. Soc. Safety Eng. 11, 18 (July, 1966)

## COMING EVENTS

- |     |             |                                                                                                                                                     |
|-----|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 733 | Sept. 6- 8  | International Symposium on Selenium in Biomedicine, Oregon State University, Corvallis, Oregon.                                                     |
|     | Sept. 7-10  | National Agricultural Chemicals Association, 33rd Annual Meeting, White Sulphur Springs, West Virginia.                                             |
|     | Sept. 11-16 | American Chemical Society, 152nd National Meeting, New York, N.Y.                                                                                   |
|     | Sept. 17-23 | College of American Pathologists, Washington, D.C.                                                                                                  |
|     | Sept. 18-24 | International Congress on Occupational Health, Vienna, Austria.                                                                                     |
|     | Sept. 20-21 | Society of Cosmetic Chemists, Seminars on Pediatric Cosmetics, Geriatric Cosmetics, Perfume Psychology, and Cosmetic Safety Testing, New York, N.Y. |
|     | Sept. 21-23 | National Plant Food Institute, Northeast Fertilizer Conference, Cherry Hill, N.J.                                                                   |
|     | Sept. 25-28 | Symposium on Gastro intestinal Radiation Injury, Richland, Washington.                                                                              |
|     | Sept. 25-29 | Institute of Sanitation Management, National Sanitation Management Conference and Sanitation Maintenance Show, Minneapolis, Minn.                   |
|     | Sept. 25-30 | International Congress of Nephrology, Washington, D.C.                                                                                              |
|     | Sept. 25-30 | Water Pollution Control Federation, 1966 Conference, Kansas City, Missouri.                                                                         |
|     | Sept. 26-30 | Animal Care Panel, Chicago, Ill.                                                                                                                    |
|     | Sept. 27-28 | Congress on Occupational Health, Portland, Oregon.                                                                                                  |
|     | Sept. 27-29 | Oak Ridge National Laboratory, 10th Conference on Analytical Chemistry in Nuclear Technology, Gatlinburg, Tenn.                                     |
|     | Sept. 27-30 | American Roentgen Ray Society, San Francisco, Calif.                                                                                                |
|     | Sept. 28-30 | American Association of Medical Clinics, San Diego, Calif.                                                                                          |

## LEGAL DEVELOPMENTS

### 734 Sixteen States Have School Eye Protection Laws.

At least 16 states have now adopted laws mandating eye protection for their industrial arts students, as well as for those conducting experiments in chemistry labs and participating in "shop" projects. These states (as of February) are Alabama, Arkansas, California, Florida, Illinois, Iowa, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Texas, Utah, and Oklahoma. Eight of the 16 have passed mandatory eye protection laws in the last 12 months. The regulatory action in each case was brought about by the increasing number of school accidents involving the eye. High schools, vocational schools and colleges are all covered by the new law. Available statistics indicate that approximately 58% of the nation's laboratory and shop students live and go to school in the 16 states which have school eye safety laws. Sales of eye protectors to schools have increased substantially during the past few years. However, according to W.C. Weeks, sales manager of the Willson Products Division, Electric Storage Battery Co., schools have presented a problem of "education" which has largely been overcome in industry. He

referred to the degree of acceptability of eye protectors in schools. "The new laws," he said, "are playing an important part in the increasing use of eye protection by schools." Generally cited for mandatory eye protection are classes using hot molten metals, machining and cutting operations on solid materials, heat treatment, tempering, kilns, welding, vehicle repair and servicing and work with caustic or explosive materials and chemicals. Most state laws specify the use of "industrial quality" eye protection equipment stipulated by the American Standards Association Code Z 2.1-1959. A reference folder of classroom eye and facial protective equipment for school administrators, teachers and others concerned with shop and laboratory safety has been prepared by Willson Products. Copies of Form W6412 are available from Willson Products Div., Electric Storage Battery Co., 2nd and Washington Sts., Reading, Pa. 19603.

-- J. Am. Soc. Safety Eng. 11, 6 (July, 1966)

#### BOOKS, PAMPHLETS AND NOTICES

- 735 The Economics of Air Pollution. A Symposium. H. Wolozin, editor. AVAILABLE FROM: W. W. Norton & Company, Inc., New York, N.Y. 318 pp. (1966). PRICE: \$2.95.

Air pollution, the subject of the papers in this volume, is an important example of a problem in which the goals of public policy are mainly non-economic, but have important economic aspects. Federal, state, and local governments now have major programs to prevent and abate the pollution of the atmosphere. Yet many economic issues related to these programs are inadequately understood or documented. What are the benefits from cleaner air in improved health, reduced property damage, and increased aesthetic satisfaction? How much are these benefits worth? What are the costs of various methods and degrees of pollution abatement? Would it be cheaper and more effective to disperse activities that pollute the atmosphere, to burn higher quality fuels, or to remove pollutants before effluents are discharged to the atmosphere? How can public policy help to increase private incentives to abate air pollution? What would be the direct and indirect effects of efforts to reduce the discharge of pollutants to the atmosphere from government-operated sources? What data need to be collected to improve our understanding of problems of air pollution? At present, answers to these and similar questions are inadequate or nonexistent; almost none of the relevant questions has an easy answer. Finding better answers, and implementing them through governmental processes are major challenges.

The Contents consists of: Air Pollution—General Background and Some Economic Aspects; Economic Incentives in Air-Pollution Control; Risks Versus Costs in Environmental Health; The Structuring of Atmospheric Pollution Control Systems; Strategies for Measuring the Cost of Air Pollution; The Use of Government Statistics in Air-Pollution Control; The Use of Consumer-Expenditure Data in Air-Pollution Control; Air-Pollution Control in the Metropolitan Boston Area; Setting Criteria for Public Expenditures on Air-Pollution; A Study of Pollution—Air: A Staff Report to the Committee on Public Works, United States Senate, September, 1963; Appendixes (Clean Air Act and 1965 Amendment of Clean Air Act) and Bibliography.

The aspect of the air-pollution problem which commands the economist's attention is the fact that clean air is a resource; it is either a final product or an intermediate one in the language of national accounting, and it is becoming increasingly scarce. The sum of this volume on air pollution is a stimulating and sometimes provocative application of the techniques evolved by economists to analyze economic decisions of individuals, households, business firms, and society as a whole, and an attempt to identify the areas where the techniques fail, where work must be done. Long-term, low-level air pollution can contribute to and aggravate certain diseases. As the "Report of the Panel on Health Considerations" at the 1962 National Conference on Air Pollution states: "It would be a mistake to leave this conference with the impression that there is insufficient evidence for action—now. The evidence that air pollution contributes to the pathogenesis of chronic respiratory disease is overwhelming. The classical concept of one agent being responsible for one disease is . . . an investigational convenience. . . the demonstration of a cause and effect, or one-to-one relationship is an unrealistic approach to this problem . . . the interactions of various chemical irritants, of infectious agents, and of carcinogenic substances together with meteorological factors as affecting human respiratory health, are entirely what should be expected of complex man in his complex environment. Neither these complicated interactions nor the variabilities of the types of pollution in different communities should be used to camouflage the need for action." No permanent health effects have been demonstrated as a result of smog-induced stinging and tearing of the eyes, but this is highly uncomfortable and irritating in more than the literal sense. Diesel exhaust is possibly a lesser health hazard than the exhaust from gasoline motors, but the motorist who is held up behind an idling bus is not thinking of long-range health effects; he simply resents the sight and smell of those diesel fumes. Wholly apart from health or economic considerations, the recreational,

aesthetic, and psychological effects sometimes seem, to some groups and individuals, serious enough on their own account to call for remedial action. It will never be possible to measure these effects accurately in quantitative terms, if only because they affect different people differently. To the flower lover whose ornamentals refuse to grow, to the art lover who sees his city's memorials and statues defaced by grime or slowly crumbling because of sulfur compounds, to the sportsman who notes the recent slaughter of ducks and fish by airborne crop sprays—these effects of air pollution may seem the most obnoxious of all.

-- Cond. from text

- 736 Background Material Concerning the Mission and Organization of the Health Activities of the Department. Vol. I. U.S. Department of Health, Education, and Welfare. AVAILABLE FROM: U.S. Government Printing Office, Washington, D.C. 20402. 320 pp. and Appendix I A B. PRICE: Not Given.

This committee print, in two volumes, was prepared by Department of Health, Education, and Welfare, at the request of the Special HEW Investigation Subcommittee of the Interstate and Foreign Commerce Committee, U.S. House of Representatives. It portrays the situation as it existed on December 31, 1965. The Office of the Surgeon General is a bureau which supports the Surgeon General in the policy direction and management of the Service. It operates separate programs in such fields as international health and health mobilization. It produces and publishes Public Health Reports, the official journal of the Service, is the focal point for public inquiries, and undertakes broad programs of public information in health matters. It is the administrative focus for the National Center for Health Statistics and the National Library of Medicine. In addition, the Office of the Surgeon General provides centralized and coordinating services in such fields as information and publications, budget and financial management, administration, grants policy, program and legislative planning, personnel management, liaison with outside organizations and groups, and scientific communications. The primary responsibility of the Bureau of State Services is to stimulate the widespread application of health knowledge. It works with State and local health departments and other official agencies concerned with health, and a variety of professional and voluntary groups to help define public health problems, to develop effective ways of dealing with them, and to encourage the adoption of improved health practices for the prevention, treatment, and control of diseases and the prevention and control of environmental hazards. The Bureau carries out its mission through direct operations and through financial assistance. Direct operations involve a wide range of services to and cooperative arrangement with other organizations. These include studies, experiments, and demonstration projects; professional consultation on special health problems; and a variety of services not otherwise available, such as training courses, aid to diagnostic laboratories, epidemic surveillance, and nationwide monitoring of radiation, water quality, and air pollution. Financial assistance in the form of grants is provided for support of various health programs; for construction of hospitals, waste treatment, and other health facilities; for research, development, and training activities; and for the conduct of special projects in prevention and control of disease and environmental hazards, and for the development and demonstration of new types of health services. The Bureau's 12 divisions are grouped in two categories—community health and environmental health. The present grouping of divisions is as follows: Community Health Divisions—Accident Prevention, Chronic Diseases, Communicable Disease Center, Community Health Services, Dental Health, Hospital and Medical Facilities, Medical Care Administration, and Nursing. Environmental Health Divisions and Offices—Air Pollution, Environmental Engineering and Food Protection, Occupational Health, Pesticides, Radiological Health, and Solid Wastes. The Office of Resource Development administers, coordinates, and evaluates basic environmental health research and training grant policies and grant administration practices; represents environmental health on these matters with other parts of the Service, and administers an environmental health sciences extramural program. It services all environmental health divisions in developing and coordinating procedures for environmental health grant programs—air, radiation, solid wastes, occupational health—and awards all research and research training grants for the environmental health sciences appropriation.

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Editor's Note: The Public Health Service is undergoing an extensive reorganization (See Industrial Hygiene Digest 30:6 page 1, June 1966) however, much of the material in the enclosed document may be of interest.

- 737 The Architect's Guide to Mechanical Systems. F. T. Andrews. AVAILABLE FROM: Reinhold Publishing Corporation, Book Division. 430 Park Avenue, New York, N.Y. 10022. 247 pp. (1966). PRICE: \$12.50.

The first book in an important new series, The Reinhold Environmental Engineering Series, this authoritative reference work describes mechanical systems including heating, air conditioning, cooling, ventilating, plumbing, and fire protection, for all kinds of buildings. It serves two main functions—it can be used as a mechanical dictionary; and it can serve as a practical guide for

solving mechanical design problems that involve types of systems, system functions, space requirements, equipment weights, installation, maintenance, repair and operating costs. Profusely illustrated with photographs and operating diagrams, it presents to the specialist the fundamental information needed to ensure proper and adequate consideration of these systems in designing a building. Simple rules of thumb have been developed to determine the space requirements and costs of various mechanical systems. The book develops the following basic information which enables the architect to size mechanical equipment rooms: data on average dimensions, weights, etc.; an analysis of over 450 different mechanical systems installed recently in buildings, along with a square-foot cost-basis table on various types of systems and buildings; material on unusual building code requirements which must be satisfied by the design of mechanical systems; development of an office design procedure which eliminates design problems which often occur. The most recent equipment developments are included. An especially noteworthy feature is a comprehensive glossary which covers common technical terms used in plumbing and air conditioning. An ideal guidebook stressing practical mechanical information, this volume will be of great value to all architects, engineers, and contractors.

-- Cond. from Preface

**Editor's Note:** This reference is not intended for industrial hygienists designing ventilation and exhaust systems for specific occupational applications. Fume hoods, Booth Laboratory hoods, and Welding Exhaust are briefly dealt with on page 97. The American Conference of Governmental Industrial Hygienists publication "Industrial Ventilation" (7th edition, 1963) is cited in the bibliography reference at the end of the Chapter. Regarding cooling, evaporative cooling is dealt with briefly on pages 17-20, in such a way as to discourage its use. It is said to be inexpensive, and easy to install, and it does "provide some temperature relief in arid areas;" but seven major disadvantages to its use are listed. The industrial hygienist responsible for providing a more satisfactory working environment in plant for employees should refer to the excellent article by Kenneth E. Robinson on "Evaporative Coolers—Their Place In Modern Industry" which appears in the Transactions of the Foundation's 29th Annual Meeting. (AMA Archives of Environmental Health 10:631-634, 1965.)

-- RTP deT

- 738 Fire Hazard Study of Hydraulic Fluids. National Fire Protection Association. AVAILABLE FROM: National Fire Protection Association, 60 Battery March Street, Boston, Mass. 02110. 8 pp. (1966). PRICE: 50 cents.

Fires involving hydraulic fluids are the subject of the newest Fire Hazard Study published by the National Fire Protection Association (NFPA). The booklet includes case histories of 37 fires, and 11 photographs. As explained in the hazard study, when a common hydraulic fluid such as petroleum or mineral oil escapes from ruptured piping or fittings under pressure, a fine mist may form which can ignite when it strikes an open flame, a surface heated to about 600-750 degrees, or sparking electrical equipment. "Where both hydraulic oil and a source of ignition are present, there should be automatic sprinkler protection," the NFPA urges. "Sprinklers in numerous hydraulic oil fires have protected the building and equipment while the oil pump was being shut down and fire fighters were being summoned. It is this critical time that makes the difference between a \$10,000 fire and a \$300,000 fire—between a fatal fire and one that is not fatal." Of the 37 hydraulic fluid fires examined by the NFPA study, 26 fires occurred where there was no sprinkler protection, for an average loss of \$328,000 per fire; 10 fires broke out in sprinklered buildings, where losses averaged \$9,000; and one fire involved a hydraulic fluid less hazardous than oil, resulting in negligible damage of \$3,000. As the NFPA hazard study points out, most of the hydraulic fluid fires are found in metalworking processes because of the high temperatures needed for these operations. Over the years there have been many accidents, including some fatalities, involving hydraulic oils in casting machines, presses, forges, extruders, and lifting or forming mechanisms in a great variety of industrial concerns. Hydraulic fluid fires other than those within the metalworking industry which are reported in the new hazard study include the fire in an Air Force Base repair and testing shop, in one of the Atomic Energy Commission's nuclear reactors, and aboard the aircraft carrier Leyte which exploded in Boston Harbor in 1953, taking 37 lives.

- 739 Fire and Explosion Hazard of Peroxy Compounds—STP394. American Society For Testing and Materials (ASTM). AVAILABLE FROM: ASTM Headquarters, 1916 Race Street, Philadelphia, Pa. 19103. 30 pp. PRICE: \$1.50 prepaid; \$1.05 to ASTM members.

This publication discusses the explosive characteristics of organic and inorganic peroxy compounds, covering all commercially available peroxides together with those that may be synthesized for occasional use in the laboratory. The book deals with detonation theory, fire and explosion hazards of groups of peroxy compounds, typical accidents and hazardous properties of specific peroxy compounds. Two reference tables are included on hazardous properties of inorganic and organic peroxy compounds.

-- J. Am. Soc. Safety Eng.

03122195

## INDUSTRIAL MEDICAL PRACTICE

- 740 Anesthesia at High Altitudes: Practical Aspects With Special Reference to the Requirements of the Armed Forces of India. K. R. Rama Rao. *Indian J. Anesthesia* 13, 16-25 (Feb. 1965).

In giving anesthesia to persons temporarily stationed at high altitudes several factors must be considered: (1) chronic hypoxia; (2) hyperventilation; (3) tendency to respiratory alkalosis; and (4) lack of tolerance to physical stress. There are also physical disadvantages during the procedure, such as low ambient temperature, high winds, low humidity and, in some regions, an abundance of dust particles in the air. In many cases a sufficient quantity of equipment is lacking, and quarters are inadequate. All these factors limit the choice of drugs and methods used by anesthetists. There are 47 references.

-- Aerospace Med. Absts.

- 741 Private Psychiatric Services for Miners—Appalachian Area. B.W. Bird and D. Phillips. *Am. J. Public Health* 56, 805-811 (May, 1966).

The combined Saint Albans-United Mine Workers Fund efforts described form an example of the joint effort of a psychiatric service organization and a labor-industry sponsored health plan to provide unavailable psychiatric services in underdeveloped areas of bituminous Appalachia. Adequate outpatient psychiatric guidance in the early stage of disability has helped patients and avoided added hospitalization. The program has been medically sound and economically important. This joint effort is considered a successful approach in the rounding out a comprehensive health care plan which is commended to other labor-industry sponsored and community plans for study. Five references are given.

-- Authors' summary

- 742 Reversible Acute Muscular Syndrome in Chronic Alcoholism. G.T. Perkoff, P. Hardy, and E. Velez-Garcia. *New Engl. J. Med.* 274, 1277-1285 (June 9, 1966).

A characteristic clinical syndrome and associated group of biochemical abnormalities were observed in cases of chronic alcoholism studied within 48 hours after acute alcoholic intoxication. The features of this syndrome were as follows: muscle tenderness, cramps and weakness; myoglobin or related proteins in the urine; increased serum creatine phosphokinase activity; poor lactic acid response to ischemic exercise; variable muscle phosphorylase activity; and recovery in two to four weeks. The disorder resembles hereditary phosphorylase deficiency, or McArdle's syndrome, but is reversible. Except for its clear temporal relation to excessive drinking, and its reversibility when drinking stops, the pathogenesis of the syndrome is unknown. Several possible mechanisms are discussed. There are 32 references.

-- Authors' summary

- 743 A New Method of Administering the Tuberculin Skin Test. C. Hendrix, Jr., C. Nichols, and L. Hursh. *Am. J. Public Health* 56, 818-820 (May, 1966).

A brief experience with a new method of administering the tuberculin skin test with a jet injector gun has been described. It is believed that this offers a rapid, inexpensive, and reasonably reliable method of mass tuberculin skin testing.

-- Authors' summary

- 744 Non-Tuberculous Chest Disease Found in a Mass X-Ray Survey in Vancouver, B.C. C. J. G. MacKenzie. *Can. Med. Assn. J.* 94, 1257-1261 (June 11, 1966).

In 1964, 219,085 persons were examined during a tuberculosis survey in Vancouver, B.C. One hundred and fifteen new cases of tuberculosis and 929 cases of significant non-tuberculous lung disease were found. In a four-month follow-up of the non-tuberculous cases it was found that of the 742 patients who had named a physician when examined 26.6% had not made contact with him. Of those who did contact the physician, the follow-up was considered "poor" in only 30 patients (2.1%). Seventeen patients had died in the four-month interval and 81 who could not be located after the initial survey were considered "lost." Rates were determined for 37 diagnoses per 1,000 patients screened. The most common diagnosis was localized pulmonary fibrosis (1.69/1,000). Carcinoma was found in 0.30/1,000 and solitary lung density in 0.17/1,000 population screened.

-- Author's abstr.

- 745 Personality Traits and Coronary Heart Disease. M.A. Ibrahim, et al. *J. Chronic Diseases* 19, 255-271 (March, 1966).

The present study was designed to test the hypothesis that a distinctive psychological pattern consisting of a low level of manifest hostility with elevated levels of anxiety and repression is associated with coronary heart disease and precedes its occurrence. While males between the age of 40 and 74

were classified according to selected levels of blood pressure and serum cholesterol into three risk groups: (1) low-risk: composed of individuals with reduced levels of both blood pressure and serum cholesterol; (2) moderately-high risk: composed of individuals with elevated levels of either blood pressure or serum cholesterol; and (3) high risk: composed of individuals with elevated levels of both blood pressure and serum cholesterol. Persons diagnosed as coronary disease patients made up the coronary group of this project. Two thirds of the coronary group, in contrast to one fifth of the noncoronary groups, were found to exhibit a selected psychological pattern comprising a low level of manifest hostility with elevated levels of anxiety and repression in the individual. There was no increasing gradient for the proportion of individuals with the selected pattern from the low risk through the moderately high risk to the high risk groups. Utilizing a system of interpretations from cross-sectional data, these findings led to the inference that the selected pattern probably followed the onset of coronary heart disease.

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

- 746 Early Diagnosis of Cardiovascular Disease Among Air-Crew. H. W. Kirchhoff and E. A. Lauschner. *Aerospace Med.* 37, 509-514 (May, 1966).

During the last few years the Institute of Aviation Medicine of the German Air Force has been working on functional tests which seem to be of great help in detecting cardiovascular disease in an early stage. The following research methods have been used: (1) registration of pulse-rate and blood-pressure under ergometer workload is capable of giving early information on beginning hypertension, (2) spiroergometry indicates a decrease in efficiency, (3) tests under determined hypoxia are useful for the detection of coronary insufficiency and (4) combined examinations of cardiac efficiency and of the peripheral cardiovascular and respiratory system are helpful in discovering functional disturbances and limitations of the physical efficiency of many different functional regions. If through these functional tests a decrease of efficiency and a beginning of organic damage of the cardiovascular system or regulatory disturbances have been discovered most of the pilots will have to follow a terrain-cure in the Bavarian Alps. The main therapy consists in systematically increasing physical exercise, led and supervised by experienced physicians. The patient has to contribute actively in resuming his health. The success can be objectivated by the functional tests mentioned before. The authors feel that this form of treatment constitutes a progress and increases the number of aging pilots being maintained on flying status.

-- Authors' abst.

- 747 Rehabilitative Care of Stroke Patients. C. M. Wylie. *J. Am. Med. Assn.* 196, 1117-1120 (June 27, 1966).

Stroke patients who survive the acute phase of their cerebrovascular accident (CVA) are younger, less severely disabled, and have less advanced cardiovascular disease than those who die. Nevertheless, the more optimistic estimates of success in rehabilitating such survivors are not confirmed by the published results. Many CVA patients delay several months or more before seeking rehabilitative care, although such care produces greater improvements in early applicants. The stimulation for earlier care is a complex problem. We need more information to learn how difficult it is to find patients suitable for rehabilitation at home and in institutions. The intensification of rehabilitation in general hospitals probably deserves most priority. We must also initiate controlled studies of rehabilitative care provided under varying circumstances. -- Author's abst.

- 748 Coronary Atherosclerosis and Cancer in Women. H. M. Parrish, J. C. Goldner, and S. L. Silberg. *Arch. Internal Med.* 117, 639-642 (May, 1966).

The association between coronary atherosclerotic blockage and cancer of various sites in Caucasian women was studied by matching cancer patient's records with accident victims' records. There was a positive association between coronary atherosclerotic blockage and cancer of the lung, esophagus and stomach, and intestines. However, there was no association between coronary artery clots and cancer. The etiological and clinical implications of these findings were discussed.

-- Authors' summary

- 749 The Prevalence of Diabetes Mellitus in Oxford and Related Epidemiologic Problems. J. B. O'Sullivan, H. L. C. Wilkerson, and L. P. Krall. *Am. J. Public Health* 56, 742-754 (May, 1966).

One of the first epidemiologic approaches to chronic disease, the Oxford (Mass.) Diabetes Survey of 1946-1947, is discussed in relation to ideal requirements for such studies. These standards emphasize the importance of defining accurately both the population and the disease under investigation. Reconstruction of the original 1946-1947 Oxford Study population is described. Prevalence figures for a total population are seen to be relatively insensitive to small variations in

population enumeration, while age-specific rates are more vulnerable to such changes. Problems with respect to disease definition and its significance to epidemiologic studies are discussed. Results from the original Oxford Study are again presented, using on this occasion two different diagnostic criteria. The results with criteria incorporating both blood and urine tests substantiate the published prevalence figure. Diagnostic standards using blood sugars only resulted in a threefold increase in persons classified as newly diagnosed diabetics, demonstrating the critical role of the choice of criteria. The need for further information on technical and biologic variability of blood glucose is discussed. Frequent though unrecognized lack of uniformity in applying diagnostic criteria has a large effect on prevalence data. Both the choice of criteria and the uniformity with which they are applied consequently supersede the importance of refinements in population definition. Several suggestions regarding future epidemiologic studies of diabetes mellitus and frequency distributions of the original data are presented in order to facilitate further interstudy comparisons. There are 26 references.

-- Authors' summary

- 750 Detection and Management of Latent Diabetes in Commercial Pilots. G. F. Catlett and G. J. Kidera. *Aerospace Med.* 37, 545-551 (June, 1966).

Diabetes mellitus is a common cause of medical disqualifications among commercial airline pilots and grounding is considered mandatory whenever the disease cannot be controlled by diet alone. Since only minor degrees of carbohydrate intolerance respond to dietary measures and neglected cases can be expected to progress, early detection is essential if the yield of pilot salvage after diagnosis is to be increased. In this study, a modified glucose tolerance test was performed on a group of apparently healthy airline pilots. Of the 142 subjects tested, seven responded with elevated blood glucose levels and three cases of early diabetes were eventually diagnosed. None of those studied had demonstrated glycosuria prior to this test, indicating the inadequacy of a random urinalysis in periodic physical examinations. The clinical management of latent diabetes in pilots is discussed and the question of limited use of oral hypoglycemic drugs for pilots in selected cases is raised.

-- Authors' abst.

- 751 Pilot Study for a Diabetes Detection Program Based Upon Rapid Glucose Microanalysis of Postprandial Capillary Blood. D. R. Grant and J. A. Moorhouse. *Can. Med. Assn. J.* 94, 1213-1219 (June 4, 1966).

A pilot study was undertaken for a diabetes detection program based upon quantitative microanalysis for glucose of postprandial finger-tip blood from subjects attending a tuberculosis preventive survey. A glucose level of over 120 mg./100 ml. was regarded as a positive screen test. Fifty of the 967 subjects in the pilot study had positive tests. Ten of these were excluded from follow-up because of age and a borderline screen test, and eight refused follow-up or could not be traced. Glucose tolerance tests on the remaining subjects who "screened" positive indicated that 1% of the original number had had false positive screen tests, while 1% were diabetic and 0.5% were possibly diabetic. These data indicate that this screening method is sufficiently sensitive to detect most of the individuals with undiagnosed diabetes in the population, without picking up an undue number of subjects who have slight abnormalities of glucose metabolism without known clinical significance.

-- Authors' abst.

- 752 Laryngeal Carcinomas: Staging and End Results. F. W. Alexander and C. L. Cassady. *Arch. Otolaryngol.* 83, 602-606 (June, 1966).

An analysis of 306 cases of squamous cell carcinoma of the larynx classified according to the proposed method of stage classification and end result reporting is presented. Extremely good results are given for stage one and two glottic carcinomas (98.5% and 80% five-year survivals, respectively). The value of prophylactic neck dissections for stage two supraglottic lesions is borne out by the statistics. Three inherent problems of the present stage classification and end result reporting system are discussed on a statistical basis. (1) The system is very involved with its multiple categories. This requires analysis of a large series of cases in order to place enough tumors in any one category to be meaningful. (2) It is emphasized the error in expecting equally good results from identical modes of therapy for carcinoma of the glottis, supraglottis, and subglottis of the same staging. (3) It does not recognize the histopathological differentiation of the tumor which radically affects the prognosis in the individual case.

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

03122198

- 753 Cigarettes, Cough, and Cancer of the Lung. Katherine R. Boucot, et al.  
J. Am. Med. Assn. 196, 985-990 (June 13, 1966).

In a nine-to-ten year prospective study of 6,071 men, aged 45 and over, given a semiannual chest x-ray examination and questionnaire, 84 "new" proved primary lung cancers developed. The incidence over the study period increased with increasing amounts and duration of cigarette smoking, and was twice as high among smokers with chronic cough as in smokers without this symptom. However, the cancer incidence was 5.3% in coughing cigarette smokers who had smoked heavily for 40 years or more, and 6.7% in noncoughing smokers in the same category. While the irritative effects of smoking as manifested by chronic cough may predispose to lung cancer, the carcinogens in smoke are probably adequate to produce malignancy when sufficient smoke bathes the bronchial mucosa over a sufficient time. Cigarette smokers who never coughed were also at significant risk. Among 58 men whose first radiologic evidence of lung cancer was within nine months of an x-ray film with no abnormal findings, 45% did not report cough before the cancer appeared.

-- Authors' summary

- 754 The Occurrence of Psittacosis Virus Complement-Fixing (CF), Noncomplement-Fixing (NCF) and Neutralizing (N) Antibodies in Domestic Pigeons. F.F. Piraino.  
J. Immunol. 95, 1107-1110 (Dec. 1965).

To have a uniform basis of comparison for the proper interpretation of epidemiologic data of human psittacosis associated with exposure to infected pigeons, it is important to use standardized serologic procedures for detecting psittacosis infections. Complement fixation (CF) and inhibition of complement fixation (ICF), detects noncomplement fixing antibody, are two serologic procedures most frequently used for the detection of psittacosis positive animals. The studies reported here provide information on the efficiency of CF and ICF tests for detecting serologic reactor pigeons, the frequency of occurrence of complement fixing and noncomplement fixing antibodies in pigeons, and the association of these antibodies to psittacosis-neutralizing (N) antibody.

-- Public Health Eng. Absts.

- 755 Rat Bite: Epidemiology and Control. H.G. Scott.  
J. Environmental Health 27, 900-902 (May-June, 1965).

Rat bite, a public health problem associated primarily with heavy urbanization, is causing concern in health agencies across the United States. An outline of the basic problems of rat bite and rat infestation and control is presented. Seven references are given. -- Public Health Eng. Absts.

- 756 Pneumonitis Due to Cryptosporidia Corticale (Maple-Bark Disease). D.A. Emanuel, F.J. Wenzel, B.R. Lawton. New Engl. J. Med. 274, 1413-1418 (June 23, 1966).

Five cases of maple-bark disease are presented. All patients had positive agar-gel diffusion tests to extracts of Cryptosporidia corticale. Spores were demonstrated in the lung biopsy in four of the five cases. The disease is a hypersensitivity reaction to the spores of C. corticale and does not represent a true infection since the spores do not grow at body temperature. Although two of the patients appeared to have extensive fibrotic disease all are clinically well, with no impairment of pulmonary function. With the removal of the patients from the spore-laden areas and changes in the manufacturing process to reduce spore concentration, the disease has been eradicated from the mill. Five references are given.

-- Authors' summary

- 757 Clinical Detection of the Potential Allergic Reactor to Penicillin by Immunologic Tests. H.E. Voss, A.P. Redmond, and B.B. Levine. J. Am. Med. Assn. 196, 679-683 (May 23, 1966).

Eighty patients with past histories of penicillin allergy who required penicillin therapy were evaluated with several objective immunologic tests for the possibility of an allergic reaction to penicillin. All 68 patients with negative immediate skin tests to the major and minor penicillin skin tests reagents tolerated penicillin without immediate or accelerated allergic reactions. Patients with positive skin tests had a high incidence of allergic reaction. Titer and antibody class (IgG or IgM) of hemagglutinating penicillin antibodies was not useful in predicting immediate allergic reactions but IgG titers were useful in predicting accelerated allergic reactions.

-- Authors' abst.

- 758 The Determination of Ethanol in Blood or Tissue by Gas Chromatography. R.A. Davis.  
J. Forensic Sci. 11, 205-213 (April, 1966).

A gas chromatographic method for the quantitative determination of ethanol in blood and tissue is described. The sample was homogenized with dioxane, and after separation of the precipitated protein by centrifugation, the ethanol was determined in the clear supernatant layer of solution

by gas chromatography. Ethoxyethanol was used as an internal standard. Ethanol was satisfactorily quantitated in blood. The amounts recovered from liver and brain tissue were considerably less than the corresponding amounts found by a modified Widmark procedure.

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

- 759 Bites by Foreign Venomous Snakes in the United States. H.M. Parrish and M.S. Khan. Am. J. Med. Sci. 251, 150-155 (Feb. 1966).

The case histories of seven patients who were bitten by foreign snakes in the United States were reviewed. Five of the seven victims were snake handlers, zoo workers, or pet shop workers. Two victims were laborers unloading bananas. All of the bites were inflicted on the upper extremities and all of the patients survived. Instructions on obtaining antivenins for foreign snakes and recommended treatment are given. There are 16 references.-- Public Health Eng. Absts.

- 760 Diagnosis and Management of Industrial Chest Disease. E. Posner. Brit. Med. J. 1, 525-529 (Feb. 26, 1966).

There are four main types of industrial chest disease: (1) Mineral dust pneumoconiosis: the dusts range in their effects from those which are highly fibrogenic, such as silica, to the inert dusts of tin and iron. Pneumoconiosis caused by coal dust and silicates, such as talc, kaolin, diatomaceous earth, and asbestos, are the other most important types in this group. (2) Pulmonary disease caused by organic dust: the most common forms in England are byssinosis and farmer's lung. (3) Pulmonary disease caused by industrial gases and fumes: typical examples are manganese pneumonitis, chronic cadmium emphysema, and silo-fillers' disease. In general the population at risk in these occupations is small. On the other hand, the number of workers in heavy and dusty industries who suffer from bronchitis is enormous. (4) Occupational lung cancer. The author discusses the subject under the following headings: Diagnosis of Industrial Chest Diseases, Occupational Histories, Radiological Evidence, Radiological Differential Diagnosis, Symptomatology, Respiratory Function Tests, Occupational Lung Cancer, Medical Treatment, and General Management. It is concluded that the answer to the vast medical and social problem of chronic chest disease caused or aggravated by industrial conditions is prevention, an aspect which is not within the terms of reference of this contribution. The record of England with regard to the basic principles of protection against noxious industrial dusts and fumes is impressive, and the epidemiological approach to the testing of these measures is mostly based on the pioneer work of British scientists. However, the thought that some men will soon breathe safely on the moon, while their earthbound fellows still become breathless in mines and factories, casts some doubts on the soundness of our sense of priorities. There are 68 references.

- 761 Surgical Treatment of Emphysema. P. Hugh-Jones, B.C. Ritchie, and C.T. Dollery. Brit. Med. J. 1, 1133-1137 (May 7, 1966).

An investigation was begun to assess the possible surgical alleviation of irreversible airways obstruction due to emphysema. Fifty-two patients were studied by clinical and radiological examination, together with general and regional lung function tests. The latter used radioactive xenon scans and measuring lobar function with a mass spectrometer at bronchoscopy. A total of 24 patients were submitted to operation for resection or plication of bullae or localized trans-radiant areas. Nine patients showed clear evidence of functional improvement. Subjective improvement correlated most closely with simple ventilatory tests although isolated cases showed more improvement in other areas. A notable finding was the improvement in five out of six patients with basal lesions.

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

#### SKIN DISEASES AND BURNS

- 762 Dogger Bank Itch Among Lowestoft Trawlermen. M.L. Newhouse. Brit. Med. J. 1, 1142-1145 (May 7, 1966).

The crews of 55 trawlers based at Lowestoft were interviewed. Of those interviewed, 32 (7.1%) were considered to be suffering from Dogger Bank itch. Of these, 18 were patch tested either with alcyonidium or serial dilutions of a homogenate of the seaweed-like colonies. Positive tests were obtained in each case. The rash of Dogger Bank itch was maculopapular and affected the hands and the flexor aspects of the forearms and face. Erythema, scaling and edema of eyelids were common. Contact with the alcyonidium occurs when it is hauled on to the deck with other contents of the trawl. Immediate treatment with fluocinolone and chloropheniramine maleate was successful.

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

- 763 Renal Lesions After Extensive Burns Under Consideration of Treatment With Low-Molecular-Weight Dextran. G. Birke and S.O. Liljedahl. *Schweiz. med. Wochschr.* 96, 525-532 (April 23, 1966).

Sixty-seven patients suffering from burns which exceeded in 30 patients 15% of the body surface are reported. Primary fluid therapy consisted of the administration of plasma, albumin, blood, electrolytes, and water. In 43 surviving patients diuresis varied between 1,500 and 2,000 ml./24 hr. during the first ten days. There was a marked rise in nonprotein nitrogen levels. Among the 24 patients who died, five definite and three suspected cases of tubular necrosis were observed. All of these cases had sustained deep burns covering 50% to 90% of body surface, with simultaneous extensive burning of the lungs. Two subjects who died after eight and 14 days, respectively, had markedly elevated nonprotein nitrogen values after the fifth day. The other cases showed only slight increases in nonprotein nitrogen. Diuresis fluctuated between 1,000 and 2,000 ml., but anuria developed during the day of death. Compared with the survivors, the patients who died displayed hypernatremia associated with reduced excretion of sodium in the urine. Four more patients suffering from burns, who were initially treated with a 10% solution of low-molecular-weight dextran (Rheomacrodex) are reported. In these patients oliguria developed at an earlier stage, with highly viscous urine, and in three of them anuria eventually occurred. The increase in nonprotein nitrogen occurred earlier when low-molecular-weight dextran was given and was more marked than in the patients treated with plasma. Two of the four patients died of tubular necrosis, while the third case reverted to normal after hemodialysis and the fourth after copious fluid administration.

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

#### CHEMICAL HAZARDS

- 764 Some C<sub>6</sub> Hydrocarbons of the Gas Phase of Cigarette Smoke. R.J. Philippe, R.G. Honeycutt, and J.M. Ruth. *J. Chromatog.* 20, 250-259 (Nov. 1965).

Fifteen C<sub>6</sub> hydrocarbons have been isolated from cigarette smoke by gas chromatography. Identification was based on information derived from retention times on two different columns and from infrared and mass spectra. Semiquantitative analytical data were obtained either by gas chromatography alone or in combination with mass spectrometric analyses. There are 15 references.

-- Public Health Eng. Absts.

- 765 Benzyl Esters, Indoles and Carbazoles in Cigarette Smoke. I. Schmeltz, et al. *Chem. Ind. (London)* No. 49, 2009-2010 (Dec. 4, 1965).

Two aromatic esters, benzyl benzoate and benzyl cinnamate, previously unreported in tobacco smoke have been isolated from the smoke of commercial American cigarettes. Seven references are given.

-- Public Health Eng. Absts.

- 766 Polonium-210 Content of Tobacco. A.P. Ermolaeva-Makovskaya, et al. *Gigiena i Sanit.* 30, No. 12, 40-43 (1965). Russian.

The paper deals with Po-210 content in certain Soviet-made and foreign cigarettes and tobaccos, as well as in cigarette ashes and filters. The average concentration of Po-210 in Soviet-made cigarette tobacco amounts to  $(4.3 \pm 1.0) \cdot 10^{-13}$  curie/gram. In the course of smoking, Po-210 is removed from the tobacco together with the smoke. The concentration of Po-210 in the ashes of cigarette tobacco amounts to  $(0.2 \pm 0.1) \cdot 10^{-13}$  curie/gram. The Po-210 content in the filter from smoked cigarettes equals  $0.6 \cdot 10^{-13}$  curie/filter. The cigarette filters practically do not retain this product.

-- Public Health Eng. Absts.

- 767 A Near-Fatal Case of Hydrogen Sulfide Poisoning. F.D. Kemper. *Can. Med. Assn. J.* 94, 1130-1131 (May 21, 1966).

A patient with acute hydrogen sulfide poisoning developed pulmonary edema, convulsions and myocardial damage. Traditional supportive therapy with oxygen was replaced by intensive procedures, including hypothermia and a respirator, as well as bronchial lavage and intravenous steroids. The outcome was favorable but sequelae in the form of mild depression and lassitude persisted for many months. Abnormalities of the electrocardiogram gradually disappeared over a period of several months. Amnesia for the day of the accident persists. Six references are given.

-- Author's summary

03122201

IN RE: ABRAMS November 1992

- 768 Fatal Hydrogen Sulfide Intoxication. Report of Three Cases Occurring in a Sewer. L. Adelson and I. Sunshine. Arch. Pathol. 81, 375-380 (May, 1966).

Exposure to high concentrations of hydrogen sulfide is as rapidly fatal as inhalation of hydrogen cyanide. Three young men died quickly from hydrogen sulfide intoxication after entering a sewer. At autopsy all had greenish cyanosis and greenish discoloration of the blood and viscera. The cerebral cortices and nuclear masses were strikingly greenish-purple, the abnormal color disappearing after the brain was immersed in formalin for 96 hours. Sulfhemoglobin is not formed following inhalation of hydrogen sulfide, and it is probable that some unstable sulfur-containing hemoglobin compound is responsible for the unusual hemic and visceral colors. Immediate central nervous system paralysis (including respiratory arrest) is the lethal mechanism in acute hydrogen sulfide poisoning. No person should enter any environment known or suspected to be contaminated with this compound without taking every safety precaution. There are 18 references. -- Authors' abstr.

- 769 Sulfur in U.S. Coals. F.A. Rohrman and J.H. Ludwig. Coal Age 70, 78-79 (Dec. 1965).

Average sulfur content of all coal distributed in 1964 was 1.95%. The future will bring increased use of coals in the higher ranges, accentuating the problem of coping with sulfur dioxide in controlling air pollution. -- Public Health Eng. Absts.

- 770 Occupational Poisoning With Inorganic Selenium Compounds. M. Keysser. Deut. Gesundheitswesen 20, 766-769 (April 29, 1965). German.

A review is presented of poisoning with inorganic selenium compounds. Therapy is symptomatic since there is no specific antidote. Two cases of selenium poisoning are described in detail. Early symptom in both cases was bronchial asthma. -- Aerospace Med. Absts.

- 771 Extensive Lung Damage After Seemingly Slight Poisoning by Nitrose Gases: Report of Two Cases. E. Fritze, C.H. Hammar, and K. Werner. Deut. Med. Wochschr. 91, 899-901 (May 13, 1966).

Two cases of extensive lung damage in miners after seemingly transient inhalation of nitrose gases (mixture of NO<sub>2</sub>, N<sub>2</sub>O<sub>4</sub>, NO, and N<sub>2</sub>O<sub>3</sub>) are described to illustrate the possibility of protracted respiratory disease occurring after brief exposure. Such cases do not follow a typical course, but mild forms of poisoning are radiologically characterized by diffuse, speckled, dense foci throughout all lung segments. The changes are clinically and radiologically reversible.

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

- 772 The Reaction of the Human Lung to Enriched Oxygen Atmosphere. P.C. Pratt. Ann. N.Y. Acad. Sci. 121, Art. 3, 809-820; discussion 821-822 (March 24, 1965).

A review of several consecutive series of autopsies in adults and children showed that a recognizable change in pulmonary morphology is present in most patients who have had oxygen therapy for one or more days immediately prior to death. The lesion includes congestion of capillaries and increased thickness of alveolar septa; it is interpreted as resulting from pulmonary capillary proliferation. Reasons are presented for interpreting this morphological change as a result of a physiological reaction to oxygen rather than a result of irritation, patchy atelectasis, or post-mortem change. Care must be taken in experimental work, especially with mice, to eliminate the possibility that gross changes might be of the post-mortem variety.-- Aerospace Med. Absts.

- 773 Mortality and Histopathology of Germ-Free Rats and Mice Exposed to 100% Oxygen. R.A. Wright, E.P. Hiatt, and H.S. Weiss. Proc. Soc. Exptl. Biol. Med. 122, 446-448 (June, 1966).

Germ-free rats and mice tended to die sooner and within a narrower time span than conventional animals on exposure to 100% oxygen, suggesting that chronic respiratory conditions may increase resistance to oxygen toxicity. Lung pathology of germ-free animals dying in oxygen appeared much like that of chronic respiratory infection, indicating that inflammatory cell infiltration of the alveolar wall can occur in animals presumed free of disease. -- Authors' summary

- 774 Arsenical Encephalopathy Due to Use of Milibis. M. Cole, Marianne Scheulein, and D.M. Kerwin. Arch. Internal Med. 117, 706-711 (May, 1966).

This report describes the first documented case of arsenical encephalopathy due to use of glycobiarsol (Milibis). The authors wish to reemphasize to a modern generation of physicians the dangers inherent in arsenical medications. No arsenical medication has been entirely free from serious toxicity. There are 33 references. -- Authors' summary

- 775 The Relationship of Mortality and Duration of Employment as Reflected by a Cohort of Chromate Workers. F.H. Taylor. *Am. J. Public Health* 56, 218-219 (Feb. 1966).

A study of chromate workers is reported in which the group was followed over a period of 24 years, with the use of records of Old Age and Survivors Disability Insurance. Mortality data were obtained through death certificates. The findings reported are consonant with previous studies on the relationship between health and employment in the chromate industry. Ten references are given.  
-- Public Health Eng. Absts.

- 776 Diagnosis of Excessive Lead Absorption by Use of Oral Calcium Disodium Versenate. J.D. Williams, D.A. Leigh, and G.A. Matthews. *Ann. Occ. Hyg. (London)* 9, 1-5 (Jan. 1966).

In order to assess the degree of lead absorption by lead workers 1 g. of Versenate was given orally and lead concentration determined in early morning specimens of urine collected before and after the dose. In non-exposed workers only small increases of lead concentration up to 80 micrograms/liter were found after Versenate. Increasing concentrations of urine lead were found after Versenate in men in whom standard tests for lead absorption showed increasing degrees of absorption. Levels of urine lead up to 1,500 micrograms/liter were found in men who were judged by other criteria as fit to continue working whereas when the standard tests showed excessive absorption the lead excretion post Versenate exceeded 1,760 micrograms/liter. The results of this test, the Versenate provocation test, were reproducible when it was carried out on 12 men at weekly intervals. It is suggested that this test may prove useful in detecting excessive lead absorption both in lead workers and non-industrially exposed persons.  
-- APCA Absts.

- 777 Mineral Oil in Human Tissues: I. Detection of Saturated Hydrocarbons Using Thin-Layer Chromatography. J.K. Boitnott and S. Margolis. *Bull. Johns Hopkins Hosp.* 118, 402-413 (May, 1966).

A specific, sensitive and rapid method, using thin-layer chromatography, for the detection and rough quantitation of saturated hydrocarbons in tissue lipids is described. This method is superior to previous methods used to study mineral oils (which are complex mixtures of liquidsaturated hydrocarbons) in tissues; its application to specific problems in human pathology is illustrated with several cases of lipoid pneumonia. Thin-layer chromatography can also be used to isolate saturated hydrocarbons. Analysis of the isolated hydrocarbons by other techniques allows the more specific identification of mineral oil since, unlike naturally occurring plant and animal hydrocarbons, mineral oil contains large amounts of polycycloalkanes.-- J. Am. Med. Assn. References & Reviews

- 778 Mineral Oil in Human Tissues: II. Oil Droplets in Lymph Nodes of the Porta Hepatis. J. K. Boitnott and S. Margolis. *Bull. Johns Hopkins Hosp.* 118, 414-422 (May, 1966).

Large oil droplets were found in lymph nodes removed from the porta hepatis in 78% of a series including 49 autopsied adults. In each case the droplets stained with oil Red O, but did not stain with osmium tetroxide, suggesting that they represent deposits of saturated lipids. Saturated hydrocarbons were detected, using thin-layer chromatography, in all of the lymph nodes; the amount of saturated hydrocarbons present correlated closely with the presence and extent of the oil droplets. In each of three cases, mass spectrometric analyses of the saturated hydrocarbons indicated a composition typical of mineral oil. Mineral oil is widely used in the food industry, and this use is currently estimated to lead to the ingestion of nearly 50 gm. of mineral oil per capita per year in this country. This, along with medicinal usage, appears adequate to account for the high frequency of the histological lesions and suggests that they may be due to mineral oil.  
-- J. Am. Med. Assn. References & Reviews

- 779 Effect of p-Hydroxypropiophenone on Fibrosis Induced by Carbon Tetrachloride in Mice. N. J. Unakar. *Am. J. Pathol.* 48, 897-910 (June, 1966).

It has been shown that p-hydroxypropiophenone (PHP) inhibited liver fibrosis in rats fed dimethylaminoazobenzene (DAB). The effect of PHP on hepatic fibrosis induced in mice by carbon tetrachloride (CCl<sub>4</sub>) was investigated. A group of mice were fed a semisynthetic diet containing 1% PHP; another group was given the same diet but without PHP. All these mice received repeat oral or subcut administration of 0.1 ml. of 40% CCl<sub>4</sub> in olive oil three times weekly. PHP had a striking effect on fibrogenesis induced by CCl<sub>4</sub>. Light and electron microscopy exhibited a large quantity of reticulin fibers in the liver even after 54 doses of CCl<sub>4</sub>, but there were few well-developed collagen fibers. At the same stage of CCl<sub>4</sub> treatment, but without PHP, there were few reticulin fibers but an abundance of well-developed collagen in the liver. Therefore, PHP interferes with the normal maturation of collagen during the process of fibrogenesis.  
-- J. Am. Med. Assn. References & Reviews

- 780 Bromide Residues From Methyl Bromide Fumigations of Cocoa Beans, and Processed Fractions From Fumigated Beans. M.E. Getzendaner. J. Agr. Food Chem. 14, 56-58 (Jan. -Feb. 1966).

Cocoa beans were fumigated with methyl bromide in a series of studies. Bromide residues were determined on the beans and their fractions after milling. Under the conditions used, bromide residues in cocoa beans did not exceed the tolerance of 50 ppm after fumigation five times with 1.5 lb. of methyl bromide per 1,000 cu. ft. for 24 hr., 7.5 lb. in one fumigation, or with 4.5 lb. for 24 hr. followed by 4.5 lb. for 12 hr. The shells from fumigated beans contained four to six times the amount of residue in the whole bean. Cocoa had a residue level about the same as the fumigated beans, and the other fractions all had lower residues. Reducing the chamber load from 75% to 15% did not affect the residue deposition. Six references are given.

-- Public Health Eng. Absts.

- 781 Bromide Residues From Methyl Bromide Fumigations of Fruits and Vegetables Subjected to Quarantine Schedules. M.E. Getzendaner and H.H. Richardson. J. Agr. Food Chem. 14, 59-62 (Jan. -Feb. 1966).

Fruits and vegetables were fumigated with methyl bromide employing schedules with different dose rate, time, pressure, and chamber load; samples were then analyzed to determine bromide residues. After fumigation under atmospheric pressure, most fruits and vegetables showed net residues of less than 25 ppm, with yams going to 29 ppm. Sweet corn and peas were in the range of 30 to 40 ppm. Cipollini fumigated under vacuum ranged from 0 to 48 ppm and garlic, from 2 to 11 ppm. There are 19 references.

-- Public Health Eng. Absts.

- 782 The Epping Jaundice. H. Kopelman, et al. Brit. Med. J. 1, 514-516 (Feb. 26, 1966).

An outbreak of jaundice occurred in the Epping district of Essex in February 1965. Eighty-four persons are known to have been affected and the clinical presentation, investigations, and course of the disease are briefly described. Liver biopsy showed unique histological features. All those affected had eaten wholemeal bread made at an Epping bakery. A sack of flour from which the wholemeal bread was made had been delivered to the bakery in the same van as that used on the same day for transporting a plastic jar containing 4,4'-diaminodiphenylmethane, which was found to have been spilt in the van. Investigations leading to the identification of this substance in the bread are briefly discussed.

-- Authors' summary

- 783 Death Due to a Pesticide. G.A. Reich and J.O. Welke. New Engl. J. Med. 274, 1432 (June 23, 1966).

This is believed to be the first report of a fatality due to a new carbamate pesticide. It concerns a 17-year old Cuban boy who had ingested, with suicidal intent, about 8 ounces of an "experimental" pesticide called Zectran 2E. The composition of this pesticide is given as a solution of 4-dimethylamino-3,5-xylomethylcarbamate, 22%, aromatic petroleum derivatives, 31%, and "inert ingredients," 47%. The patient was taken to the emergency room of a hospital. He remained comatose. He had bilateral pinpoint pupils and an irregular heartbeat. A film of the chest showed marked pulmonary edema. Emergency procedures restored a regular heart rhythm. A Bird respirator was used after a tracheostomy for pulmonary ventilation. Sinus bradycardia developed later, with recurrent heart failure. He died approximately 3-1/2 hours after admission, about 4 to 4-1/2 hours after ingestion of the liquid.

- 784 Water Hemlock Poisoning. P. Robson. Lancet 2, 1274-1275 (Dec. 18, 1965).

Two cases of water hemlock poisoning are described. The plant, a powerful convulsant, is difficult to identify because it looks like a parsnip and it smells like celery. There are six references.

-- Public Health Eng. Absts.

- 785 An Episode of Food Poisoning Attributed to Imported Mushrooms. E.K. Rose and F. Rieders. Ann. Internal Med. 64, 372 (1966).

An epidemiologic study of an outbreak of food poisoning in which muscarine was probably involved is reported in this paper. Symptoms are described, including slight degrees of headache, bi-temporal pressure and various neuromuscular disturbances. The steps which led to the detection of the most probable etiologic agent are outlined. It was found to be imported mushrooms. Mushroom poisoning is discussed, and various other types of food poisoning are tabulated according to the time of the appearance of their symptoms. The authors express the hope that the preferred use of homegrown mushrooms, the early recognition of muscarine poisoning, and the prompt use of atropine, may help to avoid such difficulties in the future.

-- Can. Med. Assn. J. Absts.

## INDUSTRIAL DUSTS

- 786 Microscreening With Ultrasonics. E. Loos. Staub 25, 540-543 (Dec. 1965). German.

A method for ultrasonic microscreening is reported, and a device is described that makes it possible to carry out particle size analyses down to five millimicrons by means of sieves arranged vertically above one another. A comparison of the results of this particle size analysis with those obtained by sedimentation analysis by Andreasen and with microphotographs shows that the ultrasonic microscreening permits dust to be investigated or fractionated with regard to its fineness.  
-- Public Health Eng. Absts.

- 787 Experimental Study of the Dust Clearing Mechanism of the Lung. I. Histological Study in Rats of the Intra-Pulmonary Bronchial Route of Elimination. P.J. Brundeleit. Acta Pathol. Microbiol. Scand. Suppl. 175, 1-141 (1965).

The intra-pulmonary bronchial route of dust elimination was histologically studied as part of an experimental investigation of the dust clearance mechanism of the lung. Rats were used for this purpose and were injected intra-tracheally with Trypan blue and carmin red. Control series with intra-tracheal injections of saline solution and no injections at all were also studied. Studies of rat lung from the control groups revealed no striking differences when compared with the rats injected with dyes. After a short early period with some differences, due to the solubility of Trypan blue and insolubility of carmin red, once the dyes had been taken up by the macrophages the ultimate behavior of these dust cells appeared to be identical. Studies of the rat lungs showed peribronchial lymphoid foci with opening mouths and an outpouring of cells into the bronchial lumina in practically every lung specimen examined whether from treated or control animals. This elimination of dye-laden macrophages via the opening mouths of the peribronchial lymphoid foci was observed to occur mainly in moderately distal and central peribronchial lymphoid foci. The reason for this route of dust elimination is thought to be the fact that many dust cells reaching the alveolar lumina (which have no ciliated epithelium), are probably unable to go straight into the part of the bronchial tree which is lined by ciliated epithelium, while in this way they are reaching (after an intra-pulmonary phase traveling in between the bronchial epithelial cells to reach the bronchial lumina) a part of the bronchial tree lined with ciliated epithelium and which is therefore able to help the further progression of the dust cells toward the trachea. From this study it is concluded that most (if not all) of the dust brought into the lung via the bronchi is returned to the bronchi by the lung.  
-- APCA Absts.

- 788 Asbestos Induced Tumors in White Leghorn Fowls. P.R. Peacock and A. Peacock. Ann. N.Y. Acad. Sci. 132, 501-503 (Dec. 1965).

The anatomy of birds differs from that of mammals in that there are multiple air sacs in direct communication with the lungs, with a system of primary and recurrent bronchi. Physiologically the respiratory cycle consists of inspiration through the primary bronchi directly into the air sacs followed by forcible expiration when the air sacs return the air through the recurrent bronchi which lead to the pulmonary alveoli where the exchange takes place. The reaction of the mesothelial and pulmonary epithelial tissues of fowls to asbestos was investigated. The technique has proved satisfactory for this type of study.  
-- APCA Absts. modified

- 789 Neoplasia Among Insulation Workers in the United States With Special Reference to Intra-Abdominal Neoplasia. E.C. Hammond, I.J. Selikoff, and J. Churg. Ann. N.Y. Acad. Sci. 132, 519-525 (Dec. 1965).

Malignant neoplasms produced by exposure to chemical agents or ionizing radiation typically have a long latent period and there is a long delay between first exposure and the appearance of the neoplasm. The probability that neoplasia will occur and how soon it appears generally depends upon the degree of exposure. The early reports apparently concerned workers who were heavily exposed to asbestos dust. Pulmonary diseases including tuberculosis and pneumonia were among the leading causes of death.  
-- APCA Absts.

- 790 Asbestos as an Urban Air Contaminant. J.G. Thomson and W.M. Graves, Jr. Arch. Pathol. 81, 458-464 (May, 1966).

Asbestos bodies were demonstrated in smears from the lung bases in 20% of the females and 30% of the males of 500 consecutive autopsies in subjects of 15 years or over in Miami, Florida. In the great majority of these cases, including all the females, the asbestos bodies were scanty,

were not associated with any pulmonary changes, and were regarded as the result of contamination of the urban atmosphere by asbestos. In 6% of all males examined the asbestos bodies were numerous and were presumably of occupational origin. It is suggested that both urban air contamination and industrial exposure to asbestos are likely to increase in the future, in view of the increasing consumption and diversity of uses of asbestos and asbestos-containing products and of its virtual indestructibility. An increase in the frequency of malignant mesothelioma of pleura and peritoneum is forecast rather than pulmonary disease or disability. -- Authors' summary

**Editor's Note:** Dr. Gross, Director of the Foundation's Research Laboratory, has submitted a letter to the editor disagreeing with several of this article's assumptions and conclusions. The authors state: "The suspicion that asbestos fibers are now a hazard of urban living is confirmed more amply than expected" and, in another place, "There are statements in the literature on asbestos mainly by people other than pathologists that the asbestos body is nonspecific. These opinions are not held by histopathologists today." An editorial in the same issue, entitled "Progressive Metamorphosis," encourages letters to the editor, suggesting that "The airing of some controversial subject in a communication may on occasion prove of even more value than the original." Digest readers should, therefore, be alert to the existence and availability of opposing opinions on several important areas covered. -- RTP deT

#### PHYSICAL ASPECTS OF THE ENVIRONMENT

- 791 Heat Stroke. P.G. Gottschalk and J.E. Thomas. Mayo Clinic Proc. 41, 470-482 (July, 1966).

Of the three major heat diseases (heat cramps, heat exhaustion, and heat stroke), heat stroke is the most serious. Its pathogenesis probably involves a failure of the heat-regulating mechanism of the hypothalamus association with cessation of sweating followed by thermal and anoxic damage to various organs. Predisposing factors include various surgical procedures, hydrotherapy, febrile illness, congenital absence of sweat glands, ingestion of alcohol, physical exertion, treatment with anticholinergic agents, unfavorable weather conditions, and lack of acclimatization to high environmental temperature. Although heat stroke may occur suddenly without prodromata, numerous warning symptoms may precede it—for example, faintness, headache, anorexia, diarrhea, staggering gait, mental confusion, and polyuria. Body temperature usually exceeds 106°F. (41.1°C.), the skin is hot and dry, and breathing is rapid. Nearly always, the patient manifests some disturbance of consciousness and other neurologic dysfunction. Cardiovascular changes include hypotension and tachycardia, congestive failure, electrocardiographic abnormalities, and myocardial infarction which may occur even in the absence of coronary disease. There often are evidences of renal, hepatic, and hematologic dysfunction. Rapid reduction of body temperature is the first goal of therapy. This is achieved by immersion in or sponging with cold water or by fanning. Auxiliary measures include the maintenance of a clear airway in the comatose patient, digitalization of the patient having congestive failure, and dialysis for the patient having severe renal failure. In short, treatment depends on the problems presented in the particular case. As dehydration is ordinarily not a problem in heat stroke, care should be taken to avoid overhydration which could precipitate pulmonary edema. There are 63 references. -- Authors' summary

- 792 Task Interruption and Performance Decrement Following Rapid Decompression. W.F. O'Connor and G.E. Pendergrass. Aerospace Med. 37, 615-617 (June, 1966).

Sixteen subjects, active pilots and flight crew personnel, were decompressed to altitudes of 25, 27, 30, 35, or 41 thousand feet while performing a task on the Scow coordinator. All subjects were current on their medical qualifications, and all but two were physiologically trained. Results showed a marked decrement in performance following decompression, with the decrement increasing as decompression altitude increased and persisting for 3-4 minutes. Measuring only mask-donning time underestimates the performance gap following decompression. Estimates of the performance gap were found to agree with value obtained by Bennett in his study of aircraft decompressions. -- Authors' abst.

- 793 Enzyme Substrate Reactions in High Magnetic Fields. J.E. Maling, M. Weissbluth, and E.E. Jacobs. Biophysical J. 5, 767-776 (Nov. 1965).

The reaction rates of two enzyme substrate systems, ribonuclease-RNA and succinate-cytochrome c reductase were followed as a function of magnetic field from zero to 48,000 gauss. The reaction remained constant to within 10%. There are 11 references. -- Aerospace Med. Absts.

- 794 A Biomagnetic Hypothesis. R. L. Liboff. *Biophysical J.* 5, 845-853 (Nov. 1965).

A hypothesis is suggested to explain the inhibiting effect which magnetic fields have on the growth rate of cells. The mechanism is based on the influence a magnetic field has on the diffusion of charged particles. Electric fields originating within the cell are used to simulate an active transport mechanism. Estimates indicate that the dynamics of cells with charged cytoplasm are significantly perturbed by magnetic fields of the order of  $10^5$  gauss. There are 21 references.

-- Aerospace Med. Absts.

- 795 Investigation of the Permeability of Human Skin to Infrared Radiation. Yu S. Chernyaev. *Gigiena i Sanit.* 30, No. 12, 20-24 (1965). Russian.

The paper presents the findings of spectrographic investigations of sections of epidermis, dermis, and subcutaneous connective tissue of man for permeability to infrared radiations with wavelengths of 0.75 to 25 microns. In this range of wavelength, there were five parts with high permeability: 0.75 to 2.7; 3.5 to 5.6; 5.8 to 6.7; 9.0 to 13.5, and 14.5 to 25 microns. It was found that the spectral permeability characteristics of epidermis differed significantly from that of the dermis and the subcutaneous connective tissue. As a rule epidermis proved to be less permeable for all the investigated range of the infrared spectrum. Eight references are given.

-- Public Health Eng. Absts.

- 796 The Effect of Laser Radiation on the Retinal Vasculature: Animal and Clinical Studies. F. A. L'Esperance, Jr. *Arch Ophthalmol.* 74, 752-759 (Dec. 1965).

Experimental evidence indicates that the effect of laser radiation on the retinal vasculature depends upon the proximity of the pigment epithelium or melanocytes to the blood vessel, the rate of blood flow, the amount of reduced hemoglobin present, and the intensity of the incident beam. Elevated areas of neovascularization and large retinal angiomas were not effectively treated during the one-year study. Most microaneurysms, a small percentage of the flat areas of neovascularization, and retinal angiomas less than two disc diameters in size were obliterated by the coagulation effect of laser radiation. There are 12 references.

-- Aerospace Med. Absts.

- 797 Cutaneous Sound Localization. G. A. Gescheider. *J. Exptl. Psychol.* 70, 617-625 (Dec. 1965).

Cutaneous sound localization when stimuli were delivered to the skin through a pair of vibrators was compared with auditory localization when stimuli were presented through earphones. Auditory localization was more precise for random noise bursts than for low-frequency tones. Cutaneous localization, however, was as accurate for the tone as for the noise stimuli. Cutaneous localization of low tones was a great deal more precise than auditory localization of low tones. Localization of noise bursts, however, was slightly more accurately performed by the ears. Independent manipulation of intensity and temporal-difference cues revealed that auditory localization was influenced by both types of cue. Cutaneous localization was found to depend mainly on intensity differences. Small time-difference effects were observed, however, and were found to depend on the locus of stimulation.

-- Aerospace Med. Absts.

#### RADIOACTIVITY AND X-RADIATION

- 798 Regulations Governing Ionizing Radiations. P. Recht. *Health Physics* 12, 65-75 (Jan. 1966).

The general principles underlying a radioactive safeguards policy are dominated by the concept of prevention, which relates to both nuclear accidents and chronic exposure. The notion of calculated risk is discussed. The practical implementing measures as embodied in regulations are based on the definition of the field of activity, notification or authorization of such activities, the establishment of maximum levels, the organization of safeguards procedures by competent persons, and the obligation to promote training and information with regard to the radioactive hazard. The European Atomic Energy Community, commonly known as Euratom, was set up in 1958. It is particularly active in the field of regulations with respect to six European countries, and the author gives a more explicit account of the different general principles and the manner in which they are now implemented under the various European laws that have been enacted in line with the Basic Standards promulgated by Euratom in 1959. There are six appendices.

-- Public Health Eng. Absts.

03122207

- 799 Radiobiological Aspects of the Supersonic Transport. A. C. Upton.  
Health Physics 12, 209-226 (Feb. 1966).

The high cruising altitude of the supersonic transport (SST) will subject its occupants to larger amounts of cosmic radiation than are present at sea level or at altitudes attained by today's commercial jet aircraft. The passengers and crew of the SST will be exposed not only to increased amounts of gamma rays, but also to particulate radiations. The Task Group's assessment of the health implications of the SST take into account the amount, relative biological effectiveness and probable effect of these radiations, and the factors affecting the cumulative exposure and radiosensitivity of the exposed population. Radiation doses that may be received by passengers and crew of the SST are compared with the maximum permissible doses recommended by the ICRP for radiation workers and the public. There are 46 references. --Public Health Eng. Absts.

#### ENVIRONMENTAL MEASUREMENTS

- 800 Absorption of Hydrogen Sulfide and Methyl Mercaptan from Dilute Gas Mixtures. G. A. Jensen, D. F. Adams, and H. Stern. J. Air Poll. Control Assn. 16, 248-253 (May, 1966).

The absorption of hydrogen sulfide and methyl mercaptan by aqueous solutions of chlorine, sodium hydroxide, and chlorine plus sodium hydroxide was studied using a two-inch diameter absorption column packed with 1/4-inch intalox saddles. Absorption rates were noticeable affected by chemical reactions occurring in the aqueous chlorine and hydroxide media. These solutions were studied as a means of controlling sulfur-containing gas emissions from kraft paper mills. The absorption studies indicated that aqueous chlorine solutions at a pH above 12 were effective absorbents for hydrogen sulfide removal in absorption equipment designed to tolerate sulfur in suspension. The absorption of methyl mercaptan in aqueous chlorine solutions appeared to be impractical since dimethyl disulfide was apparently the only product formed and was stripped from the tower by the gas stream. Sodium hydroxide solution was an effective absorbent for both methyl mercaptan and hydrogen sulfide when hydroxide to sulfide or mercaptan feed ratios were greater than 1 or 1.8, respectively. The mercaptan absorption coefficient was approximately twice that for sulfide absorption.

-- Authors' abst.

- 801 The Effect of Analytical Method on Indicated Atmospheric SO<sub>2</sub> Concentration. S. Hochheiser, J. Santner, and W. F. Ludmann. J. Air Poll. Control Assn. 16, 266-271 (May, 1966).

Atmospheric samples collected in several American cities were analyzed for SO<sub>2</sub> concentrations using various analytical methods. The methods were: (1) electroconductivity, (2) West-Gaeke, (3) West-Gaeke with membrane prefilter, (4) West-Gaeke with glassfiber prefilter, (5) hydrogen peroxide, (6) hydrogen peroxide with membrane prefilter, and (7) hydrogen peroxide with glass-fiber prefilter. The relationships among SO<sub>2</sub> data produced by these methods were evaluated statistically. Where statistical differences among methods, at the 95% confidence level, were determined then relationships were further delineated. Factors considered in these comparisons were: (1) location, (2) time of day, (3) concentration range, (4) particulate concentration, and (5) humidity. Laboratory evaluations of these methods show that each method is subject to different interfering substances. The relationship among methods obtained in these studies will complement these data and perhaps provide for further laboratory and field evaluation of methods used to measure SO<sub>2</sub>. The relationship among SO<sub>2</sub> data produced by these methods should be useful in relating atmospheric SO<sub>2</sub> concentration to its effects and to those involved in establishing ambient air quality standards. There are 16 references.

-- Authors' abst.

#### PREVENTIVE ENGINEERING

- 802 Infections Acquired in Medical Wards. Anonymous. J. Hyg. 63, 457-477 (Dec. 1965).

A study of infections acquired by patients in medical wards was made from records of 6,740 admissions to 21 wards in 13 hospitals. Of the 384 clinical infections, 135 of them were of the lower respiratory tract, 72 were septic skin lesions or infected wounds, and 81 were of the urinary tract. There were 110 acquired infections of Staphylococcus aureus. Hospital wards should be built to isolate as many patients as possible from each other. There are 19 references.

-- Public Health Eng. Absts.

03122208

- 803 Air Sterilization Equipment for Hospitals, Laboratories, Clean Rooms. M. Meckler.  
Air Cond. Heat & Vent. 62, 81-86 (Dec. 1965).

A survey is made of commercially available methods to remove airborne microorganisms. This guide to selecting equipment includes the following methods: air filtration, water scrubbing, chemical scrubbing, electrostatic precipitation, incineration, ultraviolet radiation, gamma radiation, and ionization. Four references are given. -- Public Health Eng. Absts.

#### COMMUNITY AIR HYGIENE

- 804 Fumifugium or, the Inconvenience of the Aer and Smoake of London Dissipated. J. Evelyn.  
J. Chronic Diseases 18, 1235-1258 (Dec. 1965).

This is a reprinting of the 1661 treatise of John Evelyn warning King Charles II (1660-1685) that the lungs of Londoners, as well as their trees would suffer from the smoke, which was even then polluting the British air. There is an introduction by Louis Lasagna.-- Public Health Eng. Absts.

- 805 Education and Publicity for Keeping the Air Clean. A. Marsh.  
Staub 25, 476-480 (Nov. 1965). German.

The air pollution problem in Great Britain is outlined; all educational and publicity activities are seen mainly as means for creating a public opinion favorable to support measures against air pollution. The efforts should be concentrated and not diffused over too wide a field. The provision of information to the press, radio, and television as well as specialized publicity directed at influential groups is considered. The author discusses the value of technical educational work as well as the question how this may be linked with more popular propaganda. In conclusion mention is made of the most recent British activities. -- Public Health Eng. Absts.

- 806 An Evaluation of Techniques for the Determination of the Photochemical Reactivity of Organic Emissions. A.P. Altshuller. J. Air Poll. Control Assn. 16, 257-260 (May, 1966).

The concept that control of organic substances in emissions should be based on the relative ability to cause the effects associated with photochemical air pollution (reactivity) rather than on gross emission levels has gained wide acceptance. Two general types of reactivity response scales have been proposed. One of these is based on rates of hydrocarbon reaction or nitrogen dioxide formation. This scale covers a wide range because of the very high rates associated with olefins having internal double bonds. The other scale is based on product yields combined with biological effect measurements. This type of scale is considered superior to one based on rates. This latter scale covers a narrow response range because olefins with internal double bonds have only slightly higher product yields and biological effects than do other reactive olefins and alkylbenzenes. Use of a response scale based on product yields and biological effects also permits use of less detailed instrumental procedures. A simple subtractive column technique combined with a flame ionization analyzer should be sufficient to estimate hydrocarbon emissions. Gas chromatographic analyses of hydrocarbon emissions are of value when used with either type of reactivity response scale. However, detailed gas chromatographic analyses are essential for a response scale based on rates. The response scale based on product yields and biological effects indicates much less improvement in reactivity from fuel composition changes than would be predicted from a response scale based on rates. The most desirable approach is to use a variety of control and engine modification techniques to reduce all reactive organics to the lowest level possible. There are 20 references. -- Author's abst.

- 807 Air Monitoring Reflects Air Pollution Control Activity. B.D. Tebbens.  
J. Air Poll. Control Assn. 16, 261-262 (May, 1966).

Data from 10 years of monitoring airborne particulates demonstrate that the control of emissions of particulates by regulatory action was paralleled by improved air quality. To be effective in demonstrating improvement in air quality, air monitoring should begin several years in advance of control activities. -- Author's conclusion

- 808 The Variability of Dustfall Analysis Due to the Container and the Collecting Fluid. J. Stockham, S. Radner, and E. Grove. J. Air Poll. Control Assn. 16, 263-265 (May, 1966).

As part of their air pollution control program, many communities monitor the course dust content of the atmosphere by simply exposing an open vessel to the atmosphere for an extended period of time. The material collected and retained by a fluid layer is then weighted and chemically

analyzed. In this study a statistical approach was used to separate the real and significant effects of different container-fluid combinations on both the magnitude of dust fall and its composition. -- Authors' abst.

- 809 Soiling Potential—A New Method for Measuring Smoke Emission. C. W. Gruber and C. E. Schumann. J. Air Poll. Control Assn. 16, 272-275 (May, 1966).

There is a growing interest in effects of sub-micron, nonsettling particles in the atmosphere among air pollution control agencies throughout the country. This type of pollution, generally referred to as the "soiling index" of the atmosphere, is produced primarily by the incomplete combustion of fuels. The measurement procedure has been fairly well standardized, the values being reported as Cohs or Ruds per 1,000 linear feet of air. Using a similar technique, a method of quantitating smoke emission in objective terms first demonstrated by W. C. L. Hemeon in 1953, has been applied to source testing at several operating plants by the Cincinnati Division of Air Pollution Control. The source strength will be called "soiling potential" while the effect in the general atmosphere is termed "soiling index." The soiling potential unit is Rud-ft.<sup>2</sup> per cubic foot exhaust gases or Rud-ft.<sup>2</sup> per unit of fuel input. The "Soiling Potential" sampler is described and results of tests are given. Included is the use of soiling potential in quantitating smoke emission from single sources and for constructing area wide inventory of smoke emission. The use of an area wide smoke emission inventory in Rud-ft.<sup>2</sup> in a simple diffusion model for calculating the soiling index (Rud-ft.<sup>2</sup>/1,000 cu. ft.) in the general atmosphere at a given point is explored.

-- Authors' abst.

- 810 People and Air Pollution: A Study of Attitudes in Buffalo, N. Y. I. Degroot, et al. J. Air Poll. Control Assn. 16, 245-247 (May, 1966).

The information presented in this paper should be of immediate and future use to those responsible for air pollution control in developing a picture of what their own community thinks, feels, and wants concerning air pollution. The method of the 1962 study is a relatively simple approach for a self-survey applicable to many communities for obtaining information. Telephone interviewing is workable for this problem and will provide reasonable estimates of the prevalence of concern. And concern is the genesis of community action. The respondents in Buffalo were highly concerned about the possible effects of air pollution on their health and property. People seemed to agree quite universally that control is a "good thing." They did need information that such control in fact can be achieved. It is this that they lacked. As with unemployment and other high-level community concerns, they lacked confidence in the fact that something could be done. But there was general agreement that something should be done. -- Cond. from authors' conclusions

- 811 Developing Abatement Policies Under the Clean Air Act. W. H. Megonnell. J. Air Poll. Control Assn. 16, 254-256 (May, 1966).

At the beginning of the federal program in 1955, air pollution was viewed as a technical challenge. While technical problems remain, emphasis is shifting toward the social challenge. The degree of federal assistance now available to states and municipalities, under the Clean Air Act, is of broadened scope and higher order of magnitude; it is not confined to technical considerations, but has been expanded to take cognizance of political and economic obstacles that often block the path toward better air pollution control.

-- Author's abst.

- 812 Kinetic Analysis of Odor Formation in the Kraft Pulping Process. W. T. McKean, Jr., B. F. Hrutfiord, and K. V. Sarkanen. TAPPI 48, 699-704 (Dec. 1965).

The authors report on factors influencing odor formation in a digester. The kinetics of the consecutive formation of methyl mercaptan and dimethyl sulfide at constant liquor composition were determined at several temperatures with the use of a novel gas analysis technique based on vapor phase sampling. Comparison of kraft pulping of softwood and hardwood species shows that more organic sulfur compounds are produced from the latter group. In softwood pulping, a general enhancement in the reactivity of the lignin methoxyls occurs during the alkaline delignification process, which results in accelerated odor formation during the last phase of pulping. The activation energies of these reactions suggest that a substantial reduction in the total formation of organic sulfur compounds may be accomplished by raising the reaction temperature and shortening the time of the kraft cook. The applications of the results to actual kraft pulping process include: maximizing cooking temperature, minimizing cooking time and sulfidity, and improving oxidation of black liquor early in the evaporation phase. There are 27 references.

-- Public Health Eng. Absts.

## MANAGEMENT ASPECTS

- 813 Principles of Management Applied to Industrial Safety. A. C. Faull.  
J. Am. Soc. Safety Eng. 11, 20-24 (June, 1966).

Safety should never be regarded as a mere part of administration any more than it is merely part of a foreman's job. Safety activities should always be directed at a better way of working together. Safety specialists must be willing to constantly look at the whole problem. In fact, should not everyone in industry be looking at the whole problem through the eyes of their own department? It once was thought that each man should confine himself to the problems of his own department, but unless we are prepared to develop specialists, give each specialist some broad knowledge of the functions of their colleagues, unless we accept each other as specialists, and be prepared to interact with each other, our progress must be very limited. Do not despair because you think that management does not understand as much as you do about safety—if you did not understand more, management would have no real use for your services. Don't adapt your principles to a situation—they are too important for that. Don't expect a situation to adapt itself to your principles—they are not so important as that. Adapt every situation to your objectives, and take account of that reciprocal adjustment which means a change in both the situation and in yourself.

-- Author's conclusion

- 814 Developing a Sound Safety Program. R. DeReamer.  
J. Am. Soc. Safety Eng. 11, 9-11 (July, 1966).

There is much evidence available to support the theory that by motivating all levels of management to take a more active role in the safety program significant improvements can be achieved in safety performance. Recently, a president of a lighting fixture company, employing 800 people, reported his success with a "management" approach to safety. In a three-year period after placing safety responsibility squarely on the shoulders of his first-line supervisors, disabling injuries were reduced from a high of 37 per million hours worked to a low of five per million hours. To achieve similar results the following must be done: Apply the same management principles to safety that are applied to cost, quality control and protection. Emphasize by what we say and do that safety is mainly a responsibility of first-line supervisors. Maintain a program which teaches managers the nature of their responsibility. Make safety training on a personalized basis. Enforce the realistic safety rules. Define and establish the safety officer's job as a truly staff function. Safety people must realize that they are in place to help managers and supervisors find solutions to the manager's safety problems. The challenge before us is great. Much has been accomplished in safety, but there is much more that remains to be done. Safety must become a way of life for all of us. It must guide our actions at work, at home, on our streets and highways and at play. It must include our family, our friends and our neighbors. And finally, safety personnel everywhere must reaffirm and advance the basic premise that accidents are caused and they can be prevented.

-- Author's conclusions

- 815 Managing Safety Through Objectives. A. K. Dekom.  
J. Am. Soc. Safety Eng. 11, 14-15 (July, 1966).

Objectives constitute the key measurements of a function. They tend to define costs, activities and achievements of that function. The Safety Department exists for the purpose of conserving life, minimizing injury and preventing losses. It performs this function by appraising the accident problems, prescribing accident prevention and loss control programs, developing means of communicating accident prevention program information and evaluating the effectiveness of such programs in preventing injury and loss of life in the work force. Safety work is performed in many ways: investigation and identification of hazards and unsafe acts, prescription of preventive and control measures, education and communication, and evaluation of safety performance. Safety is the result of the proper interaction of these, as applied both to men as well as machines. Investigative work is carried on to identify hazards and unsafe practices; designate protective devices and safe procedures; analyze past accidents and injuries; conduct research studies of accident prevention problems. Through improvement targets, certain aspects of a company's safety program can be emphasized. Objectives stated in writing tell subordinates what top management expects of them and in what measure, and gives the dedicated men and women in the Safety Department the assurance that their efforts on behalf of their company are measured, recognized and rewarded.

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## ACCIDENTS AND PREVENTION

- 816 The Seat Belt Syndrome—Does It Exist? J. Fish and R. H. Wright.  
J. Trauma 5, 746-760 (Nov. 1965).

Four cases of intra-abdominal injury in an aircraft accident are described. In these four cases, there exists the distinct possibility that the injuries resulted from the restraining action of the seat belt. The pattern of injury included lower abdominal wall and flank contusions, rupture of the distal small intestine and tears of the mesentery. Two of the cases presented acute clinical shock resulting from bleeding from the lacerated mesentery. The other two cases had abdominal pain which failed to resolve and developed out of proportion to the abdominal wall injury. The latter two cases had ruptures of the ileum. The fact that seat belts may be responsible for a few injuries should not detract from the greater role seat belts play in reducing the overall number and severity of injuries. A history of the circumstances of the accident, together with the presence of lower abdominal wall contusions, should alert the examiner to the possibility of lower torso injury.

-- Aerospace Med. Absts.

- 817 Relationship Between Character and Behavior Disorder and Aircraft Accidents: An Illustrative Case. P. B. Kaplan. Aerospace Med. 37, 613-614 (June, 1966).

An illustrative case of a pilot with a character and behavior disorder involved in a fatal general aviation accident is used to emphasize the importance this problem may play in aviation safety. Of 8,199 causes for general aviation accidents listed by the CAB in its Statistical Review for 1963, 1,162 of them were involved in the 482 fatal general aviation accidents in 1963; 715 of these causes involved pilot (619), medical (60), and "undetermined" (36) factors. It is postulated that a better method of screening such applicants with character and behavior disorders might result in a reduced accident rate, since these 715 causes are largely related to areas of judgment and adherence to regulations, as well as to skill factors.

-- Author's abst.

- 818 Improving the Worker's Emotional Environment. A. S. MacPherson.  
Ind. Med. & Surg. 35, 259-261 (April, 1966).

It is well known that the majority of accidents are not the result of Act of God or mechanical failure, but are the result of human error. It is well described in psychiatry that most errors are not accidental, but in fact are psychically determined. The psychic factors involved may either be in the individual or in his environment, usually they involve an interaction of the two. The psychiatric literature of the past ten years indicates more and more that in psychiatric hospitals, psychiatric accidents such as suicides, outbursts of violence and other disturbed behavior, are related to the social environment of the patient. It is postulated that these outbursts differ very little from the industrial accident. Techniques used in mental hospitals to minimize psychiatric accidents are described and their application to industry is suggested.

-- Author's conclusion

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