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# *Industrial Hygiene Digest*

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

JANUARY, 1961

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INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

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IN THE ABSTRACTS

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Industrial Hygiene Foundation assumes no responsibility for statements in articles abstracted in this Digest or for material from other organizations which may be sent to members from time to time. The Digest's condensation of articles as well as literature not originating within the Foundation, are made available to our members solely for their information, by way of keeping them posted on developments.

## INDUSTRIAL HYGIENE FEATURES

Disability retirement and mortality of American railroaders is the subject of Abst. No. 17.

Abst. No. 20 is concerned with psychiatry in industry.

The injured knee is considered in Abst. No. 21.

See Abst. No. 27 for a discussion of problems in industrial cardiology.

Consult Abst. No. 33 for clinical experiences in the treatment of tetanus.

The primary irritant nature of cement is discussed in Abst. No. 34.

The successful treatment of second-degree burns with amniotic membranes is considered in Abst. No. 38.

An investigation in the fatal gassing in an acetylene manufacturing plant is described in Abst. No. 49.

Data on the effects on human volunteers of exposure to air containing gasoline vapor are presented in Abst. No. 50.

Information on the toxicity of allylamine is given in Abst. No. 51.

Industrial methemoglobinemia is discussed in Abst. No. 56.

The design and performance of the aerosol spectrometer is the title of Abst. No. 57.

A clinical discussion of 69 cases of respiratory disease of bagasse workers is given in Abst. No. 60.

Abst. No. 66 is concerned with tuberculosis: a study of its synergistic mechanisms.

Abst. No. 70 presents a clinical and roentgenological study of kaolin workers.

## FOUNDATION FACTS

NEW MEMBERS. The Foundation is very pleased to welcome to membership six companies:

American Viscose Corporation  
Armco Steel Corporation  
Hanley Company

Hughson Chemical Company  
Petroleo Brasileiro S.A.  
Powdered Products Company

ENGINEERING SERVICES FOR MEMBERS: The Foundation has recently participated in a program in the design of a new plant by a member company to include sound health protection measures. The incorporation of engineering control procedures in the original design plans will insure the most efficient and effective means of preventing injurious and objectionable exposures.

Two engineers from another member company spent a day in our laboratories for the appraisal of their dust-counting and analytical procedures for evaluating dust exposures.

DR. PAUL GROSS, the Foundation's Research Pathologist, participated in an informal discussion on The Feasibility of Sponsoring Conferences on the Subject of Respiratory Diseases and Occupational Health at a meeting of the Pennsylvania Tuberculosis and Health Society held in Philadelphia on January 16.

WILLIAM J. SCHREIBEIS, the Foundation's Industrial Hygiene Engineer, has been elected Secretary-Treasurer of the Pittsburgh Section of the American Industrial Hygiene Association.

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INDUSTRIAL HYGIENE DIGEST  
Literature and News

NEWS ITEMS

1 Fourth Annual Institute for Physicians in Industry.

Columbia University School of Public Health, Administrative Program of Continuation Education, announces the 4th Annual Institute for Physicians in Industry, February 3-7, 1961. These institutes are designed to give the industrial physician a period of intensive study in new subject areas which will be of value to him in his practice in the ever-changing field of industrial medical care. Consideration is also given to subjects which are covered in specialty board examinations for the industrial physician. Intensive instruction will be offered in some or all of the following subjects: epidemiology, biostatistics, toxicology, radiation, air pollution, occupational medicine (general review), and applications of insurance in occupational medicine. The institute is co-sponsored by the American Academy of Occupational Medicine. For further information inquiries may be directed to the Program of Continuation Education, School of Public Health and Administrative Medicine, 600 West 168th Street, New York 32, N.Y.  
-- J. Occ. Med.

2 Course in Laryngology and Bronchoesophagology.

The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from March 13-25, 1961, under the direction of Paul H. Holinger, M. D. Registration will be limited to 15 physicians who will receive instruction by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures. For information please write to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Ill.  
-- Can. Med. Assn. J.

3 Refresher Course, School of Hygiene.

The 4th Annual Refresher Course of the School of Hygiene, University of Toronto, will be held February 6-8, 1961, at the School. The importance of chronic disease will be discussed on the first day, with special reference to institutional care and its problems. On the second day, the field of radioactive materials will be covered including the uses of radioactive substances in industry, diagnostic and therapeutic applications, and protection against radiation damage. The third day is a cooperative venture with veterinarians and the Ontario Veterinary College, Guelph. Subjects to be discussed are milk sanitation and animal diseases transmissible to man. The course is designed mainly for physicians in public health and preventive medicine. Hospital administrators and other interested persons will be welcome on the first day and veterinarians on the third day. The whole course costs \$35, or \$15 for one day only. Checks, payable to the Chief Accountant, University of Toronto, should be sent to the Director, Division of Postgraduate Medical Education, Faculty of Medicine, University of Toronto, Toronto 5, Canada.  
-- Can. Med. Assn. J.

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#### 4 American College of Surgeons 4-Day Meeting for Surgeons and Nurses.

Surgeons, graduate nurses, and related medical personnel are invited to attend the annual 4-day Sectional Meeting of the American College of Surgeons in Philadelphia, March 6-9, 1961. Headquarters will be the Bellevue Stratford, Ben Franklin, and Sylvania Hotels. Some sessions are scheduled at leading hospitals in the City. In length and scope this scientific meeting approaches that of the annual Clinical Congress of the College. The program will include hospital clinics, panel discussions, symposia, scientific papers, industrial exhibits, and medical motion pictures in general surgery sessions and in the specialties of obstetrics and gynecology, ophthalmology, otolaryngology, urology, orthopedic surgery, plastic surgery, pediatric surgery, and thoracic surgery. Further information may be obtained from Public Relations Department, American College of Surgeons, 40 East Erie Street, Chicago 11, Ill.

-- Cond. from Can. Med. Assn. J.

#### 5 Air Pollution Mentioned in Platforms of Both Parties.

The following paragraphs are excerpted from published versions of the 2 Platforms for the 1960 presidential campaign (underlines added). Democratic: "A thin layer of earth, a few inches of rain, and a blanket of air makes human life possible on our planet—sound public policy must assure that these essential resources will be available to provide the good life for our children and future generations—water, timber and grazing lands, recreational areas in our parks, shores, forests and wildernesses, energy, minerals, even pure air—all are feeling the press of enormously increased demands of a rapidly growing population." Republican: "We are confronted with major problems in the field of environmental health. We pledge:—Federal authority to identify, after appropriate hearings, air pollution problems and to recommend proposed solutions." -- Am. Soc. Civil Eng., Sanitary Eng. Div. News

### COMING EVENTS

- |                  |                                                                                                                              |
|------------------|------------------------------------------------------------------------------------------------------------------------------|
| 6 Jan. 30-Feb. 3 | Clinical Congress of Abdominal Surgeons, Miami Beach, Fla.                                                                   |
| Jan. 31-Feb. 4   | American Physical Society, Annual Meeting, New York, N.Y.                                                                    |
| Feb. 4-7         | Congress on Medical Education and Licensure, Chicago, Ill.                                                                   |
| Feb. 6-7         | Oklahoma Academy of General Practice, Oklahoma City, Okla.                                                                   |
| Feb. 6-8         | American Academy of Allergy, Washington, D.C.                                                                                |
| Feb. 6-9         | American Urological Assoc., Western Section, Las Vegas, Nev.                                                                 |
| Feb. 8-10        | American Academy of Occupational Medicine, Detroit, Mich.                                                                    |
| Feb. 8-11        | American College of Radiology, Chicago, Ill.                                                                                 |
| Feb. 9-10        | American Society of Facial Plastic Surgery (members and guests)<br>Memphis, Tenn.                                            |
| Feb. 9-11        | Society of University Surgeons, Kansas City, Kan.                                                                            |
| Feb. 13-16       | Semi-Annual Meeting of the American Society of Heating, Refrigerating and<br>Air-Conditioning Engineers, Inc., Chicago, Ill. |
| Feb. 13-16       | International Heating and Air-Conditioning Exposition, Chicago, Ill.                                                         |
| Feb. 16-18       | Central Surgical Association, St. Louis, Mo.                                                                                 |
| Feb. 23-25       | American Academy of Forensic Sciences, Chicago, Ill.                                                                         |
| Feb. 28-Mar. 3   | Colorado State Medical Society, Midwinter Clinical Session, Denver, Colo.                                                    |
| Mar. 6-9         | American College of Surgeons, Sectional Meeting for Surgeons and Graduate<br>Nurses, Philadelphia, Pa.                       |
| Mar. 6-9         | New Orleans Graduate Medical Assembly, New Orleans, La.                                                                      |
| Mar. 6-9         | Southeastern Surgical Congress, Miami Beach, Fla.                                                                            |
| Mar. 8-11        | Neurosurgical Society of America (members and guests) Boca Raton, Fla.                                                       |
| Mar. 9-11        | Eastern Conference of Radiology, Baltimore, Md.                                                                              |
| Mar. 12-17       | American College of Allergists, Dallas, Texas                                                                                |

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|            |                                                                                             |
|------------|---------------------------------------------------------------------------------------------|
| Mar. 13-16 | National Health Council, National Health Forum, "Health and Communication", New York, N. Y. |
| Mar. 18-21 | Missouri State Medical Association, Kansas City, Mo.                                        |
| Mar. 20-22 | Dallas Southern Clinical Society, Dallas, Texas                                             |
| Mar. 20-24 | American Surgical Association, Boca Raton, Fla.                                             |
| Mar. 23-25 | American Orthopsychiatric Association, New York, N. Y.                                      |
| Mar. 28-31 | American Association of Anatomists, Chicago, Ill.                                           |

## OCCUPATIONAL DISEASE STATISTICS

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

|                            | Conn.<br>Oct. | Mich.<br>July-Nov. | Pa.<br>Nov.-Dec. | Tenn.<br>Nov. | Total |
|----------------------------|---------------|--------------------|------------------|---------------|-------|
| Anthraco-silicosis         |               |                    | 1                |               | 1     |
| Asthma, carbon dust        |               |                    |                  | 1             | 1     |
| Bronchitis                 |               |                    |                  | 1             | 1     |
| Dermatitis                 | 20*           | 23                 | 40               | 16            | 99    |
| Endrin poisoning           |               |                    |                  | 1             | 1     |
| Fumes (unidentified)       |               |                    | 1                |               | 1     |
| Lead poisoning             |               |                    | 1                |               | 1     |
| Lung cancer                |               |                    | 1                |               | 1     |
| Pneumoconiosis             |               | 5                  | 31               |               | 36    |
| Pneumoconiosis (suspected) |               |                    | 1                |               | 1     |
| Pneumonitis                |               |                    | 1                |               | 1     |
| Respiratory infection      |               |                    | 1                |               | 1     |
| Respiratory irritation     |               |                    | 2                |               | 2     |
| Silicosis                  |               | 29                 |                  |               | 29    |
| Silicosis (suspected)      |               |                    | 6                |               | 6     |
| Tuberculosis               |               |                    | 2                |               | 2     |
| Miscellaneous              |               | 3                  |                  |               | 3     |
| Total                      | 20            | 60                 | 88               | 19            | 187   |

\* Causes are listed as follows:

Connecticut: Occupational dermatitis due to plants, fruits, and vegetables 1; occupational dermatitis due to oils and greases and metal cutting compounds 5; occupational dermatitis due to solvents 1; occupational dermatitis due to drugs 1; occupational dermatitis due to other chemicals: acids 1, alkalies 1, nickel 1, synthetic resins or resin compounds 2, unidentified 1; occupational dermatitis—other: infection 3, miscellaneous 1, soaps or detergents 1, unidentified 1.

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## LEGAL DEVELOPMENTS

8 Cancer held Compensable.

George E. Geoner, before an injury he got while he was working, had a cancer which was not active. He strained his side in lifting, and shortly afterward the cancer spread. It finally caused his death. In the opinion of Geoner's surgeon, the sudden strain "most probably" reactivated the inactive cancer and made it spread. The court upheld the award. It said that in such a case, an award may be given if the testimony shows the injury probably caused the activation, rather than possibly caused it. It also commented that many doctors hold the theory that trauma or severe physical contact can start the spread of a previously quiet cancer. Claim allowed. Geoner v. Columbia Hospital. Supreme Court of South Carolina, 114 S. E. 2d 565 (May 30, 1960).

-- Occ. Hazards

9 No Witness Necessary.

When no one witnesses your heart attack, how can you prove it arose out of your employment? John G. Neely died as a result of a coronary occlusion, or heart attack. No one saw him when it happened. He had gone out to start 2 machines with a crank. Evidence showed it did not take any great effort to crank the machines, except when wet weather caused condensation. When this occurred, it did take real effort to start them. Three doctors testified Neely's death probably was caused by sudden, unusual exertion. They said that as his heart was weak, it would have taken some extra, unexpected strain to cause the attack. It was rainy when Neely died. The Industrial Court (compensation board) found the heart attack was due to Neely's exerting extra effort to crank the wet machines. The Supreme Court upheld the decision, stated there need be no witness to a heart attack, if its cause could be reasonably proved by circumstantial or indirect evidence. Claim allowed. Young v. Neely. Supreme Court of Oklahoma, 353 P. 2d 111 (June 21, 1960).

-- Occ. Hazards

10 Occupational Disease—Leukemia—Death Benefits—Failure to Prove Causation.

The Board erred in awarding death benefits to the widow of an employee who died from myelocytic leukemia. The Board found that his disease was caused by exposure to benzene in his work as a piano finisher for 22 years. The only medical testimony to support the finding of the Board was given by a medical expert who had no contact with the decedent personally; he testified that leukemia could follow contact with benzene and that the incidence is quite high in patients who have been exposed to benzene. The causal connection was either denied or not affirmed by the decedent's own doctor, the examining pathologist and the impartial medical expert employed by the referee. On the basis of the entire record and present knowledge of medical science, the court held that the medical expert's assumption that the incidence is quite high must be held to be without significance because he admitted that he had no statistics upon which to base his conclusion. The mere statement that leukemia could follow exposure could be held to be of no evidentiary value in this case since the expert had never examined the deceased; thus, it was no more than a possibility and without probative effect. It was stated that no other country has recognized this type of leukemia as a compensable occupational disease. It was also stated that no immediately observable aggravation, the only proof of causation heretofore recognized in cancer cases, was present in the instant case. Since the claimant's expert testimony as to causation was too conjectural to be recognized in a court of law, she failed to carry the burden of proof of causation. Reversed and dismissed. Miller v. National Cabinet Company. New York Court of Appeals No. 13. July 8, 1960. For prior opinions see page 4098 in the '58-'60 Decisions Volume.

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11 California Begins Anti-Smog Drive; Vehicle Fume-Suppressors Required.

Smog-saturated Californians are seeking new means of alleviating their atmospheric problems. A law was passed last April by the California legislature requiring every new car registered in the state to be equipped with an anti-smog device within a year after the state's Motor Vehicle Pollution Control Board tests and approves at least two such devices. The new legislation also provides that within 3 years practically all cars and trucks in the state must have fume suppressors. If the procedures are successful, the market for anti-smog devices could be tremendous. California has the largest number of autos of any state with 7,500,000 registered vehicles, of which at least 6,500,000 may be required to use the smog-control apparatus. Trade sources predict that sales of such anti-smog devices over a 3-year period after they become mandatory in California could amount to almost \$700,000,000. They estimate the average cost of a smog-suppressor at \$100. Manufacturers working on anti-smog devices—automobile parts producers, chemical concerns, research companies, and a host of others—are concentrating on 2 main types. One is an afterburner that uses a pilot flame. The other is a catalytic converter. To a great extent, both resemble and replace the muffler and are locked to the exhaust pipe or are placed under the car's hood. The present high cost of anti-smog devices results from the materials used in producing them. Many converters use catalyst made with platinum and most afterburners utilize expensive, heat-resistant steel or ceramic materials.

-- J. Air Pollution Control Assn.

## BOOKS, PAMPHLETS AND NOTICES

- 12 Modern Occupational Medicine. Second Edition. A. J. Fleming, C. A. D'Alonzo and J. A. Zapp, editors. Lea & Febiger, Washington Square, Philadelphia 6, Pa. 587 pp. (1960). \$12.

This book, which was written by 22 duPont medical and health authorities, provides essential knowledge on how to organize a medical service in industry, the influence of physical and chemical environments on health, and the control of occupational hazards. Much of the data presented does not appear in print elsewhere. There are added chapters on biostatistics in occupational medicine; mental illness and the application of psychiatry; emotional factors in diseases of the skin; occupational diseases of the chest; industrial vs. therapeutic chemicals in the etiology of aplastic anemia; and environmental hazards. Fully revised chapters include those on organic and inorganic lead; physical examination and diagnosis; physical environment and occupational health; industrial noise; surgical considerations; safety; and the nurse in industry. Of special interest to general practitioners, internists and resident physicians is the section on effects, signs, symptoms and treatment of frequently encountered acute poisonings. Executives, plant managers, safety engineers, public health physicians, toxicologists, insurance doctors, lawyers and nurses will find this book to be a quick and dependable reference.

- 13 Tensions—and How to Master Them. Public Affairs Pamphlet No. 305. G. S. Stevenson and H. Milt. Public Affairs Pamphlets, 22 East 38th St., New York 16, N.Y. 28 pp. (1960). 25 cents.

This pamphlet is a condensation of the book, "Master Your Tensions and Enjoy Living Again" by the same authors, published in 1959 by Prentice-Hall, Inc. The danger-signals of tension, its causes, and its remedies are described in the present pamphlet. Among the suggestions for relieving a "moderate case of tension" the pamphlet suggests: (1) Talk it out. (2) Escape for a while. (3) Take one thing at a time. (4) Get rid of your anger. (5) Stop driving for superiority. (6) Even when you are right, give in sometimes. (7) Do something for somebody else. Doing something for somebody else, the pamphlet points out will do 3 special things for a person: It breaks the stranglehold of moodiness. It brings to the fore a feeling of strength. It brings forth a person's sense of sharing and generous impulses.

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- 14 Radiation Research in the Life Sciences. 86th Congress 2nd Session. Prepared for the Committee on Government Operations United States Senate. 175 pp. (Nov. 28, 1960). For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 55 cents.

This report summarizes the magnitude, organization, and distribution of world-wide efforts in radiation research in the life sciences. It highlights man's current research endeavors to utilize and control the atom for beneficial purposes—protecting and healing man, providing more and better food for him. The concern herein is not with the physical sciences and the production of energy for purposes of power, but with advancement of the sciences of living matter itself. This publication brings together for the first time—a world-wide picture—of who is doing what, where, and at what cost in this research. It outlines 3,362 projects, costing over 101 million dollars, conducted by 9 United States agencies, 10 foreign countries and one inter-governmental organization. The report supplements the expert work of the Joint Committee on Atomic Energy by depicting problems of inter-agency dissemination of information on current research.

- 15 Health Statistics from the U. S. National Health Survey. Series C-No. 4. Older Persons Selected Health Characteristics. United States July 1957 - June 1959. U. S. Department of Health, Education, and Welfare, Public Health Service. PHS Publication No. 584-C4. 76 pp. (Sept. 1960). For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 45 cents.

From data collected by household interview in the National Health Survey during the period July 1957 - June 1959, it is estimated that 77% of the persons in the civilian noninstitutionalized population 65 years of age or older had one or more chronic conditions. While some of these conditions were relatively minor afflictions, such as sinusitis, hay fever, or bronchitis, many were more serious conditions such as high blood pressure, heart disease, or diabetes. Among persons 45-54 years of age, 56% had one or more chronic conditions, and this percentage increased with age to 83% among persons 75 years of age or older. There was a similar relationship with age in the number of persons with partial or major limitation of activity due to chronic conditions; about 13% of persons in the age group 45-54 years were unable to carry on their usual activity or had some limitation in the kind or amount of activity. This percentage of partial or major limitation of activity increased to 55% among persons 75 years of age or older. It is estimated that persons 65 years of age and older used physician services at a rate of 6.8 physician visits per person per year. A physician visit is defined as consultation with a physician, in person or by telephone, for examination, diagnosis, treatment, or advice. The average number of physician visits increased from 5.0 visits per person among those 45-54 years of age to 7.3 visits per person among those 75 years and older.

-- Cond. from summary

- 16 Health Statistics from the U. S. National Health Survey. Series B-No. 23. Acute Conditions, Geographic Distribution. United States July 1958 - June 1959. U. S. Department of Health, Education, and Welfare, Public Health Service. PHS Publication No. 584-B23. 30 pp. (Oct. 1960). For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 30 cents.

The data presented in this report are derived from a continuous probability sample of the civilian noninstitutional population residing in the United States. During the period July 1958 - June 1959, approximately 37,000 households containing 120,000 persons were interviewed. The Western region had the highest incidence of acute conditions for every age group except the oldest. The lowest rate of incidence of acute conditions was in the South, but the amount of disability due to acute conditions was in line with national estimates. Infectious and parasitic diseases had their highest incidence in the Northeast, largely because "the virus" was so commonly reported in that region. If "the virus" is excluded, there is little regional variation in the incidence of these diseases. Respiratory conditions—the largest group of acute conditions—had their highest incidence in the West and largely accounted for the high incidence of all acute conditions in that region. Injuries were the second most common acute condition group in all regions except in the Northeast. In this region infectious and parasitic diseases were more common than injuries.

## INDUSTRIAL MEDICAL PRACTICE

- 17 Disability Retirement and Mortality of American Railroaders. W. J. Gerstle.  
Ind. Med. & Surg. 29, 570-576 (Dec. 1960).

The retirement system of the American railroader while administered by the Federal government reflects in many aspects the character of American railroads as a private industry. There is a high percentage of disability retirements of which over 90% are in the age group 50-64 years. Diseases of the circulatory system, of the nervous system and sense organs and of the bones and organs of movements account for two-thirds of all disability pensions. The incidence of malignant neoplasms is low as a cause of disability retirement. The mortality of the American working railroader is lower than the corresponding figures for the non-railroader and finally, the mortality of the age annuitant among the U. S. railroaders matches exactly the respective mortality of the non-railroaders in the U. S. A.

-- Author's summary

- 18 Cultural Attitudes Towards Aging and their Implications for Public Planning. E. S. Cohen.  
J. Am. Geriatrics Soc. 8, 337 (1960).

The basic problems of aging populations, particularly those associated with the increasing trend toward their cultural exclusion, and the reasons for current unfavorable attitudes toward the elderly are examined. Factors such as the shift from agrarian to industrial society, the shift from rural to urban concentrations of population, and the growth of cultural diversity with changes in family size do not offer an entirely satisfactory explanation according to the author. There has been a shift in public opinion which to some extent has been manipulated by environment and by circumstance, but also by a conscious change of values in social organization. Scientific organizations and educational efforts could be used to change public opinion with regard to planning for the aged. Accurate information should be acquired regarding the reasons for the current prevalent rejection of older citizens and attempts should be made to induce a change in public opinion and an altered sense of values regarding the aged. A new image of the older person should be created with the help of mass media and the techniques of the public relations industry. Respect and a sense of tradition should be developed as one of the most effective and time-honored methods of maintaining a positive attitude towards aged citizens. Community efforts should be organized in the appropriate direction and the aged citizenry itself should be developed into a responsible social and political force.

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

- 19 Mental Health and Industrial Change. S. G. Rogg.  
Arch. Environmental Health 1, 265-270 (Sept. 1960).

Economic necessity has changed us from a society where the individual was part of a stable family group to a position where man has become an independent unit. The sense of satisfaction in completely producing an article has been destroyed, leading to a decline in personal responsibility for work done. While society correctly feels that everybody has the right to earn a living, this seems in many cases to have created the feeling that this right does not bear any responsibility regarding the work done. A free society requires that home, school, and community foster a sense of responsibility and fulfillment of obligations. There have been many failures here. Industry, burdened with these failures, must decide how best to handle them. When industry assumes the responsibility of hiring a man it also has the obligation to require from him an active assumption of responsibility regarding his work.

-- J. Am. Med. Assn. Absts.

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- 20 Psychiatry in Industry. J. R. Ewalt. *Ind. Med. & Surg.* 29, 474-479 (Oct. 1960).

It is possible to promote emotional health in any industrial setting, but to do so takes careful planning by persons who understand the workings of individuals and of groups. The health service must collaborate with persons in management who understand the situations in the particular industry and in the particular plant of the industry where the program is to be organized. Only by careful coordination of the efforts of management and health experts and by continuous supervision can a successful emotional health program be established in industry. Further research is needed to increase our knowledge of industrial psychiatry. Financial and human resources involved make it worthwhile for industry to continue to expand the development in this area. Slogans, tests, and pretty brochures are not to substitute for hard work and common sense in organizing any kind of health program. Good intentions are not a substitute for competence or for professional training.

-- Author's summary

- 21 The Injured Knee. M. L. Rowe. *J. Occ. Med.* 2, 597-602 (Dec. 1960).

Adequate initial evaluation of the injured knee and determination of definitive treatment lies within the field of responsibility of the industrial physician, the team doctor, and the family physician. Competence in this field stems from a clear knowledge of the mechanics of the joint and the possibilities of damage. With this sound base, a careful history of injury and a patterned examination should, in most cases, yield a confident diagnosis. Many of the knee injuries can be managed by the interested nonspecialist by methods applicable to all joint injuries plus minute attention to quadriceps preservation and rehabilitation.

-- Author's summary

- 22 Traumatic Diaphragmatic Hernia—Diagnosis and Treatment. W. A. Wichowski and G. W. Holmes. *Ind. Med. & Surg.* 29, 577-579 (Dec. 1960).

Five cases of traumatic diaphragmatic hernia are presented. The patients illustrate the 3 categories of traumatic diaphragmatic hernias namely; immediate, interval, and obstruction and strangulation. Auto accidents constitute the greatest etiological factor in causing traumatic diaphragmatic hernias. The history, physical examination and chest x-ray interpretation usually are diagnostic.

-- Authors' summary

- 23 Rehabilitation of Foundry Workers with Active Pulmonary Tuberculosis. A Study of 21 Employees Over a Period of 10 Years. L. E. Hamlin. *Ind. Med. & Surg.* 29, 453-460 (Oct. 1960).

A study of pulmonary tuberculosis among a small group of foundry employees indicates that the majority of those afflicted with active or indeterminate manifestations of the disease can be safely returned to productive labor at their regular jobs following adequate treatment. The incidence of tuberculosis in the foundry industry is small so that with proper hygienic control of working environments, together with cooperation between management, physician and worker, rehabilitation can be satisfactorily achieved.

-- Author's summary

- 24 Re-Treatment of Pulmonary Tuberculosis. J. Haapanen, R. Gill, W. F. Russell, Jr., and I. Kass. *Am. Rev. Respiratory Diseases* 82, 843-852 (Dec. 1960).

Sixty-five patients with chronic pulmonary tuberculosis excreting tubercle bacilli resistant to streptomycin and isoniazid were treated with pyrazinamide, cycloserine, and kanamycin. In 17 of 47 patients reversals of infectiousness occurred with chemotherapy alone when 1.5 g. of pyrazinamide and 0.5 g. of cycloserine were given daily with or without kanamycin (4 to 5 g. weekly). In an additional 13 cases, chemotherapy made surgical treatment possible, which then resulted in reversal of infectiousness. These results were compared with results achieved in 171 patients with similar disease treated with isoniazid,

streptomycin, or PAS. The "conversion" rate achieved with the experimental regimens was approximately 5 times higher; it was 3 times higher when the patients who underwent operation were included. Eighteen patients were treated in the second study, and 7 of the 8 who received 1 g. of cycloserine daily and 40 mg. of pyrazinamide per kg. (not to exceed 3 g. daily) became noninfectious with drugs alone. Of the 10 patients who received the same dose of pyrazinamide and 5 g. of kanamycin weekly, 2 became non-infectious with drugs alone and one with drugs and surgery. Toxic reactions associated with kanamycin, cycloserine, and pyrazinamide appeared frequently, but were not severe enough to contraindicate such chemotherapy.

-- Cond. from authors' summary

- 25 Reactions to Influenza Vaccine Inoculations. J. M. Lynch, et al.  
A.M.A. Arch. Ind. Health 21, 574-578 (June 1960).

Local and systemic reactions to 4,699 influenza vaccine inoculations, given National Institutes of Health employees in 1957 and 1958, were studied. Within the limited scope of the study, potency in terms of CCA units per cubic centimeter as well as number of strains of virus in the vaccine, did not seem to have a bearing on the number or severity of reactions. Local reactions were relatively high but minor in severity. Systemic reactions, likewise, were not excessive or unusually severe, and absenteeism was low. Reaction patterns for persons receiving 2 inoculations during the 1958 season were compared. Reactions after administration of vaccine from 3 different manufacturers were noted. -- Authors' summary

- 26 Tests of Ventilation in Males 60 Years of Age and Over. A. Wigderson and M. Kohan.  
Can. Med. Assn. J. 83, 1068-1069 (Nov. 12, 1960).

Tests of ventilation, one-second timed vital capacity, three-second timed vital capacity and maximal mid-expiratory flow rate were performed on 50 male patients over 60 years. Ventilatory performance is reduced with age. Spirometric studies may reveal expiratory delay when this effect is a result of the aging respiratory system rather than significant tracheobronchial disease. The value of spirometric studies in the aged is therefore quite limited.

-- Authors' summary

- 27 Problems in Industrial Cardiology. F. W. Wilson. J. Occ. Med. 2, 585-587 (Dec. 1960).

Problems peculiar to cardiology in industry are discussed. The diverse problems of the various workmen's compensation law are presented briefly. The classification of heart disease as related to industrial health is listed. It is recommended that unity of opinion among cardiologists as to cardiac problems in industry be encouraged by the setting up of more expert panel plans and by continued action of special study committees. -- Author's summary

- 28 Some of the Problems of Employment of the Cardiac in Industry. A. C. Kerkhof.  
Ind. Med. & Surg. 29, 484-489 (Oct. 1960).

Employment of the cardiac is a major problem today and is increasing in importance. Much of the difficulty comes from fear on the part of the employee, the labor unions, and industry. Excessively liberal interpretation of workmen's compensation laws is a major factor in employment of the cardiac patient. The individual physician's role in workmen's compensation has a most important bearing on the "contest" philosophy presently obtained in these cases. Questionnaires and documented findings show that the cardiac patient can take his place in industry. Workmen's compensation cases involving cardiac patients comprise a proportionately large percentage of the total costs of workmen's compensation. Both industry and labor have unique problems associated with employment of the cardiac and education is needed to change some of the current attitudes which hinder the cardiac from employment. Changes in workmen's compensation laws are urgently needed. Work classification units should be encouraged and supported by physicians. The physician's attitude, interest, and approach toward the individual involved in employment is still the primary determining factor

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and his increased knowledge and perception of the complex facets of the problem is the eventual key. The Utah plan for establishing a panel of specialists to review cardiac cases appears to have merit and should be considered for more general use. -- Author's summary

- 29 Toxicological Studies on Hydrocarbons. A Disposable, Self-Filling, Self-Measuring Blood Dilution Pipette. H. W. Gerarde. Med. Bull. (Std. Oil N.J.) 29, 358-369 (Nov. 1960).

A disposable, self-filling, self-measuring blood dilution pipette has been described consisting of a straight, thin-bore glass capillary and detachable plastic reservoir containing a pre-measured volume of diluent. Its simplicity in operation eliminates human error associated with blood collection, measurement and dilution. The accuracy for erythrocyte and leukocyte counts has been checked with the electronic counter and found to be comparable with current high quality glass dilution blood pipettes. The pipette has recently become available commercially. -- Author's summary

- 30 Physiatry in the Diagnosis and Management of Some Back Disorders. A. A. Rodriquez. Ind. Med. & Surg. 29, 565-569 (Dec. 1960).

Electromyography and electrodiagnosis, diagnostic tools available in the modern armamentarium of the physiatrist, play a definite and positive role in the differential diagnosis of a number of back problems. Physiatric treatment has been briefly outlined. Such treatment must be individualized in order to insure the highest percentage of good results. -- Author's summary

- 31 The Incidence of Malignant Disease in 1,620 African (Bantu) Gold Miners. An Autopsy Survey. C. B. Chatgidakis. Arch. Environmental Health 1, 17-19 (July 1960).

The autopsy incidence of malignant disease in 1,620 African male gold miners was found to be 6.3%. Primary carcinoma of the liver was the commonest type found, 72% of all malignancies. The over-all incidence of primary lung cancer was 0.3% and formed 4% of all malignancies. No evidence of an increased incidence of primary carcinoma of the lung was found in African gold miners. -- Author's summary

- 32 The Follow-Up of Parasitic Disease in Industrial Medicine. R. H. Scholdager. Med. Bull. (Std. Oil N.J.) 20, 305-312 (Nov. 1960).

The industrial physician is given an unusual opportunity of bringing to light hitherto unrecognized parasitic disease. Since his is the medical specialty most likely to examine the adult of working age, harboring parasitic disease but free of acute symptoms, he should remain aware of this problem. Findings noted during a routine placement examination or periodic health inventory pointing to possible parasitic disease, should be carefully weighed. If indicated, they should be pursued until satisfactorily explained, or the employee referred to his family physician or tropical medicine specialist for ultimate diagnosis and therapy. -- Author's summary

- 33 Clinical Experiences in the Treatment of Tetanus. W. A. Altemeier, W. R. Culbertson and L. L. Gonzalez. A.M.A. Arch. Surg. 80, 977 (June 1960).

Of the 123 patients with tetanus observed by the authors during the last 18 years, none had received a series of toxoid immunization injections, because, although the effectiveness of toxoid immunization has been definitely established, only a relatively small percentage of the civilian population has been immunized against tetanus. While, in the experience of the authors, passive immunization with 1,500 units of tetanus antitoxin has been effective, none of the 123 unimmunized patients had received such a prophylactic injection of antitoxin, partly because 13.8% had no history of a wound or injury and 35.8% had such minor injuries that their

seriousness had been discounted by the patients or physicians. The development of clinical tetanus in 7 of the 123 patients after delayed surgical procedures or remanipulations or compound fractures, long after the initial injury, is emphasized. The prolonged viability of C1 tetani was demonstrated also by the fact that C1 tetani could be cultured from tissues excised from an old wound one year after the injury. The patient who recovers from tetanus cannot be presumed to have developed immunity to the disease. The authors recommend that such patients should be given a series of toxoid injections to establish active immunity. The chief cause of death in patients with tetanus has been acute respiratory arrest during a convulsion. Since 1946 the authors have focused the treatment of patients with tetanus on the prevention and control of respiratory arrest by around-the-clock emergency care and the use of thiopental sodium solution for elevating the threshold of excitability and securing quicker and more effective relief of convulsions and seizures of respiratory arrest. With this plan of management the mortality has been reduced from 65.1% to 21.2%. The use of thiopental is recommended.

-- J. Am. Med. Assn. Absts.

### SKIN DISEASES AND BURNS

- 34 The Primary Irritant Nature of Cement. G. E. Morris.  
Arch. Environmental Health 1, 301 (Oct. 1960).

Portland cement and similar cements used in the building trade for reinforced concrete, mortar, plaster, etc., consist of lime, clay, and silica in varying proportions. "Cement itch", or dermatitis, has been known for years and is common among workers handling such products. Recently, much has been written about the part the chromium salts play in the cause of such dermatoses. The European writers, especially, believe that cement dermatoses are due in large measure to sensitization to water soluble chromate compounds present in the cement. There is no adequate proof, however, that sensitization to chromate or dichromate is the major fact in cement dermatitis. Nowhere has the author been able to find any note of primary ulcers of the skin due to the action of cement. In the present paper the author reports on 2 such cases.

- 35 Contribution to the Evaluation of the So-Called Baker's Eczema. J. A. v. Preys.  
Berufsdermatosen 8, 68-72 (Apr. 1960). German.

The author presents an account of the legal prohibitions in Germany in regard to additives in flour. There is a list of chemical substances used as bleachers and improvers of flour which have to be considered in relation to baker's eczema. Of these substances persulfates are the chief allergens although recent observations suggest that benzoyl peroxide is also of importance in this respect. Since April 1, 1957 when additives to flour such as persulfate were prohibited in the German Federal Republic the incidence of the so-called baker's eczema has diminished greatly. This is of much importance from the viewpoint of occupational skin diseases entitling to compensation. In an experience of 70 cases of baker's eczema seen in the period 1954-1959, it was found by skin testing, that allergy to persulfate was very frequent but that after 1956 no patient though sensitive to persulfate suffered from eczema.

-- Cond. from Bull. Hyg.

- 36 Patch Test Study to Determine Cutaneous Reaction to New Compounds. J. V. Clauder.  
Arch. Environmental Health 1, 407-416 (Nov. 1960).

Methods to determine the primary cutaneous irritant and allergenic action of any given substance are discussed. These are the prophetic patch test in which 2 applications to the skin are made, the repeated insult method in which repeated consecutive applications are

made, the patch test combined with the usage test, and the open test which comprises repeated applications, without covering, as in patch test study. Definition is given of a primary cutaneous irritant and of a cutaneous allergic reaction. Cutaneous reactions observed in patch test study are discussed. These are, essentially, allergic reaction and fatiguing reaction. The latter is an initially appearing primary irritant action occurring after repeated exposure to an inherent cutaneous irritant. Circumstances operative in causing fatiguing reaction (dermatitis potential) in actual use are discussed. These reactions are illustrated in tables which show results by repeated insult patch test of different materials studied. The practical value of patch test study is discussed. -- Author's summary

- 37 Treatment of Allergic Occupational Diseases with Bismuth. A. Grosdanov.  
Berufsdermatosen 8, 72-80 (Apr. 1960). German.

In the introduction the author gives a list of medicaments which are used in the treatment of allergic diseases. There follows a report on the author's experience of the results of treatment of occupational allergies by bismuth carbonate. This substance is administered intramuscularly as a 10% emulsion in oil of which 1.0 ml. is given twice a week for 6-7 weeks. If necessary a second course of this treatment is given after a month's rest. The number of patients so treated was 93 (17 men and 76 women) of whom 60 had occupational eczema, 25 had a professional dermatitis and 8 an occupational asthma. There is a statement of the occupations of these patients and a list of the substances to which skin tests had shown them to be sensitive. The effect of bismuth treatment is slow and gradual. In most cases improvement is first manifest after 3 or 4 weeks. In this group of 93 patients, 47 were clinically cured, 26 were improved, 16 were not improved and 4 could not be followed up. In summary, it is considered that this bismuth treatment is of value because: (1) a large proportion of patients can be cured, (2) desensitization is demonstrated to persist for a long period, and hence, (3) the worker need not change his occupation or its location. Only if therapy is unsuccessful need there be a change of work. -- Cond. from Bull. Hyg.

- 38 Treatment of Second-Degree Burns with Amniotic Membranes. Jean Pigeon.  
Can. Med. Assn. J. 83, 844-845 (Oct. 15, 1960).

Second-degree burns have been treated successfully by application of amniotic membrane. A technique of preparation and preservation has been developed by the author. A personal series of 9 cases is reviewed. In the author's experience, this form of treatment of second-degree burns has proved the most effective and practical method. -- Author's summary

- 39 A New Form of Scalp Ringworm in Western New York. J. T. Crissey and R. Martin.  
N. Y. J. Med. 60, 679-682 (Mar. 1, 1960).

The authors report on 26 patients, between the ages of 2 and 25 years, with tinea capitis caused by *Trichophyton tonsurans*, who have been seen in the Buffalo area of Western New York and in a nearby section of the Ontario peninsula since 1957. This cause of ringworm to the scalp is new to this area. The signs of tinea capitis caused by *T. tonsurans* are not so easily recognized as those of tinea capitis caused by *Microsporum audouinii* and *M. canis*. The disease may resemble the *Microsporum* form or may mimic other diseases of the scalp; infected hairs do not fluoresce under Wood's light, making its detection in schools a serious problem. Culture on Sabouraud's medium is necessary for exact identification. Colonies are white to yellow, powdery, and convoluted. This contagious disease, which may occur in children and adults and does not disappear at puberty, is transmitted from person to person directly or through the medium of theater seats, headgear, beauty parlors, and barber shops. Animal vectors play no significant role. In those few patients who show a marked inflammatory response, such as kerion, conservative management may suffice, since such inflammation indicates a basic change in the host-parasite relationship which will result in a spontaneous cure. In the ordinary noninflammatory case, however, a spontaneous cure is not to be expected. Epilation of the scalp by roentgen rays, with careful manual epilation of the hairs remaining in the follicles, was until recently the preferred treatment for the noninflammatory

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type of tinea capitis caused by *T. tonsurans*. The excellent results obtained with the new antibiotic, griseofulvin, would seem to indicate that this drug will replace roentgen-ray epilation as the preferred treatment for all forms of scalp ringworm.

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

- 40 Nickel Sensitivity as a Cause of Infusion Reactions. J. C. Stoddart. *Lancet* 2, 741 (1960).

Many of the cannulae used for routine intravenous infusions are made of nickel or of nickel-containing alloy. Though large numbers of infusions are given via such cannulae everyday, no previous case of nickel dermatitis from this cause has been described. That this type of reaction can occur was evidenced by the observation of skin eruption in 2 patients, associated with intravenous infusions within a 3-month period in one hospital. One of these patients also experienced an alarming anaphylactoid reaction. As nickel sensitivity is relatively common, it is suggested that a proportion of hitherto unexplained infusion reactions may be due to nickel cannulae which may produce manifestations of either the immediate or delayed type of hypersensitivity.

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

### CHEMICAL HAZARDS

- 41 The Problem of Chronic Carbon Monoxide Poisoning. O. Zorn and P. D. Kruger. *Ind. Med. & Surg.* 29, 580-581 (Dec. 1960).

The authors had the opportunity to study industrial carbon monoxide exposure in coke and metallurgical works. From a toxicological and clinical study of the concept of chronic carbon monoxide poisoning, they reached the conclusion that "chronic CO poisoning" in the true sense does not exist. They identified the so-called chronic carbon monoxide poisonings as "light, recurring carbon monoxide poisoning."

-- Authors' conclusions

- 42 Hygienic Problems in the Use of Tertiary Butyl Chromate as an Inhibitor of Metal Corrosion. J. Roubal and M. Krivucova. *Arch. Gewerbepathol. Gewerbehyg.* 17, 589-596 (1960). German.

From animal experiments made by the authors it is concluded that tertiary butyl chromate in certain industrial conditions can cause pneumonic changes, narcosis and necrotic lesions of the skin. Atmospheric concentrations should never be greater than 0.1 microgram per liter of chromium trioxide; contamination of the skin should be avoided; closed apparatus for mixing with paraffin and with automatic filling should be used, and special care taken with the finished product; when paper impregnation is carried out in a paper calendar machine at temperatures of 50° to 70°C those parts of the machine where the temperature is higher than 20°C should be enclosed and provided with exhaust ventilation.

-- Cond. from Bull. Hyg.

- 43 Determination of Tetramethyllead and Tetraethyllead in Gasoline by Mass Spectrometry. H. E. Howard, W. C. Ferguson and L. R. Snyder. *Anal. Chem.* 32, 1814-1815 (Dec. 1960).

A rapid analysis of gasoline for tetramethyl- or tetraethyllead is accomplished by a mass spectrometric procedure. The mass spectrum of the sample is compared with the mass spectrum of two synthetic blends of known concentrations of tetramethyl- and tetraethyllead.

-- AC Briefs

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- 44 Determination of Manganese in Air and Biological Material. J. Cholak and D. M. Hubbard. *Am. Ind. Hyg. Assn. J.* 21, 356-360 (Oct. 1960).

In this paper analytical efforts were directed initially toward the determination of manganese in the urine and blood of persons employed in the manufacture of cyclopentadienyl-manganese-tricarbonyl. Because of the requirement for specificity and because of past experience with the spectrochemical determination of manganese, attention was immediately given to the spectrochemical approach. It soon became apparent that the sensitivity of this method was inadequate and that modifications had to be introduced so that the trace concentrations normally present in the blood and urine could be determined with precision. In the method used by the authors the subject is discussed under the following headings: special reagents, collection of manganese from the air, preparation of samples, and extraction and estimation of manganese. There are 9 references in the bibliography.

- 45 Thallium Poisoning. A Report of Six Cases. J. Domnitz. *Southern Med. J.* 53, 590-593 (May 1960).

Thallium compounds nowadays employed as pesticides have caused many accidental poisonings and have been used with suicidal and homicidal intent. A report is given here of 6 cases of thallium poisoning, proved by toxicological investigation, in which the source of the poison was known in 4 instances but unknown in 2. The thallium was ingested as "roach" poison in tablet or liquid form or rat poison fluid. The liquids had been taken accidentally or with suicidal intent. The symptoms were gastrointestinal, either mild or severe, in 2 patients. Initial symptoms indicative of encephalopathy and peripheral neuropathy existed in 3 patients. Alopecia or easy epilation occurred in 5. In all instances the diagnosis was confirmed by chemical analysis of urine, or also of blood or feces. There were 2 deaths and in these, thallium was found in many of the body tissues. In a man of 49 years who had swallowed rat poison the highest levels of thallium found were in the blood (17 mg. per 100 cc.) and in bone (16.14 mg. per 100 g.). There is a review of the pertinent literature on thallotoxicosis and some account of the chemical and physical properties of thallium and its salts. Methods of therapy are considered also with mention of the use of BAL and CaEDTA in the treatment of thallium poisoning, which have yielded encouraging but inconclusive results. -- *Bull. Hyg.*

- 46 Pathological Changes Associated with the Inhalation of Sodium Zirconium Lactate. J. T. Prior, G. A. Cronk and D. Ziegler. *Arch. Environmental Health* 1, 297-300 (Oct. 1960).

Six albino rabbits were subjected to 44% sodium zirconium lactate mist daily for 6 weeks. Each exposure lasted 20 minutes. Pathological examination at the end of 6 weeks revealed that all test animals had either bronchiolar abscesses with a lobular type of pneumonia or peribronchial granulomas. An extrapulmonary granuloma was found in the tongue muscle of one animal. Six control animals killed after 6 weeks were free from gross or histological infections or granulomas. Previous contacts with sodium zirconium lactate did not intensify the pulmonary reaction. -- Authors' summary

- 47 A Field Method for Determining Total Air-Borne Lead. B. E. Dixon and P. Metson. *Analyst* 85, 122-126 (Feb. 1960).

A field test is described for determining small amounts of total air-borne lead in industrial atmospheres; it can be carried out on the sample used for determining lead fume by the authors' staining method. The sample is collected on a test paper, which is then treated in a graduated sample tube with cold dilute nitric acid containing hydrogen peroxide to dissolve the lead dust and disintegrate the paper. Measured amounts of ammoniacal cyanide-metabisulfite-citrate solution of dithizone in carbon tetrachloride are successively added, and the lead dithizonate is extracted at pH 11. The color of the lower layer is compared with aqueous color standards or permanent glass color standards. -- APCA Absts.

03120711

- 48 A Contribution to the Study of Early Diagnosis of Occupational Saturnism. G. Paoletti. *Rass. med. ind.* 28, 386-399 (Sept.-Oct. 1959). Italian.

This paper first deals with occupational lead poisoning in general terms touching on the history of this condition which has been recognized and described since very ancient times. Next the author outlines the circumstances of the lead hazard as it affects workers in potteries when they are handling insufficiently baked china and when handpainting or color-spraying the articles. He describes the cases of three women workers who were recently treated for lead poisoning, and compares the older investigation techniques, which estimated the lead content of blood and urine and looked for basophila, with more recent methods, which study the exchange of porphyrin in the blood and urine. He considers that an increase in the protoporphyrin content of the red cells is an early, constant and specific sign of occupational lead poisoning.

-- Bull. Hyg.

- 49 Fatal Gassing in an Acetylene Manufacturing Plant. A. T. Jones. *Arch. Environmental Health* 1, 417-422 (Nov. 1960).

The results obtained in this investigation, coupled with postmortem results and a description of the circumstances and position in which the deceased operator was found, seem to make reasonable the following deduction: Because of difficulty in seeing the low level of carbide in the generator by viewing from outside, or for some unknown reason, the operator must have placed his head inside or very closely over the filler hole of the hopper. This would require him to lean over the hopper in such a way that if overcome he would probably be held up in that position. In so doing he would be exposed to an atmosphere deficient in oxygen, and containing a high concentration, possibly up to 80% acetylene. Such an atmosphere could produce very rapid unconsciousness. In this situation, with no one else on hand, the person would continue to breathe such atmosphere until death, due to anoxemia, impure acetylene, or a combination of the two, ensued. In an American episode the responsible agent for the fatality was considered to be phosphine. The air in the vicinity of the hopper in this case contained up to 12% of acetylene and a consequent average of about 8 ppm of phosphine, to which several hours exposure per day would possibly occur. Chronic poisoning by phosphine was thought to be the prime cause. As a temporary preventive of such an incident, the use of compressed airline respirators, to be worn by operators when working around open hoppers was recommended. On a long term basis, some means of ascertaining the carbide level without the need of opening the hoppers, such as radioactive isotope indicators or glass ports in the hopper with good illumination was suggested.

-- Cond. from author's summary

- 50 The Effects on Human Volunteers of Exposure to Air Containing Gasoline Vapor. A. Davis, L. J. Schafer and Z. G. Bell. *Arch. Environmental Health* 1, 548-554 (Dec. 1960).

The effects sustained by 10 volunteers when exposed to low concentrations of the vapor of each of 3 gasolines for 30-minute periods were compared. The 10 volunteers were subjected to exposure to each gasoline in concentrations of approximately 200, 500 and 1,000 ppm in air. The only significant effect observed was that of eye irritation. This effect was documented by both subjective response to a questionnaire and by objective change in the pattern of conjunctival blood vessels as determined from photographs of the eyes of the subjects. Under the conditions of the experiment, no differences in effect were noted among the 3 gasoline samples. For each of the gasoline samples, however, there was a significant difference in effect at different concentrations of vapor. Equations for the curves of probability of response vs. vapor concentration were computed for both the subjective responses and the objective conjunctival changes. From these relationships, it was determined that the subjective response to conjunctival irritation is the more sensitive indicator of the two methods of assessing the effect.

-- Authors' summary

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- 51 The Toxicity of Allylamines. C. H. Hine, et al.  
Arch. Environmental Health 1, 343-352 (Oct. 1960).

Monoallylamine was the most toxic of the 3 allylamines. On single exposure, it was moderately toxic by ingestion and inhalation, and highly toxic percutaneously. Diallylamine was slightly toxic intragastrically and percutaneously, and moderately toxic on inhalation. n-Propylamine was far less toxic on inhalation than any of the allylamines. Monoallyl and diallyl amines were severely to extremely irritant to skin and eyes, while triallylamine was only mildly irritant. On chronic inhalation, monoallylamine caused death at 40 ppm, retarded growth at 10 ppm, and increased liver/body weight ratio even at 5 ppm. These changes were not significant with the other 2 allylamines until 200 ppm, although increased heart/body weight ratios occurred at lower levels. Chemical pneumonia and some liver and kidney damage were seen, but the outstanding pathologic effect was myocarditis, seen with all 3 allylamines. In contrast, n-propylamine caused no heart lesions or significant organ/body weight ratios even at 400 ppm, where the first death occurred and retardation of weight gain became significant. All 3 allylamines are discernible by odor at 1 to 5 ppm and the sensory effects are unpleasant enough at physiologically significant levels to make voluntary over-exposure unlikely.

-- Authors' summary

- 52 Glycolonitrile Toxicity. J. H. Wolfe. J. Occ. Med. 2, 588-590 (Dec. 1960).

Glycolonitrile has been shown by animal experiments to be a highly toxic compound whose mechanism of action is related to liberation of cyanide, which, in turn, is converted to thiocyanate. Because of its physical properties, glycolonitrile is expected to present a hazard by skin absorption rather than by inhalation. Two workers (one of whom was treated) who had substantial skin exposure experienced illness characterized by delayed onset, failure to respond as expected to antidotal therapy (in the treated case), and persistence of symptoms in gradually diminishing degree with the passage of time.

-- Author's summary

- 53 Chronic Ingestion by Dogs of Methyl Bromide-Fumigated Food. I. Rosenblum, A. A. Stein and G. Eisinger. Arch. Environmental Health 1, 316-323 (Oct. 1960).

Twenty-two beagle dogs of both sexes were divided into groups that received approximately 150, 75, or 35 mg./kg./day of bromide in food fumigated with methyl bromide or 100 mg./kg./day of bromide as sodium bromide. After one year in which general function was observed, no, or only minimal, evidence of bromide intoxication was noted in all groups with the exception of the group receiving the highest dose of bromide in methyl bromide-fumigated food. Three dogs died during the course of these experiments. In only one of these, on the highest dose of bromide, could the cause of death be related to ingestion of bromide, and even in this one the relationship was not clear. No significant effects were noted in the surviving dogs on hemoglobin, hematocrit, white and red cell counts, serum proteins, or blood urea nitrogen.

-- Authors' summary

- 54 Salicylate—A Dangerous Drug in Infancy and Childhood. J. U. Crichton and G. B. Elliott. Can. Med. Assn. J. 83, 1144-1147 (Nov. 26, 1960).

Fifty-eight case reports of salicylate poisoning are analyzed and 41 instances in children are discussed in detail. These 41 cases are clearly divisible clinically into therapeutic and accidental groups. The accidental group is a relatively minor problem. The therapeutic cases are usually in very seriously ill infants and present a challenge to the practicing physician both in diagnosis and treatment. This is a preventable disease, and measures to prevent it are suggested.

-- Authors' summary

03120713

- 55 Application of Radioactive Plant Protection Chemicals for Illustration and Quantitative Evaluation of Spray Deposits. A. Nordby and K. Steenberg.  
J. Agr. Eng. Research 4, 174-180 (1959).

A method is reported for studying the distribution of spray chemicals in orchard trees. A fungicide was irradiated in a reactor. By activity measurements, amounts of spray deposit on leaves can be determined quantitatively. Radio-autograms illustrate the distribution on single leaves. Examples are given of the application of this method on Norwegian apple tree varieties. The effect of precipitation after spraying on amount of leaf deposits is shown.  
-- Nuclear Sci. Absts.

- 56 Industrial Methemoglobinemia. H. C. Halsted. J. Occ. Med. 2, 591-596 (Dec. 1960).

Methemoglobinemia, the primary effect of poisoning by the aromatic nitro and amino compounds, has been considered. A review of the basic biochemical mechanisms involved in the production of methemoglobin from the normal blood pigment, hemoglobin was discussed. Essentially from the standpoint of personal observations the author has further considered the varying aspects of recognition, treatment, and control of chemical cyanosis. Watchful waiting plus general supportive measures are adequate for the treatment of mildly or moderately cyanosed persons. Patients who are severely cyanosed require vigorous and adequate medical therapy. Methylene blue is recommended as the most valuable single drug available to bring about the rapid reduction of methemoglobin to normal hemoglobin. Careful attention must be given to adequate industrial hygiene control measures for whenever the aromatic nitro-amino compounds are handled they constitute a constant hazard to exposed personnel.  
-- Author's summary

#### INDUSTRIAL DUSTS

- 57 The Design and Performance of the Aerosol Spectrometer. A. Goetz, H. J. R. Stevenson and O. Preining. J. Air Pollution Control Assn. 10, 378-383, 414, 416 (Oct. 1960).

The aerosol spectrometer effects the quantitative separation and the deposition of air-borne particulate matter in a pattern, which is geometrically defined over a size range controllable by the operating conditions between Stokes' diameters of 3 microns to 0.03 micron. The derivation of the size- and mass-distribution in polydisperse aerosols from such deposit patterns, requires procedures which are described in detail in another paper.  
-- Authors' conclusions

- 58 Discrimination between Rock and Coal Particles in Thermal Precipitator Samples of Respirable Dust. R. J. Donato. Ann. Occ. Hyg. 1, 280-290 (Apr. 1960).

In the examination of samples of air-borne dust obtained in coal mines with the thermal precipitator it is often desirable to discriminate between rock and coal particles. The author reviews the various possible ways of doing this, and describes 2 methods in detail. One of these is an incineration method for use with a densitometric evaluation, and the other is a microscopical technique in which modified dark-field illumination is used. Both these methods were used successfully in discriminating between rock and coal (or between coal and non-coal) particles in thermal precipitator samples prepared in the laboratory. It is concluded that of the 2 the incineration method with densitometric counting is much the simpler, and lends itself the more readily to routine analysis where estimates of concentration are wanted on a comparatively large scale. The microscopical method would be used only where detailed investigation of individual particles was necessary, e.g., to determine whether a given particle was a mixture of rock and coal, and if so, how much of its surface was rock. Particles smaller than 1 micron can be assessed with considerable confidence, and the lower limit of size is probably about 0.5 micron.  
-- Bull. Hyg.

- 59 Residual Dust Profiles in Air Filtration. D. G. Stephan and G. W. Walsh. Ind. Eng. Chem. 52, 999-1002 (Dec. 1960).

Regardless of the cleaning technique, no amount of cleaning ever removes all of the collected dust from a fabric filter medium; that which remains following the cleaning period is the "residual" cake. In bag-type air filters, significant differences in the residual cake are inherent over the surface of the filter. These differences are discussed and analyzed, and the reasons for variations in residual cake properties as well as practical implications to be gained from a knowledge of them are treated. -- IEC Brief

- 60 Respiratory Disease of Bagasse Workers. A Clinical Analysis of 69 Cases. N. Bayonet and R. Lavergne. Ind. Med. & Surg. 29, 519-522 (Nov. 1960).

A clinical discussion of 69 cases of respiratory disease of bagasse workers as observed by the authors was presented. The disease appeared among workers of the Grace and Company paper mill at Arecibo, Puerto Rico, which utilizes dry bagasse in the manufacture of kraft paper. It is characterized by chest pain, shortness of breath, sore throat, cough with expectoration, rapid loss of weight, fatigue, low grade fever and other minor symptoms. The x-ray films show a diffuse miliary infiltration of both lungs resembling acute miliary tuberculosis. It is contracted by inhalation of dust particles from dry, fermented bagasse. The disease subsides gradually, leaving no residual lesions. The etiology remains obscure, no causative agent having been detected. As preventive measures have been taken to reduce air pollution, the incidence of the disease has subsided. -- Authors' summary

- 61 Problem Areas in Pneumoconiosis. M. Kleinfeld and Jacqueline Messite. Arch. Environmental Health 1, 428-437 (Nov. 1960).

Three major problem areas in pneumoconiosis are discussed; these include establishment of causal relationship, evaluation of the degree of disability, and medicolegal factors. In view of the similarities between occupational and nonoccupational pulmonary diseases, the physician, in order to establish causality, must obtain detailed information of the industrial environment wherein the alleged dust exposure occurred. Frequently this requires, in addition to inspection of the work site, detailed chemical and physical analysis of the air-borne dust and parent compounds to which the worker has been exposed. Cases are cited to illustrate the importance of knowing such factors as the particle size and physical characteristics of the dust and the details of the worker's job. The establishment of a causal relationship in any one case of pneumoconiosis is also dependent on a complete knowledge of these diseases. Examples are given to demonstrate how a knowledge of the epidemiology, incubation period, and differential diagnosis of these diseases is essential in establishing causality. Neither the conventional methods of examination, i. e., clinical, roentgenographic or pathological, nor the more refined methods of pulmonary function determination can by themselves serve as a consistently reliable yardstick for disability evaluation in a case of pneumoconiosis. The limitation of compensation to total disability and time limits for filing claims are additional factors which present problems to the practicing physician. A discussion of these factors is included.

-- Cond. from authors' summary

- 62 A Study of the Bronchial Mucous Glands in White South African Gold Miners. A Histological Survey. C. B. Chatgidakis. Arch. Environmental Health 1, 335-342 (Oct. 1960).

A histological survey of the bronchial mucous glands in white gold miners and a control group of white non-miners, both male and female, was performed. It was shown that enlarged bronchial mucous glands with excessive mucous secretion and dilated ducts is much commoner in males and apparently age in itself does not appear to affect them. The results suggest that enlarged bronchial glands with excessive mucous secretion and dilated ducts occurred with increased frequency as the silicosis became more severe. But this is found with great frequency in elderly male non-miners, and the miner with silicosis is an aging male who is subject to all the usual non-industrial bronchial diseases. In addition, he is a

heavy smoker. The bronchi of 15 non-smoking gold miners, with varying degrees of silicosis were examined and it is suggestive that silicosis in itself plays no part in the enlargement of these glands. There appears to be no increased incidence of enlarged mucous glands in the bronchi of cases of acute pneumonia and tuberculosis. No significant histochemical differences have been observed in the bronchial gland mucus of miners and non-miners.

-- Author's summary

- 63 A Case of Caplan's Syndrome in a Roof Tile Maker. D. S. Hayes and E. Posner. *Tubercle* 41, 143-145 (Apr. 1960).

The patient was a man of 50 who had been employed making roof tiles in a factory in Stokes-on-Trent. Over most of the man's exposure the tiles were hand-made from a local clay in a mold, the inside of which, was dusted with fine coal dust or quartz sand to prevent the clay from sticking. Both these materials were stored in open bins adjacent to the molding benches so that each manipulation of the mold produced a cloud of dust. The patient had been exposed to this dust for 17 years. He suffered from rheumatoid arthritis for 12 years; his father had been a victim of the disease. The x-ray film of the chest shows the very characteristic appearance of Caplan's syndrome. Five other cases of pneumoconiosis have been discovered by mass radiography surveys; two of them in women. The present case is the first example of Caplan's syndrome reported in this occupation.

-- Bull. Hyg.

- 64 The Fate of Inhaled Particles in the Early Postexposure Period. (2) The Role of Pulmonary Phagocytosis. C. W. LaBelle and H. Brieger. *Arch. Environmental Health* 1, 423-427 (Nov. 1960). (See IHD Abst. 601, June 1959).

A method has been developed by which the number of free phagocytic cells in the lungs of rats can be estimated. This method has been used to show that the amount of dust eliminated from the lung during the early postexposure period is proportional to the number of free phagocytic cells present, and that the kinetics of the elimination of the particles is identical, within the experimental error, with the kinetics of the disappearance of phagocytic cells following exposure to dust, whether the latter is given by injection or inhalation. It is therefore, concluded that transport of deposited particles by phagocytes in the primary mechanism by which inhaled dust particles are eliminated from the lung following inhalation.

-- Authors' summary

- 65 The Results of Chemotherapy in Silicotuberculosis. C. S. Morrow. *Am. Rev. Respiratory Diseases* 82, 831-834 (Dec. 1960).

Eighteen patients with active extensive silicotuberculosis, 16 of whom had cavities, received chemotherapy for various periods of time; most of them had between 3 and 12 months of treatment. Three regimens were employed, all of which contained isoniazid. The results of therapy in this group of patients were excellent; 16 showed reversal of infectiousness and 11 demonstrated roentgenographic improvement. Cavity closure, however, occurred in none of the 16 patients with cavities. This paper reflects the excellent results reported in the recent literature on the chemotherapy of silicotuberculosis.

-- Author's summary

- 66 Tuberculosilicosis: A Study of Its Synergistic Mechanisms. P. Gross, M. L. Westrick and J. M. McNerney. *J. Occ. Med.* 2, 571-575 (Dec. 1960). Reprints available from Industrial Hygiene Foundation upon request.

Iron-contaminated quartz dust, when injected intratracheally in combination with tuberculin into sensitized guinea pigs, produced a greatly exaggerated tissue response. In many of the animals, the resulting disease resembled experimental tuberculosilicosis. The modification of experimental silicosis by an immune reaction, as exemplified by the pulmonary tuberculin reaction, supports the hypothesis that the development of tuberculosilicosis is dependent upon a reciprocal stimulation of tissue responses caused respectively by silica dust, on the one hand, and by sensitivity to the tubercle bacillus and its products, on the other, as postulated by Vigliani and Pernis.

-- Authors' conclusions

- 67 Pneumoconio-Tuberculosis. Results of Combined Medical-Surgical Therapy.  
CH. Gernez-Rieux, E. Balgairies, C. Voisin and P. Fournier.  
Am. Rev. Respiratory Diseases 82, 835-842 (Dec. 1960).

The present study is based on a survey of long duration of 395 cases of pneumoconio-tuberculosis in coal miners. Of a group of 277 patients treated with long-term therapy, only 69 healed. Of these, 43 patients were last seen 2-6 years after completion of drug therapy; there were 7 relapses. The results of chemotherapy for tuberculous coal miners were poor compared with those for non-coal-mining tuberculous patients. This bad prognosis was already evident when the fibroconiotic lesions were roentgenographically latent. The results of chemotherapy and surgery in 118 patients were good. The lesions of 81 of a group of 106 patients who were last seen 2-7 years after surgery healed. These results justify surgery therapy after preoperative 6-month chemotherapy without roentgenographic improvement and when the functional respiratory value and the extent of the tuberculous lesions make it possible. Pre- and post-operative functional respiratory re-education and post-operative chemotherapy are necessary. The gravity of pneumoconio-tuberculosis stresses the importance of early diagnosis and treatment of conglomerations. -- Authors' summary

- 68 Complications of Asbestosis Demonstrated at the Post-Graduate Medical School of London.  
P. Hugh-Jones and B. E. Heard. Brit. Med. J. 1, 1345-1353 (Apr. 30, 1960).

The authors described the history, clinical findings and postmortem appearances in a case of asbestosis affecting a man aged 50 who had worked with asbestos for 11 years. The asbestosis had caused honey-combing in peripheral parts of the lungs, principally the left where the lower posterior subpleural zone, the diaphragmatic surface, and to a small extent the anterior surface and apex were affected. A columnar-cell carcinoma was present in the posterior segment of the right lower lobe, and there were numerous metastases in the lungs, hilar glands, liver, brain, adrenals and bones. In addition there were present rheumatic heart disease and old rheumatoid arthritis. The detailed presentation of the case was followed by a full discussion. Hugh-Jones referring to the radiological appearances, stated that specific changes may be absent in some cases of undoubted asbestosis, and that in such cases pulmonary function tests provided useful diagnostic evidence; it seemed reasonable to deduce the presence of asbestosis where, in addition to a history of exposure to asbestos, the patient was found to have interstitial fibrosis causing alveolar-capillary block, finger clubbing and chest rales, whether or not the x-ray film showed characteristic changes. The authors referred to the interesting problem that, in this and other cases of asbestosis, the distribution of the fibrosis does not always correspond to the distribution of asbestos. -- Bull. Hyg.

- 69 Experimental Asbestosis in Guinea Pigs and Rats. M. Yoshikawa.  
J. Sci. Labour (Tokyo) 36, 182-195 (Apr. 1960). Japanese.

The authors used guinea pigs and rats, and induced asbestosis by the technique of compulsive inhalation of asbestos fibers in saline. There was a high mortality soon after inhalation, due to asphyxia from obstruction of relatively large bronchi and to atelectasis and pneumonia from obstruction of smaller bronchi. The essential changes proved to be non-specific alveolitis with giant cells and formation of asbestosis bodies; in rats, but not guinea pigs, there was no proliferation of collagenous fibers in the fibrous lesions. The finding of asbestosis bodies in rats is regarded as new. It had formerly been assumed that asbestos fibers less than 5 microns in length are harmless, but the author's findings suggest that this is not true. -- Bull. Hyg.

- 70 A Clinical and Roentgenological Study of Kaolin Workers. R. W. Edenfield.  
Arch. Environmental Health 1, 392-403 (Nov. 1960).

A brief history of the kaolin industry in Georgia has been presented, and some of the significant physical and chemical properties of kaolin have been described. A study made over the past 5 years has shown that the general health of 1,130 workers in this industry does

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not differ significantly from that of the general population in the area of corresponding age and race. The lung changes seen in kaolin workers does not represent a form of silicosis. Uncomplicated kaolin pneumoconiosis appears to be due to retention in the lungs of finely divided kaolin which is almost completely inert. Clinical and animal experimental studies indicate that the combination of tuberculosis and heavy dust exposure is the causative factor in those cases showing progressive massive fibrosis. The paper contains 24 references to the subject.

-- Cond. from author's summary

### PHYSICAL ASPECTS OF THE ENVIRONMENT

- 71 Medical Problems of Passengers Related to Air Transportation. K. E. Dowd.  
Mod. Med. Canada 15, No. 3, 87 (1960).

For the guidance of physicians, suggestions are made regarding air travel for incapacitated patients. These are included in information presented under the following headings: circulatory system, respiratory system, accident cases, surgical conditions, blood diseases, locomotor system, blind passengers, stretcher cases, immunization requirements for international travel, smallpox, yellow fever, cholera, and passenger problems of jet aircraft. Conditions acceptable for air travel are indicated. Attention is drawn to those acceptable following certain provisions, and under circumstances as outlined, and also to contraindications. Stretcher cases will usually be accepted on most commercial airlines in case of emergency only and must be accompanied by a qualified attendant. Where saving a life is involved, the airline practice is to disregard factors of inconvenience to other passengers, and to accept the sick person, provided this does not offer a threat to the safety or health of others. In practically no case should authority be given for air travel of persons in the terminal stages of illness. The problems of jet aircraft have introduced special protective measures, particularly in the event of rapid decompression. With the new jet aircraft structural design, however, there should be no serious risk of decompression. Time and experience will prove whether the various protective devices such as oxygen equipment will ever be required. The former specialty of aeromedicine has become "aerospace medicine". Now embracing the "outer universe," it affords opportunity for extensive research and investigational study in the future.

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

- 72 Determination of Environmental Limits for Everyday Industrial Work. A. R. Lind.  
Ind. Med. & Surg. 29, 515-518 (Nov. 1960).

A subject was exposed to a wide range of climates, with effective temperatures from 13 to 31.5°C, while he walked continuously for 60 minutes on a treadmill at an energy cost of 210 kcal./m.<sup>2</sup>/hr. Rectal temperature reached equilibrium within this period of 60 minutes, at approximately the same value (37.8 ± 0.1°C) over a range of "neutral" climates from effective temperature 13°C to about effective temperature 27 or 28°C; above this climatic range rectal temperature equilibrated at higher levels. Flexibility of the thermoregulatory system allowed the rectal temperature to be maintained at a steady level irrespective of climatic variations within the "neutral" zone, and the reason for the higher equilibrium-level of rectal temperature in "hotter than neutral" climates is discussed. This criterion could usefully be applied to describe climatic limits for everyday work in industry or elsewhere.

-- Author's summary

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- 73 Technical Protection Measures Against Heat Radiation. IR. H. J. Bordes, et al.  
Ind. Med. & Surg. 29, 525-529 (Nov. 1960).

From their study the authors come to the following conclusions: (1) Reflective material, if it can be applied so that it does not become dirty too soon, is better than non-reflective material as a protection against heat radiation. (2) If several sheets are applied, it is preferable to have open air spaces between them. (3) Every hot surface can be screened by a suitable screening construction. (4) Calculations can be relied upon when the temperature of the hot surface is known.

- 74 A Hearing Conservation Program. R. G. Birrell.  
Med. Bull. (Std. Oil N.J.) 20, 287-304 (Nov. 1960).

The author describes a hearing conservation program for an oil company which consists of 3 parts, namely: measurement of noise exposure; noise control; and measurement of hearing. All these parts are of equal importance. The measurement of noise exposure indicates the need for noise control and hearing measurement. The measurement of hearing is the final check on the effectiveness of noise control measures and on the adequacy of the present hearing conservation criteria used to evaluate noise exposure data. A glossary of noise terms is included in this paper.

- 75 Toxic Waterbloom in Saskatchewan, 1959. H. O. Dillenberg and M. K. Dehnel.  
Can. Med. Assn. J. 83, 1151-1154 (Nov. 26, 1960).

A rather startling experience is reported: blooming and scum-forming blue-green algae killed in the summer of 1959 numerous dogs, cattle and also poultry which watered on the shore of lakes in Saskatchewan where scum had amassed. Some hazard seems to exist also for humans bathing at such sites. The algae involved were described as Microcystis flosaquae and Nodularia spumigera. The attention of the medical profession is drawn to blooming blue-green algae.

-- Authors' summary

#### RADIOACTIVITY AND X-RADIATION

- 76 Natural Lead-210 Content of Man. J. B. Hursh. Science 132, 1666-1667 (Dec. 2, 1960).

The natural Pb-210 content of ash samples from 18 cadavers has been measured, and an average in vivo content of 0.015 picocurie per gram of wet bone is estimated. The contribution of Pb-210 to the radioactive dose from natural sources is about one-fifth that from internally deposited Ra-226 and its daughters.

-- Author's abstr.

- 77 Avian Uptake of Fission Products from an Area Contaminated by Low-Level Atomic Wastes. W. K. Willard. Science 132, 148-150 (July 15, 1960).

Birds living on the Oak Ridge White Oak Lake bed, an area contaminated by low-level atomic wastes, revealed a striking seasonal difference in uptake of fission products. Because the omnivorous diet of passerine birds is ecologically comparable to the mixed diet of man, uptake of radionuclides by wild birds provides an assay of amounts to be expected at the trophic level of primary interest to man. This paper is concerned with gross beta radioactivity and with concentrations of Sr-90 and Cs-137 in birds living on the White Oak Lake bed in 1958-1959.

-- APCA abstr.

03120719

- 78 Regulatory Problems in Controlling Ionizing Radiations. M. M. Udel.  
Arch. Environmental Health 1, 497-501 (Dec. 1960).

The physician responsible for administering a program to prevent injury from ionizing radiations will face certain problems. Some of these are derived from legislation and codes; some relate to developing competence in the field; and others are characterized as human factors. Solutions to several of these problems are cited. The responsibility of preventive medicine to deal effectively with this hazard, particularly in educating the public, is emphasized.

-- Author's summary

- 79 Research in the Radioactive Contamination of the Environment. C. P. Straub.  
Arch. Environmental Health 1, 302-310 (Oct. 1960).

Although this paper essentially reports radioactivity levels in Cincinnati samples, radioactivity is being determined in many areas on a wide variety of samples. The work is by no means complete, and more studies are needed to define the current levels of specific radionuclides in environmental media. Those areas showing higher levels should be studied in greater detail to determine the sources of these higher levels and also to follow the movement of the radionuclides of interest through the various segments of the environment and the food chain to man. With such information at hand remedial measures may be instituted to minimize the transfer of radioactivity through the environmental cycle to man. It is not too soon to plan and carry out studies which will provide means for controlling the spread of specific radionuclides directly to man or through his food chain. Information on environmental sources of radioactivity is needed to provide a better basis for indicating permissible occupational exposures. If environmental sources result in significant exposure to the individual, it may be necessary to consider the reduction of occupational levels to a point where the combined hazard will be minimized. Furthermore, exposure from occupational sources may be controlled more easily than exposures from environmental sources.

-- Author's conclusions

#### ENVIRONMENTAL MEASUREMENTS

- 80 A Tracer Technique to Measure Deposition of Stack Emissions. E. J. Schulz, et al.  
Am. Ind. Hyg. Assn. J. 21, 343-349 (Oct. 1960).

This investigation indicates that the tracer technique described is a useful tool in the quantitative measurement of the particulate deposition rate of industrial emission. The variable decompositions of uranine solutions exposed to the atmosphere in dust-fall containers prevents the use of dust-fall jars as sampling devices. Based on the laboratory study, uranine can be dispersed as a tracer into stack at stack-gas temperatures up to 600°F without decomposition. With direct stack injection, losses of tracer in the stack must be determined for each application. In using uranine it is mandatory that background fluorescence be determined in the area to be investigated. However, the technique is not limited to uranine. Any soluble material that satisfies the requirements of a tracer can be employed with this method.

-- Authors' conclusions

- 81 Lead, Carbon Monoxide and Traffic. A Correlation Study. R. S. Brief, A. R. Jones and J. D. Yoder. J. Air Pollution Control Assn. 10, 384-388, 413 (Oct. 1960).

Atmospheric levels of lead and carbon monoxide were studied at 6 locations in a Northeastern United States' City, wherein the traffic density varied from 0-99 vehicles/min. Positive correlations have been developed between lead and traffic density and between carbon monoxide and traffic density. The correlations obtained conclusively point to vehicle exhaust as a source of lead and carbon monoxide in the atmosphere. -- Authors' summary

- 82 Olfactory Thresholds of some Important Irritant Gases (Sulfur Dioxide, Ozone, and Nitrogen Dioxide) and Symptomatic Effects of Low Concentrations in Man. D. Henschler, et al. Arch. Gewerbepathol. Gewerbehyg. 17, 547-570 (1960). German.

The authors studied the response of persons inhaling for half an hour without masks or tubes, in a closed room, air containing increasing concentrations of the 3 gases, with conditions of varying relative humidity. With sulfur dioxide at 1.1 ppm both smell and taste were noticed by 7 out of 12 persons; only 4 were able to recognize the gas; the taste was described as "metallic", and increased with increasing concentrations; 2.6 ppm became unpleasant at the end of half an hour; 5 ppm caused coughing. For ozone the olfactory threshold, described as an "electric" smell, was less than the lowest concentration used (0.02 ppm); at 0.16 ppm there was slight irritation and dryness of the nose and throat; at 0.58 ppm cough, at 0.9 ppm sneezing and tightness of the skin of the face, and at 1.2 ppm marked increase of all symptoms. Nitrogen dioxide was perceptible by odor at 0.1 ppm but with increasing concentrations up to 20 ppm tolerance was established so that neither odor nor irritation was noted. Increasing the relative humidity from 60-80% increased the irritative symptoms of nitrogen dioxide but had no definite effect on the other 2 gases. It is concluded that the maximum concentrations which can be tolerated without discomfort for long periods are, for sulfur dioxide, below 0.5 ppm for ozone, below 0.05 ppm and for nitrogen dioxide below 1 ppm—about one-tenth of the recognized maximum allowable concentrations.

-- Cond. from Bull. Hyg.

- 83 A Method for Identifying Particulate Fluoride Compounds. Barbara J. Tufts. Anal. Chim. Acta 23, 209-214 (Sept. 1960).

A method is described for identifying particulates containing fluorides and other complex fluorine compounds such as fluosilicate in samples collected on membrane filters. The filter is treated with lead chloride to precipitate lead chlorofluoride at each fluoride-containing spot. This microspot is identified by examination in a light microscope. Sulfate and phosphate, which also precipitate if present, can be distinguished and do not interfere. Calibrations are given for the fluorides and the more insoluble salts, relating the original particle size to the reaction site size. Thus the mass of the particles can be calculated. Results of some field tests in an area of fluoride pollution are given, and compared with standard testing procedures.

-- APCA Absts.

#### PREVENTIVE ENGINEERING

- 84 Smoke Emission from Hand-Fired Boilers: Effect of Operating Conditions. L. J. Flaws. Roy. Soc. Promotion Health J. 79, 833-840 (Nov.-Dec. 1959).

The tests described show that most cases of smoke emission from hand-fired, natural or forced-draft shell-type boilers are caused by a shortage of secondary air, by low temperature in the combustion space, or by a combination of these conditions. Any shortage of secondary air can be made up without loss of efficiency by one of a number of temporary measures, e.g., leaving part of the grate uncovered or the firing door partially open. For ease of operation, however, the secondary air should be supplied through properly designed appliances which can control the proportion of secondary to primary air throughout each firing cycle. Temperature conditions in the furnace depend largely on the rate of burning and method of firing. With combustion rates less than about 8 lb./sq.ft. grate area/hr., distillation smoke cannot be avoided. With a graded coal the side-by-side method of firing must be used if a suitable temperature is maintained in the furnace. Maximum output from a hand-fired boiler which is operating smokelessly can be increased to about 10% if smoke is tolerated. If, however, the smoke is allowed to become excessive the load begins to fall.

-- APCA Absts.

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- 85 Problem and Control of Air Pollution in the Australian Heavy Clay Industries. J. L. Sullivan and R. P. Murphy. *J. Inst. Fuel (London)* 33, 436-442 (Sept. 1960).

The emission of dense smoke and soot from the heavy clay industries is a problem affecting many countries. Control of this problem presents certain difficulties mainly because some ceramic products require special firing techniques which are not always attainable by mechanical methods. There will be an inevitable delay before the ultimate solution is found. Consequently, the use of hand-fired intermittent kilns, which now constitute the main problem, is likely to continue for some time. This paper describes a method of hand-firing by which smoke can, in most cases, be reduced to an acceptable level without significantly increasing effort. In Australia, the method which is termed split-firing, is gaining acceptance and in many cases has enabled firms to comply with clean-air ordinances. Soot emission is not appreciably reduced by split-firing but other methods, namely the use of low volatile fuel in the early stages of firing and stack collection, are discussed. -- APCA Absts.

- 86 New Way to Scrub Incinerator Gases. S. Smith. *Air Engineering* 2, 40-42 (May 1960).

A package scrubber is described for application to flue-fed incinerators for domestic rubbish and garbage in apartment buildings. In New York City there are 11,000 flue-fed incinerators that burn approximately 600,000 tons of refuse annually. A scrubber will limit outlet dust emissions and make incinerators acceptable under air pollution ordinances. Hot, dirty flue gases are first sprayed to cool, saturate the gas, and remove coarse dust particles. The conditioned gas then passes upward through an impingement baffle plate cleaning stage. After impingement cleaning, the gas passes through an entrainment separator at the top of the unit and leaves clean and free of entrained water. Efficiency up to 96% is claimed. Cost is approximately \$2,500, not including installation. Operating costs per year are \$100 for equipment, maintenance and repairs; \$263 for power and \$33 for water.

-- Cond. from Public Health Engr. Absts.

- 87 Industrial Dust Suppression and Collection. C. G. McKeown. *Smokeless Air* 30, 303-312 (Summer 1960).

Dust collectors of the cyclone, bag, scrubber of coke bed and water spray types are discussed. A wet scrubber-cyclone collector called the "Equitrace" is described. It consists of a series of concentric rings in the body and thimble of the cyclone. It is claimed that these concentric rings prevent the water from being thrown to the outer periphery of the cyclone and permits even contact of water with the dust. It is also stated that the "Equitrace" cyclone yields a good degree of dust collection in that the concentric rings give a high efficiency collector effect. A cupola installation drawing is shown.

-- Public Health Engr. Absts.

#### COMMUNITY AIR HYGIENE

- 88 Comprehensive Area Surveys in New York State. C. S. Maneri and W. H. Magonnell. *J. Air Pollution Control Assn.* 10, 374-377 (Oct. 1960).

Under the New York State Air Pollution Control Board's program, comprehensive area surveys will be made in all sections of the state to evaluate existing or potential air pollution problems. Necessary local or regional rules and regulations, as deemed appropriate, are based on the findings. Source sampling usually is not undertaken but emission estimates are obtained from fuel and gasoline consumption, refuse incineration, industrial processing, and other sources. Estimates are based on emission values reported for similar operations

and activities in published technical literature. Contaminants are classified by type, amount, source category, and community of origin. Existing meteorological records and topographical information are analyzed to ascertain important influences on each area's air pollution. Effects are determined from past studies, field observations, citizen interviews, and opinions of qualified personnel. Local ordinances and enforcement are reviewed to appraise effectiveness of local control programs. Public information is an integral part of the program. Publicity before, during, and following surveys appraises citizens of the purpose, progress, and findings. Industries, community officials, and the general public are cooperating in the surveys.

-- Cond. from authors' summary

- 89 Particle Dispersion from Stacks. J. P. Ehrenburg and G. B. Smit.  
Electro-Tech. 37, 359-368 (Aug. 6, 1959). Dutch.

Fly ash scattering from a stack is calculated, taking into account the particle size distribution and the condition of the atmosphere with respect to wind velocity, degree of turbulence, and wind direction. Various methods of calculation are used, especially since fly ash behavior depends very much on the particle size. The results of the study indicate that, in general, there are two zones of maximal deposit. The authors recommend that this study and the results be taken into consideration in the planning of new plants where fly ash scattering is apt to be encountered.

-- APCA Absts.

- 90 A Preliminary Survey of Hydrocarbon-Derived Oxygenated Material in Automobile Exhaust Gases. K. J. Hughes and R. W. Hurn.  
J. Air Pollution Control Assn. 10, 367-373 (Oct. 1960).

Both mode of engine operation and chemical composition of the fuel influence the emissions of exhaust gases. Influence is both qualitative and quantitative. More than 30 oxygenates in the molecular weight range of ethylene oxide through pentanol have been found in automobile exhaust gases: 14 have been identified positively, and tentative identifications have been established for another 18. Low concentrations of oxygenates are present in exhausts produced during automotive engine cruise and acceleration operations when ignition is consistently good. However, ignition malfunctions will significantly raise emissions of oxygenates; and during periods of deceleration or motored operation, the amount of oxygenates may approach the quantity of hydrocarbons in the exhaust gases. -- Authors' conclusions

- 91 Hydrocarbons as Air Pollutants. W. L. Faith. Ind. Wastes 5, 86-88 (Aug. 1960).

The types and functions of hydrocarbons as air pollutants are discussed. Basically an air pollutant, a substance, in the concentrations present in any atmosphere, must produce one or more of 3 effects: (1) an effect on human health; (2) an economic effect, such as damage to vegetation or discoloration of buildings; and (3) create a nuisance, such as an unpleasant odor. Hydrocarbons reach the atmosphere in 2 ways; by evaporation, and in combustion effluents. The problem of air pollution from hydrocarbons may be summed up as follows: most hydrocarbons cannot be considered air pollutants; olefins are definite air pollutants where photochemical smog is a problem; polynuclear hydrocarbons may be dangerous air contaminants; control of hydrocarbon emissions should be directed toward those species causing a definite problem in a given locality.

-- APCA Absts.

- 92 Eye Irritants Formed During Photo-Oxidation of Hydrocarbons in the Presence of Oxides of Nitrogen. E. A. Schuck and N. A. Renzetti.  
J. Air Pollution Control Assn. 10, 389-392 (Oct. 1960).

Individual hydrocarbons were irradiated with near-ultraviolet light in the presence of nitrogen dioxide. Examination of the reacting systems with an infrared spectrophotometer and a gas chromatograph led to ready identification of major products. Two products of the photo-oxidations, formaldehyde and acrolein, were found to be eye irritants and to account for

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the majority of the observed eye irritation found in the photo-oxidized systems studied. At the concentrations present in the photo-oxidized mixtures, epoxides, most aldehydes, ketones, nitrites, ketene, ozone, alkyl nitrates, and acyl nitrates were not eye irritants. Terminal olefins in general led to the greatest amounts of irritation. Internal olefins were of lesser importance in the formation of eye irritants in spite of their rapid rates of reaction. Saturates did not contribute to eye irritation because of their slow rates of reaction.

-- Authors' summary

- 93 Air Quality for California Communities. M. H. Merrill.  
J. Occ. Med. 2, 579-584 (Dec. 1960).

The California state legislature has enacted bills requiring the Department of Public Health to establish standards for air quality and motor vehicle exhaust by February 1, 1960. This paper describes the procedures that are being followed by the department in setting standards for air quality. It describes the expected pattern for the standards in California and also summarizes the efforts of others to set limits for industrial or atmospheric contaminants.

-- Author's summary

- 94 The Development of Motor Vehicle Exhaust Emission Standards in California. J. A. Maga and G. C. Hass. J. Air Pollution Control Assn. 10, 393-396, 414 (Oct. 1960).

The motor vehicle exhaust standards adopted by the California State Department of Public Health included carbon monoxide. The standards represent a first attempt to set vehicular emission standards as a basis for control legislation. Judgments and decisions were of necessity made on the basis of present knowledge of the smog problem. As new data become available, the standards will be revised. The process of considering the standards has in itself been useful in defining questions which must be answered in order to make sound decisions in the field of vehicle exhaust control. The setting of the first numerical standards should not be allowed to detract from continued research into the mechanism of smog formation and the relative contribution of the motor vehicle.

-- Authors' conclusions

#### MANAGEMENT ASPECTS

- 95 Management's Interest in Medical Care Plans. S. W. Wirpel.  
Monthly Labor Rev. 83, 147 (Feb. 1960).

There is no essential difference between labor's view and that of management as to their responsibility for medical care. They differ as to a question of costs and willingness to sacrifice money to pay for the desired level of medical care. Both management and labor must gear their programs to meet the needs of the community. A limited group-practice or open panel plan could operate on about \$200 per employee per year: at the present in most industries about \$100 per employee is available. The company and union should agree to contribute an amount in lieu of a wage increase for 1, 2, or 3 years until sufficient capital is available to acquire needed facilities. A framework should be developed for a community plan open to all groups and individuals in the community. An annual choice of participation or non-participation of group practice or open panel or a limited traditional type of hospital-surgical insurance should be permitted. A community approach is needed, not a nation-wide union-management plan limited to this or that union or industry.

-- J. Occ. Med. Absts.

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- 96 Role of the General Practitioner in Industrial Medicine Today. C. F. Martin.  
J. Kentucky Acad. Gen. Pract. 6, 32 (July 1960).

The American Academy of General Practice has stated that 93% of its members derive some financial remuneration from some type of industrial practice. It is obvious from the number of bills before Congress and the number of fringe benefits and health plans developed by the business world that security and health are first and foremost in the public eye. The general physician's role may begin with the pre-employment physical examination of a patient. The employee must be placed on a job he can handle. The employer must be aware of his capabilities as well as limitations. Management is showing a growing awareness of maintaining at top efficiency the health of the employee. The objectives of any health-maintenance program would be to protect the individual from any health hazard which might be caused by his work environment and to encourage him to maintain his own good health by such things as periodic physical checkups and health surveys. -- Cond. from J. Occ. Med. Absts.

- 97 What Makes a Top Executive? D. G. Moore. Personnel 37, 8 (July-Aug. 1960).

This article represents one of many attempts to answer the difficult question as to what characterizes the top executive. The author reviews briefly many of the qualities ascribed to the executive; that of being a generalist, a coordinator, a man of vast knowledge, a person who has the analytic ability to make final decisions, and, finally, a person who is simply a figurehead who participates in the ceremonial activities of the industry. Under the environment of the organizational structure, it is stated that the colleagues of the business executive and his trusted subordinates are not only his friends, the people with whom he works and cooperates in getting the job done, but they are also his enemies. They are friendly enemies; everybody smiles and carries on as if nothing really were happening, but everybody is in competition. There is also a section on the executive personality, listing factors such as ability to integrate, to decide, to have judgment, to be positive and to be cooperative.

-- Cond. from J. Occ. Med. Absts.

- 98 Mental Development and Occupational Health. R. C. Page.  
Ind. Med. & Surg. 29, 582-587 (Dec. 1960).

The first ten years of employment are the crucial ones. If a thorough evaluation of the man is made at the time of his selection, taken into consideration in his job placement, and kept up thereafter, the problems inherent in the various stages will solve themselves as quickly as they arise. No machine, no cut-and-dried formula of psychological testing can accomplish this prerequisite evaluation for the simple reason that no two individuals are alike. On the other hand, the trained and experienced counselor, with an understanding of human beings as whole and unique persons, can lay the foundations for the kind of constructive placement that will end in the most rewarding development of the executive through all of the major stages, and afford him the opportunity for identity, opportunity equity—that he deserves.

-- Author's summary

- 99 Can Blue Cross Save Its Life? F. S. Groner.  
J. Am. Hosp. Assn. 34, 44 (Jan. 1, 1960).

Life or death is the challenge facing Blue Cross in the next decade. Blue Cross is a community mechanism designed to obtain for the public the best hospital care at the best price. A quarter of a century ago, it was an accepted fact that the sick poor in the country were receiving care but that the middle class citizen was unable to finance adequate medical care and hospital service. To a marked degree, Blue Cross has solved their problem, but other problems have evolved. Society assumes that every person has an inalienable right to hospital care when needed. Since hospitals as a group cannot deny this care, the social philosophy exemplified by Blue Cross is a logical one. Blue Cross is able to pay a larger percentage of its income in hospital benefits than is commercial insurance. One of the goals of Blue Cross and the hospitals should be the achievement of a basis of reimbursement that can

be rationally supported, understood, and defended. To achieve a marked degree of success in the sale of a product or service it is necessary to create and maintain a nationwide appeal. This applies to Blue Cross. It must be presented as a nationwide product in order to reach the maximum number of potential consumers. Its survival depends upon its presentation as a national product.

-- J. Occ. Med. Abstr.

## ACCIDENTS AND PREVENTION

- 100 New Electronic Fire Detector. Anon. Safety Maintenance 120, 49 (Dec. 1960).

An electronic tube, capable of detecting fire by sensing its ultraviolet radiation, has recently been developed. The tube—smaller than a golf ball—is insensitive to direct sunlight, normal illumination enclosed in glass, cosmic and nuclear radiation. Some applications for the ultraviolet radiation detector are: (1) As a flame-out detector: in boiler fire boxes, furnaces, ovens, kilns, etc. (2) As a fire detector: in stores, warehouses, chemical plants, refineries, aircraft, power substations, fur storage vaults, etc. (3) As a communications device: ship to ship or man to man signaling. (4) As a remote control device, blind to sunlight: to operate garage doors, etc. (5) As a smoke detector: in warehouses, fur storage vaults, cargo ships, boiler and furnace stacks, ventilating ducts, etc. (6) As an electrical arc detector: generators, motors, switchgear, welding controls, etc.

- 101 Nightmare Hazards: Explosions Caused by Passing Cars or Combing One's Hair. Anon. Safety Maintenance 120, 19 (Dec. 1960).

Technicians in the Experimental Fuze Unit of the Arsenal Operations Division at Picatinny Arsenal, Dover, New Jersey, work with hazards they cannot see—low-energy initiators which can be detonated by small electrical currents. The low-energy explosives are so sensitive to electromagnetic fields that they may be detonated by impulse from the generator of a passing car or even the static electricity created by a person combing his hair. Safety experts have undertaken an elaborate safety program which greatly reduces the possibility of an accidental detonation. All light switches and bulb sockets are specially-designed explosion-proof fixtures. Telephones are designed to prevent emanation of electric waves. The clothing of all workers is carefully monitored. Only conductive-soled shoes and cotton clothing are worn, since regular-soled shoes prevent drainage of static electricity, and clothing of synthetic materials tends to create static electricity. Chemically-treated flame-resistant uniforms with no pockets or cuffs which would collect explosive dust are provided. Jewelry and combs are prohibited. When explosive items are removed from their protective aluminum foil wrappings to be packed into casings, technicians wear metal "wristlets" to which ground wires are attached. Visitors drag metal canes after them to drain off any static electricity. Nothing is overlooked to protect the safety of those who work with sensitive explosives.

- 102 Some Tips on Safe Lifting. C. A. Pease. Safety Maintenance 120, 24-26 (Nov. 1960).

The author, who is Supervisor of Physical Education at the University of California in Berkeley, has illustrated his paper with some excellent photographs pertaining to the subject. The main points to safe lifting are: (1) Get the center of the weight as high above the ground as possible. (Stand it up if it is a sack. Stand it in a corner if it is a box.) (2) Get the object as close as possible to the supporting column (your backbone). (3) Set the feet, legs and back (back as nearly vertical as possible). (4) Lift with the arms first, and roll the object over the knee. (5) Pull the object as close to you as possible. (6) Stand up with the load, using the legs, thus placing little or no strain on the back. (7) Now turn your FEET if your assignment requires turning, NOT your hips or shoulders.

## MISCELLANEOUS

- 103 In Waste Treatment—Know Your Chemicals, Save Money. H. L. Jacobs.  
Chem. Eng. 67, 87-92 (May 1960).

This article discusses the use of various commercial chemicals for neutralizing acidic and alkaline wastes. The chemicals are discussed individually with information given on handling, reaction rates and other properties. A tabulation shows the relationships between costs and consumption on a commodity weight basis. -- Public Health Eng. Absts.

- 104 Evaluating Laboratory Data. H. C. Bramer.  
Ind. Wastes 5, 40-43 (Apr. 1960).

A technique has been presented by which an effluent stream can be completely described in terms of the variation in concentration of one of its components. Precautions to insure random sampling have been mentioned and the statistical calculations based on the Central Limit Theorem have been illustrated. The statistical techniques herein are not news; they are well known to statisticians. It is hoped, however, that this paper may encourage the use of this and similar techniques in the water pollution abatement field.

-- Public Health Eng. Absts.

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