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Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

MAY, 1965
(Vol. 29, No. 5)

INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

4400 FIFTH AVENUE -- PITTSBURGH, PA. 15213

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INDUSTRIAL HYGIENE FEATURES

Height, weight and obesity in an industrial population are discussed in Abst. No. 439.

Glaucoma screening from a public health clinic is described in Abst. No. 444.

Abst. No. 447 reports on pulmonary function and therapy in disability applicants.

Abst. No. 453 discusses pulmonary cancer and smoking in Switzerland.

Information on the measurement of smoking experience is given in Abst. No. 454.

Toxic epidermal necrolysis is reviewed in Abst. No. 461.

See Abst. No. 465 for data on dermatitis from hydrazine hydrobromide solder flux.

Abst. No. 470 studies nickel carbonyl: its detection and potential for formation.

Studies of diisocyanate workers are presented in Abst. No. 473.

Consult Abst. No. 474 for a study of the chronic effects of insecticides in man.

A description of parathion poisoning from flannelette sheets is given in Abst. No. 475.

Abst. No. 477 reports on mushrooms and a toxic reaction to alcohol.

An investigation on the deposition and retention of dust in the human respiratory tract is presented in Abst. No. 484.

A study of lung dust in pneumoconiosis is the title of Abst. No. 485.

Vegetable dust pneumoconioses are discussed in Abst. No. 486.

A report on noise and the conservation of hearing is given in Abst. No. 494.

FOUNDATION FACTS

NEW MEMBERS. The Foundation is pleased to add the names of Keystone Brass Works, Inc. and Sturm, Ruger & Co., Inc. to its list of members.

MR. E. K. DAVISON, Chairman of the Foundation's Board of Trustees presided over a second combined meeting of the Foundation's Board, Executive and Policy & Planning Committees. The purpose of the meeting was to prepare the Foundation's scientific program for 1965-1966, including the conferences held in association with the 30th Annual Meeting, and to consider the means of providing support to programs described in the Foundation's new membership information booklet, distributed last month. Members desiring additional copies for internal company use, or in bringing the Foundation's program to the attention of associates in prospective member companies, should request the number needed. The Foundation's mission can be best accomplished by placing its support on the broadest base possible in industry, and it is in the best interest of the membership as well as the Foundation to interest new companies in membership.

DR. ROBERT T. P. deTREVILLE, Industrial Hygiene Foundation's Managing Director, represented the Foundation at the American Industrial Hygiene Conference held May 3-7, in Houston, Texas. He attended the IHF Chemical-Toxicological and Engineering Meetings also in Houston, on May 4 to complete plans for the Foundation's Annual Meeting Conferences and 1965-1966 scientific program.

30th ANNUAL MEETING
October 20-21, 1965

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INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

420 Occupational Cancer Perils Cited by Dr. Hueper.

W.C. Hueper, M.D., author of *Occupational Tumors and Allied Diseases* (C.C. Thomas, Springfield, Ill., (1942) 848 pages) and numerous other publications on the subject, was until his retirement in November 1964, Chief of the Environmental Cancer Section of the National Cancer Institute. Since retirement, he has spoken before a number of public meetings on occupational cancer. On May 19 he addressed a public meeting in Pittsburgh, at the University of Pittsburgh Graduate School of Public Health, and urged that more effort on the part of the U.S. Public Health Service and industry be made to control known causes of cancer in industry, rather than concentrating on less definite ones, such as cigarette smoking and viruses. In a news article by George Thomas of the Pittsburgh Press on Thursday, May 20, Dr. Hueper, former chairman of the Occupational Cancer Committee of the International Union Against Cancer, said that, according to the World Health Organization, "proven carcinogens" produce a majority of human cancer. He lists chrome pigments, coal tar and pitch, certain petroleum oils, asbestos and certain chemicals used in dye production as examples. (Copies of the news article are available).

421 Safety Tips for Auto Repair Shops.

The nature of the work done in auto body repair shops requires a combination of elements that add up to danger. But the hazards inherent in such work can be controlled, says a special bulletin outlining ways of making auto body repair shops safer. Major safety hazards commonly found in such shops, says the bulletin, include the use of paint and other volatile materials, often near welding equipment and often without adequate ventilation; worn or broken hand and power tools, including electrical equipment without proper wiring and ground connections; cluttered conditions and pools of oil and grease that lead to slips and falls; use of lead without sufficient precautions to guard against lead poisoning. The bulletin urges auto body repair shop proprietors to make regular inspections of their premises "to correct these and any other conditions that could cause pain and suffering to your employees or to members of the public." Copies of the bulletin may be obtained from the New York Insurance Conference on Occupational Safety, 110 William Street, Room 800, New York, New York 10038.

-- Safety Maintenance 129, 35 (April, 1965)

422 Safety Devices for Mail Trucks.

Extensive tests designed to find and remedy the causes of personal injuries in 45,000 mail delivery trucks were begun recently, Postmaster General John A. Gronouski has announced. Though similar tests have been conducted for automobiles, this is the first time an all-out effort has been made to strengthen the safety factors in truck collisions. Mr. Gronouski explained that tests will be conducted on the 3-wheel "Mailster" type vehicle, the 1/2 ton and 1-ton trucks. "Every step will be taken to reduce the number of injuries as well as fatalities in the postal service," Mr. Gronouski said. During the Fiscal Year 1964 alone, he noted, out of 16 postal employees who lost their lives in accidents, seven would be alive today had the vehicles been provided with effective safety devices. Of 17,317 vehicle accidents in the postal service during the Fiscal Year 1964, there were 694 injured. Many could have been prevented through safer driver aids. The primary objectives will be to evaluate the safety characteristics of the driver

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compartments on postal vehicles as well as restraining devices such as seat belts in trucks. To accomplish these objectives, instruments attached to life-like dummies in the driver's seat will record force and motion during test crashes. The dummy is seated on an impact sled. Conventional seat belts were installed in all of the Department's standard type postal vehicles last January. The results of this study may set the pattern for safety development in all trucks used by the federal government as well as those by private industry.

-- Safety Maintenance 129, 30 (April, 1965)

423 Virus Theory of Cancer.

The theory that all cancer is caused by viruses has received support from scientists at the Argonne National Laboratory. They have discovered a filterable agent that causes bone cancer in mice. Dr. Miriam Finkel, senior biologist at Argonne, told the American Association for Cancer Research, meeting in Philadelphia, that this discovery adds a new and different tumor to the list of malignancies known to be caused by viruses. The prospects for eventual prevention and cure of cancer would be advanced if it could be proved that all cancer is viral in origin. Dr. Finkel says an extract was prepared from a bone cancer in a mouse and injected into five newborn mice—two of which developed malignant bone tumors. Extracts from the tumor in one of these mice were in turn injected into other mice. The tumors now being produced are identical to the tumor from which the original extract was made.

-- Chem. Eng. News 43, 43 (April 12, 1965)

424 Smoking and Bladder Cancer.

A claim that there is a direct biochemical link between smoking and bladder cancer is being made by Dr. William K. Kerr and his co-workers at the University of Toronto's Banting Institute. He bases his conclusion on the increase (by about 37%) of o-aminophenols excreted by smokers compared to nonsmokers. Some of these compounds, which are intermediates in tryptophan metabolism, are carcinogens and could account for what seems to be a higher incidence of bladder cancer among heavy smokers. Dr. Kerr suspects that smoking somehow interferes (via an "enzyme block") with the process that metabolizes tryptophan to nicotinamide, the end product of that amino acid's metabolism. Less nicotinamide is excreted by smokers than by nonsmokers, the Toronto work (30 metabolic studies of six people) shows.

-- Chem. Eng. News 43, 39 (March 29, 1965)

425 Really Pure Air.

A self-contained, automatic system of air purification has been designed by Mine Safety Appliances Company for use in a comprehensive study on effects of atmospheric contaminants in pulmonary diseases. The study is being conducted at Rancho Los Amigos Hospital, Downey, California, under a research grant from the U. S. Public Health Service. The basic idea of the air purification system is to cleanse an environmental control chamber of most atmospheric contaminants, both particulate and gaseous, including carbon monoxide, oxides of nitrogen, sulfur gases, oxidants, amines and hydrocarbons other than ethane and methane. Operating in an atmosphere of essentially pure air, the research workers will meter in known quantities of contaminants or mixtures to assess their effects on the subject's pulmonary function. The system is capable of removing 0.3 micron particles with a minimum efficiency of 99.97% by particle count. The system utilizes catalytic oxidation elements, regenerative chemisorptive vessels, sorbent-reagent beds and HEPA-type particulate filters, with all the inherent heating and heat exchange equipment and necessary controls. To reduce possibilities of initial control chamber contamination further, the purification system has its operating equipment located in a clean room immediately under the environmental study area.

-- Am. Ind. Hyg. Assn. J. 26, 51 (Jan.-Feb. 1965)

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426 Crankcase Emission Control Systems Report has been Prepared in Cincinnati.

A report on the presence and operating condition of crankcase emission control systems on 200 1963 and 1964 automobiles checked in Cincinnati has been prepared by the Technical Assistance Branch of the U. S. Public Health Service's Division of Air Pollution. The check of blowby devices was made on autos passing through the City of Cincinnati's Motor Vehicle Inspection Lanes. The full report may be obtained by writing to the Technical Assistance Branch, Division of Air Pollution, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati, Ohio 45226.

-- J. Air Poll. Control Assn. 15, 101 (March, 1965)

427 Surveys Sought to Link Noise with Hearing Loss.

A professor at Northwestern University has called for comprehensive noise surveys to show the precise relationships between hearing loss and noise produced by subways, cars, aircraft, and so on. Edward R. Hermann, Department of Civil Engineering, cited one study of a moderately noisy industrial complex that showed about 20% of the employees had significant losses in their ability to hear. If this figure is translated to American industry as a whole, it means that more than 14 million workers could have damaged hearing. Hermann addressed the Northwestern University symposium on the Interactions of Man and His Environment.

-- J. Am. Med. Assn. 191, adv. p. 41 (March 22, 1965)

428 New Radiation Council.

The establishment of national headquarters for the newly created National Council on Radiation Protection and Measurements (NCRP) has been announced by Dr. Lauriston S. Taylor, president of the council. At the same time, Dr. Taylor announced the appointment of W. Roger Ney as executive director. The council, successor to the National Committee on Radiation Protection and Measurements, has been chartered by Congress as a non-profit corporation to collect, analyze, develop, and disseminate scientific information and recommendations about radiation measurement and protection against radiation.

-- Safety Maintenance 129, 57 (April, 1965)

429 Pesticides Information Center.

The Department of Agriculture has set up a pesticides information center in the department's National Agricultural Library. The center will disseminate scientific and technical information on pests and their control. Agriculture Secretary Orville L. Freeman says that the department may also set up additional science information centers in other subject areas. The center has already put out the first issue of what will be a biweekly publication covering literature in the pest control field.

-- Chem. Eng. News 43, 21 (April 5, 1965)

430 Hygienic Guide Series.

The following additional Hygienic Guide Series are now available: Ethylenimine (Aziridine, Dimethylenimine, Ethylene Imine), Allyl Glycidyl Ether (1,2-Epoxy-3-allyloxy propane; 1-Allyloxy-2,3-epoxypropane), and Chlorodiphenyls (Containing 42% and 54% Chlorine). They are given in the January-February AIHA Journal, pp. 86-94 and can be obtained from the American Industrial Hygiene Association, 14125 Prevost, Detroit, Michigan 48227 at 50 cents each.

-- Am. Ind. Hyg. Assn. J. 26, 86-94 (Jan.-Feb. 1965)

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COMING EVENTS

- 431 June 3-5 Manufacturing Chemists' Association 93rd Annual Meeting, White Sulphur Springs, West Virginia.
- June 6-10 Special Libraries Association, 56th Annual Convention, Philadelphia, Pa.
- June 11 Parenteral Drug Association, Philadelphia, Pa.
- June 13-16 American Society of Mechanical Engineers, Summer Annual Meeting, Boston, Mass.
- June 13-17 American Institute of Chemical Engineers and the Institution of Chemical Engineers, London, England.
- June 13-18 American Society for Testing and Materials, Lafayette, Ind.
- June 14-15 American Geriatrics Society, Inc., New York, N. Y.
- June 14-16 American Neurological Association, Atlantic City, N. J.
- June 14-16 American Proctologic Society, Minneapolis, Minn.
- June 15-18 American Society of Pharmacognosy, Symposium on Chemotaxonomy, Kingston, Rhode Island.
- June 15-19 American Medical Women's Association, Philadelphia, Pa.
- June 17-18 American Rheumatism Association, Philadelphia, Pa.
- June 17-20 American College of Chest Physicians, New York, N. Y.
- June 17-20 American Therapeutic Society, New York, N. Y.
- June 19-20 American College of Legal Medicine, New York, N. Y.
- June 20-24 Air Pollution Control Association, 58th Annual Meeting, Toronto, Ontario.
- June 20-24 American Medical Association, New York, N. Y.
- June 23 American Medical Authors, New York, N. Y.
- June 27-29 First International Congress on Smoking and Health, New York, N. Y.
- June 28-July 1 American Orthopaedic Association, Hot Springs, Virginia.
- June 28-July 2 Gordon Research Conference on Environmental Sciences and Engineering, Air Pollution: Sulfur Oxides and Related Compounds, Andover, New Hampshire.

LEGAL DEVELOPMENTS

432 May Approve Water Pollution Control Bill.

The House seems likely to approve the water pollution control bill worked out by the Public Works Committee. But it will probably take a House-Senate conference to iron out differences in the controversial water quality standards section of the two versions. The Senate version gives the Government authority to set mandatory water standards. However, as predicted by Rep. John A. Blatnik (D.-Minn.) the House committee approved a milder version of this section. The committee did not, as the chemical industry had urged, make federal standards merely "recommendations." Instead, it worked out a compromise. States that promise to devise acceptable water standards of their own would not be subject to federal standards. The catch is that a state would have to certify its intent to set quality standards before it could qualify for grants under existing federal programs for aid in building sewage disposal plants.

-- Chem. Eng. News 43, 21 (March 29, 1965)

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433 To Control Use of Thallium Sulfate.

The use of thallium sulfate for insect and rat control has come under legislative attack from two sources. The department of health, New York City, has amended its health codes, as of February 1, to require licensing of insect and rat bait containing 1% or less of thallium sulfate. The codes previously required licensing only when more than 1% thallium sulfate was included. Also, the Texas State Senate has before it a bill, S.B. 260, which would prohibit the selling, holding for sale, use, or holding for use of any household or agricultural insecticide, fungicide, or rodenticide which contains any amount of thallium sulfate, thallium salts, or any thallium compound. Under the law, if passed, violation would incur imprisonment for up to a year, a \$1000 fine, or both.

-- Chem. Eng. News 43, 50 (April 5, 1965)

434 Antibiotics in Animal Feeds.

Manufacturers must state the amount of antibiotics present in animal feeds, according to a ruling by the Food and Drug Administration. When FDA proposed earlier that labels contain this information, feed makers protested that it was unnecessary. However, FDA rejected this protest, ruling that farmers must be aware of the amount of antibiotics present from all sources (feed, therapeutic treatment, and the like) to avoid violating FDA tolerances for some drugs.

-- Chem. Eng. News 43, 21 (March 29, 1965)

BOOKS, PAMPHLETS AND NOTICES

- 435 The Biological and Related Aspects of Lead and Its Compounds. Prepared by Kettering Laboratory, College of Medicine, University of Cincinnati. AVAILABLE FROM: Lead Industries Association, Inc., 292 Madison Ave., New York, N.Y. 10017. (115 abstracts, 63 pages) April, 1965.

The international body of literature on the subject of lead in relation to public health is voluminous. The Kettering Laboratory of the University of Cincinnati has maintained a file of the comprehensive literature on this subject for the past forty years, and during the past twenty years has prepared abstracts for distribution to the members of its staff. These abstracts were not intended to be evaluations of the published material. In view of the constantly increasing volume of literature, they served rather to bring the publications, in a condensed form, to the attention of the investigators of the physiology and toxicology of lead and its compounds.

-- Abstracted from preface

- 436 Radioisotope Safety. Lawrence Radiation Laboratory.

Safety rules prescribed by the Lawrence Radiation Laboratory have been compiled in a manual that is now available to workers engaged in the handling of radioactive materials. According to the laboratory, compliance of its personnel with the principles set down in the manual has permitted Lawrence to have a unique and successful record of safety. Health Chemistry Procedures for Radioisotope Safety, Lawrence Radiation Laboratory for the Atomic Energy Commission, October, 1964, 104 pages, order number UCRL-11700N, may be obtained from the Clearinghouse for Federal Scientific and Technical Information, U.S. Department of Commerce, Springfield, Virginia 22151. Price \$4.00.

-- Safety Maintenance 129, 56 (April, 1965)

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437 Workmen's Compensation Law Pamphlets Revised. American Insurance Association.

New editions of the workmen's compensation law pamphlets for Alaska, Michigan, Oregon and Rhode Island are now available from the American Insurance Association. The AIA said that the revised pamphlets incorporate important changes in the laws of these states. Each contains a digest and complete text of the workmen's compensation law and pertinent supplementary laws, including all amendments enacted by the 1963 and 1964 legislative sessions. Annotations of cases decided since publication of the previous edition are also included. Copies may be obtained from the Editor, Law Publications, American Insurance Association, 110 William Street, N. Y. 10038 at \$2.00 each, plus applicable sales tax. This price includes any supplement issued prior to re-publication of the pamphlet.

-- Safety Maintenance 129, 58 (April, 1965)

INDUSTRIAL MEDICAL PRACTICE

438 Emergency Care of a Major Civilian Disaster. J. H. Morton, L. M. Cramer, and S. I. Schwartz. Arch. Surg. 89, 105 (1964).

This is a report of the lessons learned when an aircraft crashed near Rochester, N. Y., killing seven persons and injuring 36. All survivors were brought to the Strong Memorial Hospital and survived. Initial triage disclosed five passengers needing urgent attention: four underwent emergency tracheotomies and a fifth had an immediate laparotomy for lacerated small bowel mesentery. A second group, requiring observation for potentially serious injury or requiring less urgent attention, numbered 17 persons who had burns, lacerations and fractures, and significant abdominal, thoracic or central nervous system findings. Group three consisted of 14 patients who were transported to other nearby hospitals after screening. Within five months all 27 admitted patients were discharged, though some required further treatment at home. In an overwhelming catastrophe, a first-aid holding operation is essential, but under the circumstances of a limited number of casualties, mobilization of the entire medical staff, nurses and technicians may make it possible to assign a single definite task to each individual. Thus full utilization of the operating room suite, emergency division, radiology department, blood bank and chemistry laboratory was possible in this instance. One staff doctor assumed the responsibility for shifting patients in order to provide bed space for the casualties. None of the victims were local people, so that there was time for organization of facilities to look after the flood of phone calls and for individual and humane dealing with families and friends. The importance of documentation from the first is emphasized: the use of labels and of identification of blood bank requisitions and other reports. Forewarning of the hospital from the scene of the accident is helpful. The availability of a telephone becomes vital and the hospital staff must understand that its use must be limited so that the board is kept open for necessary calls. One person at the triage area must decide what calls should be made for additional help. A location in the hospital should be designated for the arrival and assignment of personnel, equipment and supplies; this place should be accessible from the outside and not located in the emergency department, with which it should be in communication by an intercom rather than by telephone. Stock-piling for unexpected disasters of a reasonable supply of medical equipment with easily opened and labeled packages is essential if a hospital is to be prepared to handle a large group of accident victims. The initial use of a blood substitute reduces the potential for serious error inherent in mass blood transfusions. A supply of serum albumin is preferable to dextran for this purpose. Maintenance of an accurate but succinct record is essential.

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

439 Height, Weight and Obesity in an Industrial Population. R. W. Howell. Trans. Assn. Ind. Med. Officers 15, 25-28 (Jan. 1965).

Heights, weights, ages, and degree of obesity for a sample of just over 2,000 males in an industrial population have been recorded and analyzed. Comparisons have been made with some aspects of previous surveys by Kemsley, and by May and Wright. There is some confirmation that average heights and weights have increased since the commencement of Kemsley's survey in 1943. Comparisons have been made of certified sickness absence in the sample when these men have been classified by degree of obesity. Probably the high proportion found to be 20% or more overweight poses an eventual health problem, the extent of which is not perhaps generally recognized, in view of the increased mortality to which these subjects are liable. Two per cent of the sample had glycosuria of unknown etiology.

-- Author's summary

- 440 Effect of Prolonged Ethanol Ingestion on the Transport and Metabolism of Lipids in Man. R.H. Schapiro, et al. New Engl. J. Med. 272, 610-615 (March 25, 1965).

Serum triglyceride and free fatty acid levels were determined in 10 subjects with chronic alcoholism who ingested alcohol in increasing amounts over a 24-day period. The following consistent changes in the serum lipids were observed: At moderate blood ethanol levels striking increases in serum triglycerides occurred. In three subjects a lactescent serum was produced. With higher blood ethanol levels, the previously elevated serum triglycerides fell to or below the initial levels. At the time when high blood ethanol levels had been achieved, but not before, increased quantities of free fatty acids were present in the serum. Gas chromatographic studies of the free fatty acids in the serum suggested that an increased mobilization of fatty acids from adipose tissue probably occurred at the time when serum free fatty acid levels were elevated. The possible mechanisms for the alterations in serum lipids produced by ethanol ingestion are discussed. There are 32 references.

-- Authors' summary

- 441 Fatigue: Visual Considerations. (II.) R.H. Beck. Pilot 20, 10-20 (Oct. 1964).

The emergence into the jet age has intensified many old problems of flight fatigue, and has presented a host of new ones, many of which have yet to be solved satisfactorily. Visual problems inducing fatigue include glare, solar radiation, space myopia caused by loss of background reference at high altitudes, hypoxia, or low oxygen intake, and insufficient cockpit lighting. It is strongly suspected that glaucoma may be prematurely induced by a reduction of atmospheric pressure. Among the factors that effect jet crew fatigue are: (1) extremes of temperature and humidity, (2) workloads (3) increased responsibility, (4) intensified scrutiny of pilot personnel, (5) family and personal problems, and (6) apprehension. Fatigue produces a willingness to accept lower standards of accuracy and performance, which in turn, create potentials of reduced safety.

-- Aerospace Med. Absts.

- 442 Nutritional Acceptability of a Dehydrated Diet. E.W. Speckmann, et al. Aerospace Med. 36, 256-260 (March, 1965).

Precooked, dehydrated and bite size compressed foods were arranged into a nutritionally balanced 4-day cycle experimental menu with four meals per day. A control menu composed of frozen, fresh and heat processed foods was prepared to match the experimental diet. The control and experimental diets were prepared and reconstituted with room temperature water and both diets were served at room temperature to four healthy college students for 20 days while they were confined to an experimental metabolic facility. A difference in the organoleptic quality of the experimental and control diets could not be ascertained in the duration of this study. No evidence of monotony was revealed in either diet during the 20-day feeding trial. Both diets were highly digestible when fed to human volunteers. Subjects fed the control or experimental diet were maintained in nitrogen and energy balance. The subjects did not notice an increased gas production on either the control or experimental diet nor did they encounter gastrointestinal distress at any time.

-- Authors' abst.

- 443 Hearing Loss in Infants of Tuberculous Mothers Treated with Streptomycin During Pregnancy. G.C. Robinson and K.G. Cambon. New Engl. J. Med. 271, 949-951 (Oct. 29, 1964).

Two cases of congenital hearing loss that were probably due to the administration of streptomycin to tuberculous pregnant mothers are described. Only six other authors appear to have described similar cases in the literature.

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

- 444 Glaucoma Screening from a Public Health Clinic. E.S. Perkins. Brit. Med. J. 1, 417 (Feb. 13, 1965).

The aims and organization of a screening program for the detection of glaucoma are described. Applanation tonometry was used and patients with tensions of 21 mm Hg were referred for detailed investigation. Patients with a family history of glaucoma or a history of halos were also investigated. Definite glaucoma was diagnosed in 1.4% of the first 2,000 people screened, and a further 3% were found to have a tension above 21 mm Hg.

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

- 445 Chronic Bronchitis. J. L. Guerrant. Virginia Med. Monthly 91, 279-282 (July, 1964).

There is no single cause for chronic bronchitis. The etiological factors are multiple and complex and are all related in some way to increased bronchial mucus. The important factors are either irritants or infections. All observers have found that most individuals with chronic bronchitis are cigarette smokers. The disease is also more common in dusty trades and in communities with heavy atmospheric pollution. Nearly all chronic bronchitics have either recurrent or chronic infections. Chronic bronchitis should be recognized for the common disease that it is, one that may be progressive leading to severe disability and death. Treatment, especially early, is often effective. -- APCA Absts.

- 446 Sarcoidosis. Report of Ten Autopsy Cases in Japan. K. Iwai and H. Oka. Am. Rev. Resp. Dis. 90, 612-622 (Oct. 1964).

Although many studies have been reported on the etiology of sarcoidosis, its cause is still unknown. The theory that sarcoidosis might be connected with tuberculosis has been advocated by many investigators, but denied by many others in recent years. Sarcoid diathesis, allergic reaction, and pine pollen have been considered hypothetically for the pathogenesis of this disease. In recent years, the number of reported cases of sarcoidosis has risen markedly in Japan. Epidemiologic and clinical studies of 271 cases of this disease collected from 1956 to 1962 by the Japanese Research Commission of Sarcoidosis, have shown frequent involvement of intrathoracic organs, but good prognosis in most of the cases. Fatal cases, however, were found among them, 10 of which were confirmed by autopsy. The purpose of this paper is to describe the observations in these autopsy cases, considering the progress of the lesions in the body. Special attention was given to the distribution of the affected lymph nodes in relation to the changes in regional organs, which they drain. All lymph nodes were not involved systemically, but the tracheomediastinal nodes were affected in all cases. It is suggested that the initial lesion occurs within the lung, with subsequent changes in the hilar and tracheomediastinal nodes. Then lesions are disseminated hematogenously throughout the body via lymphatics flowing into the subclavian vein. As a result of these observations, the authors suggest the presence of infectious agents in this disease. -- Cond. from APCA Absts.

- 447 Pulmonary Function and Therapy in Disability Applicants. H.M. Silver. J. Am. Med. Assn. 191, 1059-1063 (March 29, 1965).

One hundred consecutive Social Security applicants with chronic obstructive lung disease were referred for consultative evaluation, including history, physical examination and lung-function tests. There was good agreement between the lung-function tests and the patients' stated ability to climb steps in terms of groups, but in terms of individuals the variation was wide. The response to bronchodilators administered by aerosol spray indicated that some degree of reversibility was present in the majority of subjects. Treatment of these patients did not appear to be optimal. Reasons for this suboptimal treatment include both patient and physician factors. Possible patient factors include poor educational, social, and vocational background, depression, apathy, lack of motivation and possibility of secondary gain. Physician factors include lack of knowledge, limitation in therapeutic skill, and failure to communicate with the patient in a positive fashion. Suggestion for improvement in each possible etiologic factor is made. It is hoped that improvement in care could be translated into rehabilitation of some patients and prevention of disability in others. -- Author's abst.

- 448 Cork Stoppers and Hypercalcemia. F.E. Smith, H. Reinstein, and L.E. Braverman. New Engl. J. Med. 272, 787-788 (April 15, 1965).

Cork stoppers should not be used when serum is to be analyzed for calcium content. Calcium is readily leached from these corks and results in falsely elevated calcium levels. It is apparent that the serum will inevitably come into contact with the cork when specimens are mailed and may do so in the handling of specimens within the hospital.

-- Authors' conclusions

- 449 New Observations on the Distribution of Neoplasms of the Female Breast in Certain European Countries. A. J. Lea. Brit. Med. J. 1, 488 (Feb. 20, 1965).

Using the official vital statistics of the countries concerned and tables of temperatures published by the Meteorological Office, an association between the death rate from neoplasms of the breast in women and mean annual temperature has been found for Norway, Sweden, Scotland, and England and Wales. The nature of the association is that the death rate increases with the mean annual temperature, and the probability of it being due to chance is less than one in 1,000. The evidence does not, at this state, allow a statement on the nature of the factor or factors concerned to be made. The investigation is being extended to include all countries.

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

- 450 Breast Cancer at the Ontario Cancer Clinics, 1938-1956: A Statistical Review. E.N. MacKay and A.H. Sellers. Can. Med. Assn. J. 92, 647-651 (March 27, 1965).

In Ontario, breast cancer accounts for one death in every 27 among females. In 1938-1956 some 40% of all new cases were registered at the Ontario Cancer Foundation's regional clinics. The 5-year crude survival rate for 11,393 women was 45.4%, and for 91 men, 36.3%. Survival rates were strongly affected by extent of disease; when this was allowed for, pregnancy and treatment method were also found to influence survival rate. Simple mastectomy with radiotherapy gave results that appeared comparable to those after radical mastectomy, alone or with radiotherapy. There was a 20% improvement in the crude 5-year survival rate over the period of the survey. The need for great caution in interpreting these findings is stressed.

-- Authors' abst.

- 451 Twenty-five Living Patients Five to Fifteen Years After Operation for Cancer of Lung. E. Endrei. Schweiz. med. Wochschr. 94, 1109 (1964). German.

In this series of survivors five to 15 years after operation for cancer of the lung there were 23 males and two females. The average age at time of operation was 55.1 years and at the follow-up 62.2 years. The oldest patient at time of operation was 65 and at time of the follow-up 74. Histologic diagnosis of the cancer was squamous cell carcinoma in 22 cases, a small cell carcinoma in two and scar carcinoma in one. Histologically verified metastatic disease of the lymph nodes was present in seven patients at time of operation. The operation consisted of pneumonectomy in 18, bilateral lobectomy in two and single lobectomy in five. Eight of the patients received radiation. At the time of the last examination in March 1964, all patients were asymptomatic, and there was no clinical or radiological evidence of recurrence or metastases. Almost all these people lead a useful and enjoyable life. Many of them are fully and usefully occupied in the professions or in other occupations. The significance of these findings is discussed in the light of the attitude towards operation for what is often regarded as a hopeless disease.

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

- 452 Pulmonary Infarction Associated with Lung Cancer. S.W. Berkheiser. Diseases of Chest 47, 36 (Jan. 1965).

In a series of 161 cases of lung cancer, six instances of peripheral lung cancer associated with pulmonary infarction were observed (3.7%). The tumors were of various cell types and included three cases of terminal bronchiolar carcinoma, two of undifferentiated carcinoma, and one of squamous cell carcinoma. The lungs of each patient showed evidence of multiple episodes of embolization or repeated infarction. Comparison of the bronchiolar proliferative reactions known to occur with pulmonary infarcts suggests that pulmonary fibrosis with regeneration and metaplasia of bronchiolar epithelium may be important in the genesis of some types of lung cancer. A significant correlation between pulmonary infarction and the origin of peripheral scar cancer of the lung seems possible.

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

IN RE: ABRAHAM'S
November 1998

HW85-0020628

- 453 Pulmonary Cancer and Smoking in Switzerland: Analysis of Smoking Habits of All Patients Who Died of Lung Cancer in Switzerland 1951-1960. T. Abelin.
Schweiz. med. Wochschr. 95, 253 (Feb. 20, 1965).

Data collected by the Swiss office of Vital Statistics on the smoking habits of all men and women reported to have died of lung cancer between 1951 and 1960 are presented. The increase in lung cancer mortality was more prominent in cigarette smokers, but over 40% of men who died of lung cancer were cigar or pipe smokers. The results were compared with those of retrospective studies in 12 other countries. Conditions in Switzerland were comparable with those in Germany and the Netherlands, while in other countries the vast majority of lung cancer patients were reported to be cigarette smokers. Assuming that there is a constant relationship between tobacco production and lung cancer mortality, expected lung cancer mortality was estimated for the period 1900 to 1950. Estimations based on tobacco production proved to be much higher than data actually recorded by the Office of Vital Statistics. The discrepancy can be explained either by carcinogens other than tobacco being mainly responsible or by inadequate reporting.

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

- 454 Measurement of Smoking Experience. R. T. Ravenholt and J. R. Applegate.
New Engl. J. Med. 272, 789-790 (April 15, 1965).

Smoking, now recognized as a foremost environmental hazard to health, may be performed in diverse ways—making it difficult for investigators to quantitate and compare the effective exposure to tobacco smoke resulting from smoking of cigarettes, pipes, or cigars in various ways at various ages. The questionnaire presented in this paper evolved from repeated testing and revision during 1964 and is now being used in several epidemiologic studies of smoking; especially, it is being used to ascertain the smoking experience of all students entering the University of Washington. This questionnaire might well be included in each hospital and clinic record for adult patients: to provide the clinician an easily understood record of the patient's smoking experience—a most vital consideration for the diagnosis and treatment of many diseases, especially of the respiratory and cardiovascular systems.

- 455 Dirofilariasis of Human Lung. E. G. Harrison, Jr., and J. H. Thompson, Jr.
Am. J. Clin. Pathol. 43, 224 (March, 1965).

Two rare cases of human pulmonary involvement by parasites of the genus *Dirofilaria* are reported and three other cases from the literature are reviewed. In the lungs, this nematode is typically lodged in a small pulmonary artery and produces an ischemic infarct with an eosinophilic pneumonitis and endarteritis. Despite its size the parasite may escape recognition and should be considered in such a pulmonary lesion. Patients have done well after a conservative pulmonary resection and have had no evidence of recurrent disease apparently because man is an unsuitable host for this parasite.

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

- 456 Bronchiolectasis—The Clinical Syndrome and Its Relationship to Chronic Lung Disease. C. E. Buckley, et al. Am. J. Med. 38, 190-198 (Feb. 1965).

A syndrome of chronic bronchiolar catarrh was observed in six patients who all had been exposed to irritating inhalants. Bronchographic examinations revealed bronchiolar changes consistent with the roentgenologic diagnosis of bronchiolectasis. The airway lesion at the bronchiolar level in the pathogenesis of hypertrophic emphysema makes it clinically feasible to separate these patients from those with other types of chronic catarrhal diseases. Early bronchographic examination provides a means for the identification of bronchiolar changes, especially of bronchiolectasis, before the onset of the disabling phase of lung disease.

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

03121888

SKIN DISEASES AND BURNS

- 457 Rehabilitation. H.M. Robinson, Jr. Arch. Dermatol. 91, 198 (March, 1965).

Patients with dermatoses are not usually referred to existing rehabilitation centers primarily because the majority of them are not equipped to render the necessary care. The primary objective of any rehabilitation program should be to assist handicapped or injured individuals, regardless of the defect, to achieve physical, social, and economic independence. The complex nature of rehabilitation procedures indicates the need for a team approach to the problem, and wherever indicated, a dermatologist should be part of that team. The patient with eruption should be an ideal candidate for rehabilitation, provided that the proper expert medical care is furnished. The dermatologist must indicate his interest and willingness to serve.

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

- 458 Sweating: Direct Influence of Skin Temperature. W. van Beaumont and R.W. Bullard. Science 147, 1465-1467 (March 19, 1965).

The onset and magnitude of the sweating response is greatly influenced by the local skin temperature. This influence was evident with skin temperatures above 33°C. (91.4°F.) and occurred in the physiological range for thermo-regulatory sweating. The sweating rates were recorded continuously and simultaneously from three areas of the skin. -- Authors' abst.

- 459 Response of Cutaneous Lupus Erythematosus to Ultraviolet Light. M.A. Everett and R.L. Olson. J. Invest. Dermatol. 44, 133 (Feb. 1965).

Eight patients with discoid or systemic lupus erythematosus were studied to investigate the erythema reaction to administered ultraviolet light. One minimal erythema dose produced an increase in the size of the lupus erythematosus lesions in three patients. A persistent erythema was present at 72 hours in one discoid and two systemic erythema patients. There was no abnormal reaction in uninvolved skin. Periodic acid, Schiff (PAS) staining of biopsy specimens revealed that basal cell PAS positive granules usually present at 12 hours did not appear in areas involved by lupus erythematosus. The possible meaning of these findings is discussed.

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

- 460 Skin Manifestations of Giant-Cell Arteritis. P.D.C. Kinmont and D.I. McCallum. Brit. J. Dermatol. 76, 299 (1964).

Skin manifestations in giant-cell arteritis, apart from the local inflammation and hair loss in classical temporal arteritis, are rare. Purpura, hemorrhage, bullae and necrotic ulcers usually of the scalp, massive bilateral scalp necrosis and necrosis of the anterior part of the tongue are recorded. Case histories of three such patients are presented: one of tongue and two of scalp necrosis, with one autopsy report. Incidental findings were co-existent sarcoidosis in one, and subacute bacterial endocarditis. Hashimoto's disease, and glaucoma-like cupping of the optic disc and blindness in the presence of an intact blood supply to the optic tract and retina in another. The mechanism whereby the more dramatic lesions are produced is discussed. This seems to be hemorrhage or exudation from a damaged artery rather than arterial occlusion. On the evidence it is considered that giant-cell arteritis and polyarteritis nodosa are closely related.

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

03121889

IN RE: ABRAMS November 1992

HW86-0020629

- 461 Toxic Epidermal Necrolysis. G. Bailey, J.M. Rosenbaum, and Bobette Anderson.
J. Am. Med. Assn. 191, 979-982 (March 22, 1965).

This syndrome, resembling scalding of the skin, is presented with a review of the literature and description of a fatal case. The disease consists of a prodrome of malaise, lethargy, and fever, followed by erythema and massive bullae formation. Pathologically there is epidermal necrosis and vesication at the dermal-epidermal junction, but the dermis is relatively normal. The mucous membranes are usually included in the destructive process. Healing with little or no scarring occurs in most patients about 10 to 14 days after bullae have formed. Death occurs, however, in approximately one third of the cases, usually within five to eight days of onset. Therapy is symptomatic. Various etiologies have been proposed, but drugs have been chiefly characterized as the offenders. This case is thought to represent a fatal hypersensitivity reaction to diphenylhydantoin (Dilantin). -- Authors' abstr.

- 462 Skin Test for the Diagnosis of Systemic Lupus Erythematosus. R. O. Ores and K. Lange.
Am. J. Med. Sci. 248, 562 (1964).

The authors describe a new and simple skin test for the diagnosis of systemic lupus erythematosus. An easily prepared desoxyribonucleic acid solution is injected intracutaneously and the test is read after eight to 24 hours. Nineteen patients with untreated systemic lupus erythematosus had positive skin tests, whereas 20 patients with other diseases and three healthy subjects had negative reactions. -- Can. Med. Assn. J. Abstrs.

- 463 Chemexfoliation in the Treatment of Aging Skin and Acne Scarring. P.A. Sperber.
Arch. Otolaryngol. 81, 278 (March, 1965).

Chemexfoliation is an effective method for improving the cutaneous cosmetic appearance by the application of specific chemicals to the skin. It removes the epidermis and part of the dermis. A new epidermis and dermis with decreased collagenation is regenerated. Certain improvements are noted. The patient looks younger. Fine lines and wrinkles are ablated or markedly improved. Deep lines and wrinkles are improved. The skin is softer, firmer, and more elastic with an improved texture. Contours are tighter, depressed acne scars appear shallower, and acne pitted scars tend to close and fill. Toxicity and scarring may be minimized by the proper agents and with caution. Hyperpigmentation is treated with bleaching agents. Chemexfoliation is an effective procedure for improving aged, wrinkled, weather-beaten, actinically-damaged and acne scarred skin. -- J. Am. Med. Assn. References & Reviews

- 464 Frost Anesthesia for Skin Grafts. D.W. Furnas.
Plastic Reconstruc. Surg. 35, 191-197 (Feb. 1965).

The technique of frost anesthesia for removal of split skin grafts is introduced and illustrated. Frost anesthesia, or the production of topical refrigeration by a jet of highly volatile liquid is most effectively obtained with dichlorotetrafluoroethane. Skin grafts of unlimited area may be cut and applied quickly and easily without the need of a general anesthetic. The technique is proposed in particular as an answer to some of the problems of anesthesia in the patient with major burns. It is also suitable for a variety of lesser grafting problems. -- J. Am. Med. Assn. References & Reviews

- 465 Dermatitis from Hydrazine Hydrobromide Solder Flux. C.E. Wheeler, Jr., S.R. Penn, and E.P. Cawley. Arch. Dermatol. 91, 235 (March, 1965).

An outbreak of contact dermatitis from hydrazine hydrobromide solder flux occurred in an electronics plant. The dermatitis involved exposed areas, disappeared when contact with hydrazine ceased, and patch tests in non-irritating concentrations were positive. Hydrazine is a primary irritant and potent contact sensitizer as well as a potential systemic toxin. Its use in industry is extensive and increasing, and cross-sensitivity between hydrazine relatives occurs which makes it seem likely that reactions to hydrazine will be seen in increasing numbers. -- J. Am. Med. Assn. References & Reviews

CHEMICAL HAZARDS

- 466 Carcinogenesis in the Human Urinary Bladder. Observations after Exposure to Para-aminodiphenyl. L.G. Koss, et al. *New Engl. J. Med.* 272, 767-770 (April 15, 1965).

Further data are presented in a continuing long-term cytohistologic and clinical study of carcinogenesis in the urinary bladder of industrial workers exposed to para-aminodiphenyl, a potent carcinogen. It was demonstrated that in a high percentage of workers with suspicious or positive urinary cytology, manifest carcinoma of the bladder will ultimately develop, often after clinically latent intervals of several years. The course of events, after exposure to the carcinogen, is thought to be as follows: 1. Cytologically normal phase (clinically normal) → 2. Cytologically abnormal phase (clinically normal) → 3. Clinical cancer. Each of the initial two phases in this process usually takes several years. A similar pattern of carcinogenesis occurs in other organs, and is particularly well documented for the uterine cervix, in which phase 2 above is recognized as carcinoma *in situ*. These broad similarities in different organs suggest a common underlying pattern of development, at least for epidermoid carcinoma. There are 16 references.

-- Authors' summary

- 467 Ozone Decomposition by Ionization Radiation. P. Harteck, S. Dondes, and B. Thompson. *Science* 147, 393-394 (Jan. 22, 1965).

Oxygen and ozone behave differently when irradiated with ionizing radiation or with ultraviolet light. When oxygen is irradiated by ionizing radiation, a steady-state ozone concentration of only a few ppm is reached, whereas with ultraviolet light concentrations as high as several per cent can be obtained. Ozone is decomposed by ionizing radiation more rapidly than by ultraviolet light by several orders of magnitude. The decomposition of ozone by ionizing radiation is explained by a negative ion-chain mechanism. That this mechanism may be pertinent is indicated by the results obtained from the irradiation of liquid oxygen and the irradiation of oxygen containing nitrogen.

-- APCA Absts.

- 468 Effects of Hyperbaric Oxygen on Some Common Pathogenic Bacteria. A.G. Towers and W.I. Hopkinson. *Aerospace Med.* 36, 211-213 (March, 1965).

The effect of hyperbaric oxygen at 2 atmospheres absolute pressure at 37°C. (98.6°F.) on a number of micro-organisms pathogenic for man has been investigated. Short intermittent exposures of the cultures had little effect on the morphology or colonial characteristics, and long continuous exposure to hyperbaric oxygen failed to reveal true oxygen dependent mutants but did produce a number of variant colonies.

-- Authors' abst.

- 469 Nephrotic Syndrome Caused by Protiodide of Mercury. D.E. Warren. *Arch. Dermatol.* 91, 240 (March, 1965).

Two cases of the nephrotic syndrome caused by protiodide of mercury used in the treatment of verruca plana or flat wart are presented. Several other mercury-containing drugs, both organic and inorganic, have been reported to cause the nephrotic syndrome. This is believed to be the first time the nephrotic syndrome has been reported following the use of protiodide of mercury (mercurous iodide). This paper is presented to discourage the future use of this drug.

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

03121891

- 470 Nickel Carbonyl: Its Detection and Potential for Formation. R.S. Brief, F.S. Venable, and R.S. Ajemian. *Am. Ind. Hyg. Assn. J.* 26, 72-76 (Jan.-Feb. 1965).

Recent recommendations for control of nickel carbonyl exposures have been considered in the design of a simple, sensitive field method for sampling nickel carbonyl in air and process gases. The method involves collection in dilute aqueous hydrochloric acid, pH adjustment, nickel complex development with alpha-furildioxime, and extraction with chloroform. Color intensity is compared visually (or for greater accuracy, spectrophotometrically) with liquid standards. Sensitivities on the order of 0.001 ppm are obtainable. A detailed development of the thermodynamics associated with the formation of nickel carbonyl is also presented to show the maximum concentrations of nickel carbonyl that may be formed over a wide range of carbon monoxide concentrations, temperatures and pressures. -- Authors' abst.

- 471 The Relationship Between and the Importance of the Dimensions of Uranium Particles Dispersed in Air and the Excretion of Uranium in the Urine. R.L. Fischhoff. *Am. Ind. Hyg. Assn. J.* 26, 26-33 (Jan.-Feb. 1965).

Personnel involved in the processing and fabricating of nuclear fuels are potentially exposed to uranium via the pulmonary route. Experience has shown that no detrimental effects to workers have resulted from inhalation of uranium at levels below the "control value" or in a group of persons exposed to amounts in excess of 1 mg./cu.m. Other experience with severe exposure indicates that uranium has a low order of chemical toxicity in man. Despite the extensive experimental work on animals (some of which might conflict with the observations in study), it is evident that we lack important information concerning the potential biological effects in man from inhalation of uranium. Future studies should be developed to determine: the effect of particle size and distribution of particles on toxicity; the solubility and biological absorption of uranium in various portions of the lung; and the safe level of exposure to uranium and its compounds. Because of disparity of species and dissimilarity of industrial and laboratory exposures, and because stringent controls might impede progress in the nuclear field, studies should also be carried out on man in his industrial environment and under controlled exposure conditions. Results of this study combined with information in the literature indicate that the particles of uranium that penetrate to the lower respiratory tract might be highly soluble and are probably the most important fraction of the inhalation exposure. Further study as indicated in this paper is necessary to substantiate this statement. The major thesis and most important finding, however, was that a better estimate of the exposure-excretion relationship with regard to uranium can be obtained with two-stage air sampler data. -- Author's conclusions

- 472 The Measurement of Phenol in Urine by Gas Chromatography as a Check on Benzene Exposure. A.B. Van Haaften and S.T. Sie. *Am. Ind. Hyg. Assn. J.* 26, 52-58 (Jan.-Feb. 1965).

Several methods for the determination of phenol in urine as a check on benzene exposure are compared. Known colorimetric methods have been tested against a gas chromatographic procedure. From the results it is concluded that the gas chromatographic procedure is to be preferred for routine testing. -- Authors' abst.

- 473 Studies of Diisocyanate Workers. K.S. Williamson. *Trans. Assn. Ind. Med. Officers* 14, 81-88, Part 1, (Oct. 1964); *ibid.* 15, 29-35, Part 2, (Jan. 1965).

This essay consists of two parts, both of which describe studies on groups of diisocyanate workers. In the first part, ventilation tests were performed on a group of process workers before and after the introduction of a potential toluylene diisocyanate (TDI) hazard into their place of work. The hazard was well controlled, and no changes in ventilation tests were observed to result from the introduction of the new process. In the second part individual cases are described, in which ventilation studies were used as an aid to diagnosis in subjects presenting with symptoms suggestive of TDI sensitization. It is suggested that observations of forced expiratory volume in one second ($FEV_{1,0}$) started if possible before diisocyanate exposure begins, and repeated at intervals thereafter, provide objective information which is of great value in the differential diagnosis of early cases of sensitization. -- Author's summary

- 474 A Study of the Chronic Effects of Insecticides in Man. L. F. Davignon, et al.
Can. Med. Assn. J. 92, 597-602 (March 20, 1965).

Signs of possible chronic intoxication due to insecticides were sought among 441 apple-growers. A group of 170 persons living in the same environment and 162 other persons having no contact with insecticides were used as controls. It was the first attempt to determine signs of chronic intoxication by organic phosphate and chlorinated hydrocarbon insecticides. The greater incidence of leukopenia and of neurologic manifestations found among the subjects suggest that insecticides may have some chronic effects in man. This assumption is reinforced by the similarities in the findings between the subjects and the environments, and by the parallelism between the duration of exposure to insecticides and the number of affected subjects. The repetition of this study at 5-year intervals seems desirable until a sufficient number of apple-growers have been studied who have been exposed to large doses of insecticides for 10, 15 or 20 years. There are 32 references.

-- Authors' abst.

- 475 Parathion Poisoning from Flannelette Sheets. L. S. Anderson, et al.
Can. Med. Assn. J. 92, 809-813 (April 10, 1965).

The use of phosphate esters as insecticides is becoming more and more prevalent and several of these are extremely potent toxins. Some cases of accidental poisoning have already been recorded; there must be numerous incidents of near-poisoning which physicians hear about but which never get as far as the record. These agents exert their characteristic toxic effects through their anticholinesterase activity. An interesting parallel case of parathion poisoning occurred in Fresno, California, where a batch of boy's blue jeans became contaminated with Phosdrin during a 200-mile truck journey; the jeans were kept for eight months in an air-conditioned warehouse and then put on the market; six children became poisoned through wearing the jeans before the whole consignment was withdrawn from the market. The poisoning was suspected, as was the case of the authors, when one of the boys became ill a second time after having been sent home from the hospital. A case occurred in Hamilton, Ontario, where a 2-year-old child smeared the remains of a jar of parathion on his face and lips and again, in Walla Walla, Washington, where a 4-year-old boy had been playing in some bags of wettable parathion insecticide powder. Recorded in the authors' presentation are three cases of near-fatal poisoning in two boys by parathion acquired through sleeping in flannelette sheets which had become impregnated with the parathion during an ocean voyage from Europe.

-- Authors' comments

- 476 Attempts To Hyposensitize with Poison Ivy Extracts. N. B. Kanof and R. L. Baer.
Ann. Allergy 22, 161 (1964).

Three commercially available preparations for hyposensitization against poison ivy were evaluated in a series of 35 patients. The preparations were Aqua Ivy injections (tested in 14 subjects), Oral Ivy Drops (tested in 11 subjects) and Poison Ivy Oleoresin (Graham) (tested in 10 subjects). None of the 35 patients showed a decrease in sensitivity, as determined by quantitative patch tests, within the time periods specified by the manufacturers. Decreased sensitivity was noted in 11 of 35 subjects after 13 to 95 weeks of treatment. The authors conclude from these results that hyposensitization with the above-tested products either does not occur or occurs after such a long period of time and in such a minority of those treated that these preparations are for all practical purposes useless.

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

- 477 Mushrooms and a Toxic Reaction to Alcohol. Report of Four Cases.
W. A. Reynolds and F. H. Lowe. New Engl. J. Med. 272, 630-631 (March 25, 1965).

A toxic reaction occurring in four persons who had ingested Coprinus atramentarius mushrooms followed by small amounts of alcohol has been reported and is similar to that caused by ingestion of disulfiram followed by alcohol. Each of the four was moderately ill but recovered promptly with no specific therapy. Six references are given.

-- Authors' summary

03121893

INDUSTRIAL DUSTS

- 478 Evaluation of Particle Sizing and Aerosol Sampling Techniques. H. J. Ettinger and S. Posner. Am. Ind. Hyg. Assn. J. 26, 17-25 (Jan.-Feb. 1965).

Aerosol sampling and sizing techniques from several different laboratories were compared. The participants agreed within $\pm 10\%$ in defining count median diameter and geometric standard deviation when sizing a standard aerosol, and similar agreement with a more complex uranium oxide aerosol. Variation in count median diameter remained at $\pm 10\%$ with eight different air samplers, whereas variation in geometric standard deviation increased to $\pm 15\%$. Calculated mass median diameter varied as much as 2.7 times for any one sampler and 6.7 times for all samplers. -- Authors' abst.

- 479 The Effect of Particle Shape on Measures for the Size and Concentration of Suspended and Settled Particles. J. R. Hodgkinson. Am. Ind. Hyg. Assn. J. 26, 64-71 (Jan.-Feb. 1965).

A wide variety of recognized measures has come into use to describe the sizes of particles and the concentration of aerosols. Their choice is determined not only by the physical principle employed for the measurements, but also by the property or effect of the aerosol in relation to which the information on particle size and concentration is desired. The relationships between some of these measures are discussed, and examples are given of the influence of particle shape. In particular, the complexity of the relation between morphological and aerodynamic measures of particle size is emphasized. -- Author's abst.

- 480 Size Distribution Studies with the Aerosol Spectrometer. F. L. Ludwig and E. Robinson. J. Air Poll. Control Assn. 15, 102-105 (March, 1965).

This paper has shown that it is possible to use the aerosol spectrometer to determine, apparently with reasonable accuracy, the size distribution in the atmosphere of particles of a given type even though other kinds of particles are present in vastly larger quantities. Relatively long sampling periods are required and this could be a limitation in some research studies. -- Cond. from authors' summary

- 481 Statistical Reliability of Particle Size Distributions Determined by Microscopic Techniques. M. Corn. Am. Ind. Hyg. Assn. J. 26, 8-16 (Jan.-Feb. 1965).

The particle size distribution obtained from microscopic evaluation of dust samples is of little practical value, and is usually transformed to one representing particle projected area or weight. Errors of measurement and errors of sampling, or statistical errors, contribute to the unreliability of these distributions. In this article, the present practice of assuming adherence of size distributions to the log-normal distribution is discussed. Procedures are recommended for estimating the statistical error associated with count, area and weight distributions, and tabular and graphical forms are suggested for presentation of sizing data. The practice of presenting distribution data by citing M_g (geometric mean diameter) and σ_g (geometric standard deviation) is discouraged, unless tests for "goodness of fit" are performed. -- Author's abst.

- 482 Determination of the Collection Efficiency of Fiber Filters for Ultra-Fine Particles. J. Fontan, D. Blanc, and A. Bouville. Health Physics 11, 15-20 (Jan. 1965).

Measurement of the collection efficiency of the Schneider-Poelman fiber filters were made for radioactive particles of diameters of approximately 0.0015 micron, the little ions from the disintegration of the nuclei of radon or thoron, not fixed on the dust particles. The filters have an efficiency superior to that which corresponds to the atmospheric aerosols. The comparison of the alpha and beta activities, and the alpha spectrometry of the filter, permit the measurement of the absorption of the aerosols inside the filter. -- APCA Absts.

- 483 Dust Measurement and Removal at Various Metallurgical Plants in the Iron and Steel Industry. A. Winkel. Staub 24, 497-504 (Dec. 1964). German

Dust measurements were made at eight German metallurgical plants to secure information about the total dust concentrations occurring in typical working places, and the concentrations of the fractions of these dusts accessible to the lungs, and in particular the concentration of free crystalline silica which is the cause of silicosis. Also, the dust resulting from dismantling and construction of furnaces. The silicosis hazard in grinding refractory bricks and in the region of the ladle maker was investigated, and the dust hazard in shaping and polishing in a metallurgical foundry producing chill castings was also measured. For all these measurements effective dust protection was given where the measured dust concentrations were troublesome or silicosis producing.

-- APCA Absts.

- 484 Deposition and Retention of Dust in the Human Respiratory Tract. C.N. Davies. Ann. Occ. Hyg. (London) 7, 169-183 (June, 1964).

Gravimetric dust sampling for the control of pneumoconiosis must be carried out with size selectors to keep the larger particles out of the sample which is to be weighed. British practice has been to use a selector which was intended to simulate the deposition of coarser particles in the bronchi and bronchioles leaving for weighing the fine dust which approaches the alveoli; the dust obtained with this apparatus is much coarser than the dust actually recovered from human lungs. The results of breathing experiments in which the total deposition of dust in the lungs was measured cannot be matched by calculating the deposition while an aerosol passes up and down the bronchial airways, according to the British "50% at 5 microns" criterion, and making an allowance for alveolar deposition. The calculated total deposition is too low for particles below 5 microns and too high for larger sizes. Size distributions of dust recovered post-mortem from human lungs have been compared with size distribution of airborne dust and a curve of alveolar retention as a function of particle size has been found by a new method. This curve has the opposite curvature to the calculated curve of alveolar deposition and extends, also, to sizes larger than the cut-off of the latter. The calculated deposition thus fails to explain both the exhalation of coarse particles and their penetration to the alveoli; it also predicts too great an alveolar deposition around 1-2 microns. It is believed that these divergences can be explained and three possible explanations are given. Suggestions are also made for improving the hexhlet gravimetric dust sampling instrument.

-- APCA Absts.

- 485 The Study of Lung Dust in Pneumoconiosis. G. Nagelschmidt. Am. Ind. Hyg. Assn. J. 26, 1-7 (Jan.-Feb. 1965).

Although it has not been possible to deal with all the related topics, the author attempts to sum up what seems to have been learned from lung dust analyses. There is first an as yet speculative distinction between slowly soluble and insoluble dusts, associated, respectively, with diffuse interstitial and with focal types of fibrosis. For insoluble dusts it seems that for a given severity of fibrosis the less dust is required the higher the quartz content of the dust is. This is equivalent, in terms of dust control, to saying that an airborne dust is the more dangerous the higher its quartz content is. The MAC or Threshold Limit Values for siliceous dusts have always varied in this sense. This is not new knowledge but rather confirmation of previously existing knowledge by lung dust analyses. Finally, pneumoconiosis of coal miners in Great Britain seems to vary in type with rank of coal or rock content of the airborne dust. It would be interesting to know whether similar results will turn up in the studies of pneumoconiosis of coal miners in the United States which are now in progress. Ten references are listed

-- Author's summary

- 486 Vegetable Dust Pneumoconioses. Immunologic Responses to Vegetable Dusts and Their Flora. J. Pepys, J.L. Longbottom, and P.A. Jenkins. Am. Rev. Resp. Dis. 89, 842-858 (June, 1964).

Inhalation of vegetable dusts with their fungal and other flora, exemplified by moldy hay, may provoke either the asthmatic or the farmer's lung type of reaction. The differences in their clinical and other features suggest immunologic differences. In atopic asthma, an

immediate type of allergy mediated by reagin, nonprecipitating antibody is present, whereas in farmer's lung only precipitating antibody has been found, and there is suggestive but not unequivocal evidence for its participation. Tests with extracts of *A. fumigatus*, *C. herbarum*, and *Mucor* sp. and with extracts of cotton, kapok, house dust, unscreened malt, sisal, bagasse, Indian hemp, moldy hay, coffee, and palm kernels were based on precipitin-containing sera from patients with either farmer's lung or pulmonary aspergillosis. Both groups of sera, and particularly the farmer's lung sera, had a high incidence of precipitins to all the extracts; the aspergillosis sera reacted to fungal antigens in the vegetable dusts, and the farmer's lung sera to fungal and other antigens. Extracts of sisal and coffee gave frequent reactions with the sera of subjects working with them, showing the effects of exposure to particulate dusts. Related antigens were found in the fungal and dust extracts, and reactions were obtained with the gamma-globulin of the appropriate sera. There was no relationship between precipitation reaction and blood groups. The presence of potent antigens in fungal and vegetable dusts and of precipitins against them, offers opportunities for immunologic investigation of the vegetable dust pneumoconioses.

-- APCA Absts.

- 487 Asbestosis. I. Webster. *S. African Med. J.* 38, 870-872 (Oct. 1964).

The pneumoconiosis produced by the inhalation of asbestos dust still presents a large number of problems, and the main ones appear to be: (1) The particular property of the dust which causes fibrosis and how it does it. (2) The length of exposure or dust load necessary to produce this fibrosis. (3) The reason for the increased incidence of pulmonary malignancy in asbestosis. It is a disease produced by the inhalation of dust and as such can be prevented. The managements of the asbestos industry have introduced many procedures to prevent atmospheric pollution in the last few years, and the principles of these applied to manufacturing concerns using asbestos will reduce the contamination of the urban atmosphere. Under such conditions an ever-increasing atmospheric dust hazard, as has been suggested by some workers in South Africa, is not anticipated.

-- APCA Absts.

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 488 High-Altitude Pulmonary Edema. I. Singh, et al. *Lancet* 1, 229 (Jan. 30, 1965).

This report is concerned with 332 cases of high-altitude pulmonary edema in India. The exposed population consisted of men ranging in age from 18 to 53 years; 249 men were fresh inductees to high altitude; 83 were reinductees who suffered from pulmonary edema after being away from high altitude to sea level for one to 196 days. The vulnerable altitude was 11,000 feet. Under identical conditions the incidence of pulmonary edema in fresh inductees and reinductees was the same. Although rapid ascent without adequate acclimatization en route, exposure to cold, and physical exertion often precipitated high-altitude pulmonary edema, the condition was also seen when none of these factors could be blamed. Individual predisposition appeared to be important. It is possible that alkalosis induced by hyperventilation on exposure to high altitude, and its persistence for weeks and months, may be the basic disturbance which aggravates hypoxia both at the tissue and at the respiratory levels in susceptible people. The authors discuss the various mechanisms by which hypoxia may trigger pulmonary edema; they also comment on the treatment.

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

- 489 Influence of High Altitude on the Pulse Rate at Work. F. Mangili, P. Aghemo, and R. Margaria. *Helv. Physiol. Pharmacol. Acta* 22, 66-69 (1964).

The correlation between heart rate and oxygen consumption has been studied on five young subjects performing work of different intensities such as uphill walking at different speeds or up and down stepping at different frequencies at altitudes of 1,800 and 3,000 meters above

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sea level. It was found that this was at altitudes just as at sea level, a linear function, though displaced towards the higher heart frequency at higher altitudes. The higher heart rate altitude is due in all subjects to a higher heart rate at rest. This, however, seems to be partly compensated in some subjects by a higher oxygen transport per beat when the work increases. The linear relationship between oxygen consumption and the heart rate would make it possible to calculate the oxygen consumption from the heart rate, and to calculate the maximum aerobic capacity from the pulse rate during submaximal work, if the maximum heart rate at altitude is known.

-- Aerospace Med. Absts.

- 490 Reactions to Heat of Arabs and Caucasians. C.H. Wyndham, B. Metz, and A. Munro. *J. Appl. Physiol.* 19, 1051-1054 (Nov. 1964).

The physiological reactions to heat of samples of French servicemen and of Arabs in the Sahara Desert were compared with those of South African Caucasians. Both Sahara groups displayed evidence of partial acclimatization; their reactions were better than those of the unacclimatized; but not as good as those of the acclimatized South African Caucasians. The French servicemen were slightly better acclimatized than the Arabs; they had lower rectal temperatures and heart rates, and higher sweat rates. This paradoxical finding indicates that the Arabs, although their ancestors have lived in the Sahara Desert for some centuries, display no greater adaptation to hot conditions than recent Caucasian inhabitants. The morphology of the Arab gives him a greater surface-area: mass ratio than the Caucasian. This favors heat loss, but under the test conditions the Arabs had no apparent advantage in physiological reactions. The differences in morphology of the Arab and Caucasian appear to be related more to their nutritional state and physical activity levels than to any structural adaptation to heat.

-- Aerospace Med. Absts.

- 491 Reactions to Heat of Aborigines and Caucasians. C.H. Wyndham, R.K. McPherson, and A. Munro. *J. Appl. Physiol.* 19, 1055-1058 (Nov. 1964).

A study was made of the physiological reactions to heat of samples of Australian Caucasians in the hot, humid tropics. Their results were then compared with those of unacclimatized and acclimatized Caucasians (South Africa). The Australian shows signs of a partial degree of acclimatization in that his heart rate and rectal temperature are lower and his sweat rate is higher than those of the unacclimatized South African Caucasians. The aborigine presents a less clear picture in that his rectal temperature is lower but his heart rate and sweat rate is the same as the unacclimatized Caucasian. A striking difference between the Caucasians and aborigines in Australia is the much higher sweat rates of the Caucasians. The lower sweat rates of the aborigine might result from the morphological feature of a greater surface area-to-mass ratio whereby he loses heat by radiation and convection more adequately than the Caucasian and therefore is able to conserve sweat; alternatively, he appears to have a more sensitively adjusted thermoregulatory control channel between rectal temperature and sweat rate.

-- Aerospace Med. Absts.

- 492 Noise as an Environmental Factor in Industry. W. Burns. *Trans. Assn. Ind. Med. Officers* 15, 2-11 (Jan. 1965).

This account summarizes the present position of noise as a potential hazard to hearing in industry as seen from the viewpoint of the industrial medical officer. The problems of measurement of the sound, assessment of noise and preventive steps to guard against occupational hearing loss are dealt with as practical procedures. These aspects are conveniently treated at some length under the following headings: (1) Measurement of sound. (2) Measurement of hearing. (3) Prevention of occupational hearing loss. (4) Assessment of hearing. The paper contains five tables and four figures.

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- 493 Damage Risk Criterion and Contours Based on Permanent and Temporary Hearing Loss Data. K.D. Kryter. Am. Ind. Hyg. Assn. J. 26, 34-44 (Jan.-Feb. 1965).

A damage risk criterion is proposed that provides more protection for the frequency region of hearing important to speech perception than to other areas. Damage risk contours are drawn to this criterion on the basis of rather detailed temporary threshold shift (TTS) data obtained in the laboratory. The TTS₂ (2 min. post-exposure TTS) found in young adults with normal hearing from an 8-hour exposure to a noise has about the same numerical magnitude as the NIPTS (noise-induced permanent threshold shift) in industrial workers exposed for 10 or more years, eight hours per workday, to about the same noise; it is concluded that TTS data can be used as a reasonably valid secondary yardstick for assessing the potential damage risk for permanent threshold shifts due to exposure to noise. The damage risk contours proposed represent a degree of calculated risk for persons exposed to the levels, spectra, and daily durations specified. This risk can best be met by lowering the levels specified by 10 db or so; if this is not practical, a program for monitoring the hearing of noise-exposed workers could be used in order to detect, and remove from the noise, those workers showing significant permanent threshold shifts. There are 19 references. -- Modified from author's summary

- 494 Noise and the Conservation of Hearing. S.S.S. Keys. Trans. Assn. Ind. Med. Officers 15, 12-17 (Jan. 1965).

The subject is discussed under the following headings: (1) Taking the occupational and medical history. (2) Examination of the ears. (3) Audiometric examination. (4) Analysis of the noise level at the place of work. (5) Investigation into the source of the noise. (6) Consideration whether personal protection is required, and if so, what type. (7) Periodic audiometric examinations. It is concluded that noise is not a job for the industrial medical officer only, but it involves many other people, including engineers and sometimes lawyers. Management should ensure that necessary steps are enforced, so that their employees can work in as safe an environment as possible. The proper way to tackle noise is at its source, and to this the design engineer and architect hold the key. Much research is still required. Hearing defects caused by excessive noise could lead to claims at Common Law, although at present there is no legislation about noise in England. Free hearing aids through the National Health Service are available to all; but clearly prevention is better, and noise deafness can lead to deafness over a much wider range, which will make hearing aids useless. The remedy therefore, when noise is unavoidable, is adequate protection of the worker.

- 495 Embryo Development and Chick Growth in a Helium-Oxygen Atmosphere. H.S. Weiss, R.A. Wright, and E.P. Hiatt. Aerospace Med. 36, 201-206 (March, 1965).

Fertile White Leghorn eggs were incubated in approximately 79 per cent He-21 per cent O₂ with up to 1-2 per cent residual N₂ in a sealed plastic isolator in which temperature, relative humidity, O₂ and CO₂ were controlled. Live, healthy chicks were hatched in He-O₂ but only half as many as in a comparable air system. The poorer He-O₂ hatch was due mainly to late embryonic death. Hatching time was similar but the He chicks were 8 per cent smaller. During development He embryos showed neither gross defects nor differences in dry weight or in total nitrogen but He eggs lost 27 per cent more weight. During an additional four weeks in their respective atmospheres chick growth and hematology were similar but the He birds consumed up to 16 per cent more feed and had higher heart and respiratory rates. Increased conduction of heat in He may be responsible for the observed effects. -- Authors' abst.

RADIOACTIVITY AND X-RADIATION

- 496 Fatal Radiation Syndrome from an Accidental Nuclear Excursion. J.S. Karas and J.B. Stanbury. New Engl. J. Med. 272, 755-761 (April 15, 1965).

The rapid growth of the industrial use of nuclear energy imposes an inevitable risk of radiation accidents. The first fatal nuclear excursion in private industry is described in this

article. The victim succumbed 49 hours after receiving between 10 and 20 times the lethal dose of neutrons and gamma rays. The principal clinical problem was that of maintenance of the blood pressure and the competence of the heart. The myriad medical and administrative problems that arose are discussed. There are 11 references. -- Authors' summary

- 497 The Evaluation of a Rapid Solvent Extraction Method for the Determination of Strontium-90 in Milk. E.R. Mercer, et al. Health Physics 11, 37-40 (Jan. 1965).

A procedure for measuring strontium-90, which depends on the solvent extraction of yttrium-90, has been compared with the more widely used method of strontium purification for the analysis of milk in environmental surveys. A comparison of measurements on 86 samples shows that the results obtained by the two methods agree closely. Both methods are similar in precision. The solvent extraction method has advantages of speed and simplicity, though it is subject to limitations for samples containing other rare earth activities. -- APCA Absts.

ENVIRONMENTAL MEASUREMENTS

- 498 Atmospheric Photooxidation of the Ethylene-Nitric Oxide System. A.P. Altshuller and I.R. Cohen. Intern. J. Air and Water Poll. 8, 611-632 (Dec. 1964).

Because ethylene is not only a phytotoxicant but also is reactive in the photochemical type of air pollution, a detailed study has been made of the photooxidation of ethylene-nitrogen oxide mixtures in air. The effects were determined of varying the concentrations of ethylene between 0.1 and 5 ppm and of nitric oxide between 0.2 and 10 ppm on the rate of ethylene consumption, the rate of nitrogen dioxide formation and on the yields of various products. The greater part of the ethylene consumed could be accounted for in the products as formaldehyde or carbon monoxide. It was not possible to obtain a nitrogen balance in this system, although a small amount of methyl nitrate was produced. Ethylene-nitrogen oxide mixtures react rapidly in static irradiations at reactant concentrations below 0.5 ppm. For example, photooxidation of a mixture initially containing 0.2 ppm of ethylene and 0.2 ppm of nitric oxide resulted in a nitrogen dioxide peak in 30 minutes and half conversion of ethylene in about 80 minutes. At equal ratios of reactants, ethylene-nitric oxide mixtures, actually are more reactive at lower concentrations of reactants. In order to explain the experimental results it appears that free radical chain reaction must be postulated. A discussion of various mechanistic reaction steps is given. -- APCA Absts.

- 499 A Study of the Effect of Motor Vehicle Exhaust on the Breathing Air of Apartment Houses. M.M. Braverman and C. Smith. Am. Ind. Hyg. Assn. J. 26, 84-85 (Jan.-Feb. 1965).

The breathing air of an apartment house adjacent to a motor vehicle expressway was studied. Measurements of particulate matter, hydrocarbons and nitrogen dioxide indicated contamination of the air by exhaust fumes from automobiles. This presents a problem needing study and planning relative to location of apartment buildings in areas of high density of automobile traffic. -- Authors' abst.

- 500 The Automotive Contribution to Airborne Polynuclear Aromatic Hydrocarbons in Detroit. J.M. Colucci and C.R. Begeman. J. Air Poll. Control Assn. 15, 113-122 (March, 1965).

Sampling of particulate matter was carried out with a large scale apparatus at three locations in the Detroit area to estimate the contributions by automobiles to certain polynuclear aromatic hydrocarbons and "tar" in the air. These estimations were based on concentrations of lead, carbon monoxide, "tar" and polynuclear aromatic hydrocarbons, in both exhaust gas and in the atmosphere. The assumption was made that automobiles are the sole sources of lead and carbon monoxide in the atmosphere; therefore, the calculated contributions by automobiles to the polynuclear aromatic hydrocarbons in air are maxima, and the actual contributions might be lower. -- Cond. from authors' summary

- 501 Critique on the Concept of Audiometer Zero. E.C. Riley, et al.
Am. Ind. Hyg. Assn. J. 26, 45-51 (Jan.-Feb. 1965).

It is suggested that the audiometers be calibrated and hearing thresholds be recorded in terms of actual sound pressure levels (zero decibels=0.0002 microbars). This simple physical basis avoids the inevitable uncertainties of a calibration based on a physiological normal. It is felt that the use of a physical unit is more meaningful and more stable than the statistical value from studies of the hearing thresholds of healthy young adults which form the basis of the zero reference levels of the American Standards Association (ASA) 1951 standard as well as the 1963 recommendations of the International Organization for Standardization (ISO). The same unit would then serve as the basis for expression of hearing thresholds and of noise measurements.

-- Authors' abst.

- 502 Development of a Personal Monitoring Instrument for Noise. F.W. Church.
Am. Ind. Hyg. Assn. J. 26, 59-63 (Jan.-Feb. 1965).

A new portable instrument has been developed that records the total amount of time a worker is exposed, at or above a selected noise level. It is small, light, and designed to be worn on the person while at work. This will permit significant measurement of total exposure time during a man's movements about his work. Performance data are given as well as a guide for the interpretation of the data.

-- Author's abst.

- 503 Predicting Hearing Loss from Noise-Induced TTS. J.C. Nixon, A. Glorig, and D.W. Bell.
Arch Otolaryngol. 81, 250 (March, 1965).

Repeat hearing tests were made on 37 industrial workers with less than 10 years on the job. Half of the workers were drawn from essentially low-level noise environments and half from the high level noises. Measurements of temporary threshold shift (TTS) were compared with successive yearly (re-exposure) hearing tests at 1,000, 2,000, 3,000, and 4,000 cycles per sec. For the low noise group, the Pearson product moment correlations between TTS and hearing level changes were not significantly different from zero. For the high noise group, all correlations were significant. Using the TTS versus hearing level change relationship, equations were derived to predict hearing level after one year of habitual exposure to any given noise based on the amount of TTS produced by that noise at the end of one work day.

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

- 504 Sulphur Dioxide Pollution. Statistical Analysis of Results from Adjacent Lead Dioxide and Hydrogen Peroxide Instruments. A. Eaves and R.C. Macaulay.
Intern. J. Air and Water Poll. 8, 645-655 (Dec. 1964).

A statistical analysis, using regression techniques, was made of 829 pairs of readings obtained over a period of four years at 20 sites at which both instruments were installed. It was demonstrated that, although the correlation between instrument readings at the same site is generally significant, no universally applicable direct calibration could be found. Readings from pairs of instruments at individual sites can be mutually calibrated by use of the particular site regression, but although the correlation may be highly significant, variances are still generally so large that no useful prediction of one kind of instrument reading from the other can be made.

-- APCA Absts.

- 505 Monitoring Human Exposures to Sulfur Dioxide in a Body Plethysmograph. Y. Tokiwa, B.R. Tamplin, and J.A. Nadel. J. Air Poll. Control Assn. 15, 96-98 (March, 1965).

A procedure is described for producing a sulfur dioxide (SO₂) contaminated atmosphere within a body plethysmograph, exposing man to this atmosphere while maintaining the SO₂ concentration at a given level, and measuring the concentration with less than a one-minute lag time. A syringe is used to introduce incremental volumes of SO₂ limiting the maximum SO₂ concentration in the chamber and assuring safety of the subject. A Titriolog SO₂ analyzer with its rapid response characteristic provides quick measurement of the SO₂ concentration. The body plethysmograph used in this manner serves simultaneously as a pulmonary function measuring device and as an exposure chamber.

-- Authors' abst.

- 506 Lead Isotopes in Gasoline and Aerosols of Los Angeles Basin, California. T. J. Chow and M. S. Johnstone. *Science* 147, 502-503 (Jan. 29, 1965).

The source contaminants can be identified by their isotopic composition because each lead ore has its characteristic isotopic composition. The isotopic composition of lead isolated from antiknock gasolines and the aerosols of the Los Angeles basin was determined. The lead isotopic composition of the aerosols was similar to that of the rural snow. The high concentration of lead in water of precipitation and that of the surface of the sea can be attributed to automobile exhaust. The aerosols were collected from an electrostatic air filter during the spring of 1964. The sooty deposits consisted of about 5% ash, which contained about 50,000 ppm of lead. The gasoline samples were purchased from service stations in the San Diego area in May 1964.

-- APCA Absts.

- 507 Quantitative Determination of Formaldehyde in Parts Per Hundred Million Concentration Level. G. R. Lyles, F. B. Dowling, and V. J. Blanchard. *J. Air Poll. Control Assn.* 15, 106-108 (March, 1965).

A new method has been developed for the determination of trace quantities of formaldehyde and appears to be superior to existing methods. The procedure is based on a modification of Schiff's test for aldehydes. A mixture of dichlorosulfitomercurate II complex and acid bleached pararosaniline hydrochloride is used as the reagent. In the presence of formaldehyde, a purple color is produced. The method is highly sensitive to formaldehyde and acetaldehyde, simple and does not require concentrated acids. When applied to air pollution studies, the method is virtually free of interferences from higher aldehydes. The paper describes the application of this method to spot sampling of the atmosphere and to continuous atmospheric analysis.

-- Authors' abst.

COMMUNITY AIR HYGIENE

- 508 A Century of Achievement. J. S. Carter. *Smokeless Air* (London) No. 132, 136-147 (1964).

The gradual progress in dealing with special smoke emissions from industry is described. The progress in reducing air pollution in industry should be regarded as a massive and a national achievement. General and special industrial smokes, pottery, salt, coke oven, and chemical and allied industries are discussed. The Alkali Act is reviewed and how the original was extended to include many other processes of expanding chemical and allied industries.

-- APCA Absts.

- 509 Use of a Mobile Laboratory in Air Pollution Studies. S. Hochheiser, M. Storlazzi, and W. J. Basbagill. *Am. Ind. Hyg. Assn. J.* 26, 77-83 (Jan.-Feb. 1965).

Since late 1962, the Division of Air Pollution of the U. S. Public Health Service has used a mobile air sampling laboratory to provide technical assistance and training to local air pollution agencies. The laboratory and the manual and instrumental methods used to measure SO₂, NO, NO₂, CO, CO₂, total hydrocarbons, oxidants, aldehydes, soiling index, and total suspended particulates are described, as are data handling systems. In several cities various parallel sampling methods have been used to determine the effect of analytical methods on indicated concentrations of particular pollutants. The significance of the air quality data collected is discussed.

-- Authors' abst.

- 510 Environment Simulation for Studying the Effects of Air Pollutants on Computers. T. W. Steading. *J. Air Poll. Control Assn.* 15, 99-101 (March, 1965).

This paper describes a study directed towards the laboratory simulation of parameters of the office environment related to airborne gaseous and particulate pollutants and initial operating experience of a particulate test chamber, instrumentation, and control techniques. Also discussed is the design of a simple gaseous test chamber being constructed. Gas dilution procedures, control and general operating approach are described.

-- Author's abst.

- 511 A Preliminary Evaluation of Gas Air Tracers. G.F. Collins, et al.
J. Air Poll. Control Assn. 15, 109-112 (March, 1965).

Although the initial cost of analytical equipment is high, it is felt the use of Freon-12 (difluorodichloromethane) and SF₆ (sulfur hexafluoride) as air tracers offer a very promising method for studying local air movements. Field sampling equipment is simple and rugged. Collected samples can be kept for long periods before analysis with no deterioration in quality and they are reproducible.

-- Authors' summary

- 512 The Production of Pure Peroxyacyl Nitrates. E.R. Stephens, F.R. Burleson, and E.A. Cardiff.
J. Air Poll. Control Assn. 15, 87-89 (March, 1965).

The peroxyacyl nitrates (PAN), a series of eye-irritating plant toxicants, are synthesized by gas-phase reactions at low concentrations. They are purified by preparative-scale gas chromatography. The preparation and purification of the first member of the series by photolysis of ethyl nitrite vapor (about 400 ppm) in oxygen is described in some detail. The entire procedure is designed to minimize factors which might cause decomposition of this extremely unstable product. Pure PAN is stored as a vapor diluted with dry nitrogen at about 100 psig and 40°F. (4.4°C.). Such mixtures (about 1,000 ppm) can be analyzed by infrared spectrophotometry using a 10 cm cell. The product is used in studies of its toxicity toward biological materials, in instrument calibration, and for studies of air pollution chemistry.

-- Authors' abst.

- 513 The Effect of Nucleating Particulates on Photochemical Aerosol Formation. A. Goetz and R.F. Pueschel. J. Air Poll. Control Assn. 15, 90-95 (March, 1965).

The role of nucleating particulates in the formation of photochemical aerosols has been studied in a steady, laminar flow of ultrafiltered air containing nitrogen dioxide, and octene-1 in the concentration range of (30 to 170 ppm) when subjected to intense irradiation under isothermal conditions. From the investigation it was found that due to the fact that in natural or polluted air masses particulates abound in comparison with the relatively low reactant levels, photochemical aerosol generation is more likely due to accumulant growth than to autonucleation. This indicates that—aside from the reactant levels—the locally prevailing or induced particulate matter is a very significant factor in the control of photochemical aerosol formation.

ACCIDENTS AND PREVENTION

- 514 Road-Accident Injuries: A Survey of the Period 1951-1960. H.V.A. Heikel.
Nord. Med. 73, 125-133 (Feb. 11, 1965).

Victims of traffic accidents accounted for about 10% of the bed occupancy in the surgical wards of Allmänna Hospital in Björneborg, Finland, from 1951 to 1960, when 1,831 such patients were treated. Of these, 82% were residents of the area. The rate of traffic injuries rose during the decade from 7.5 to 19.6 per 10,000 population. Bicyclists were involved in 34.6% of all injuries, but the greatest increase in accidents was observed in motorcyclists, particularly during the summer. Two thirds of all the injured were men, but most of the injured pedestrians were women. Children under the age of 6 years accounted for 25% of the injured pedestrians. Among the children of school age, more than 50% of the injured were bicyclists. Head injuries were found in 58% of all injured, leg fractures in 52%, joint injuries in 4% and internal injuries in 4%. Severe brain injuries were most frequent in motorcyclists and car drivers. The period of disability averaged 110 days. Permanent disability resulted in 39 patients. There were 125 deaths, and in 84% of these head injuries were present.

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

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ADDRESSES OF JOURNALS ABSTRACTED

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