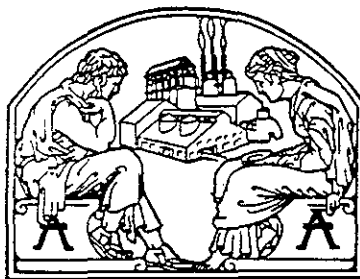


IN RE: ABRAMS November 1992



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Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL . . . decisions and trends

MARCH, 1954

(Vol. 18, No. 3)

INDUSTRIAL HYGIENE FOUNDATION

MELLON INSTITUTE

4400 FIFTH AVENUE -:- PITTSBURGH 13, PA.

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FOUNDATION FACTS

Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a nonprofit association of industries for the advancement of healthful working conditions.

4400 FIFTH AVENUE
PITTSBURGH 13, PA.

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"Keeping up" with new developments and trends in the field of industrial health entails voracious reading. It means poring over as many as a hundred publications each month, to say nothing of the special reports, books, and legislative and legal proceedings that have to be studied if one is to have a broad and working knowledge to apply to the solution of industrial health problems.

A formidable task? It would be if you had to do it yourself. But we do it for you, and in such a way that your mind isn't cluttered up with the chaff. We sort and sift all the literature on the many phases of industrial hygiene, health and medicine. And we serve up to you whole kernels of valuable information, neatly packaged in fifteen categories for quick selection.

Of course we are talking about the Industrial Hygiene Digest. The magazine you are holding is your guide to needed reading materials. It makes it possible for you to discover in a few minutes pertinent material on industrial hygiene in the current literature, and it gives you a "meaty" summary of the contents of each article. An abstract is often all the information you require. If not, the reference to the original source enables you to obtain the complete paper.

Last year 1229 technical abstracts appeared in the Digest. Indicative of the current interest in a particular subject is the number of abstracts on that subject appearing in the Digest. Topping the list in 1953 was industrial dust, concerning which 86 abstracts were published covering the whole field of dust problems, including silicosis. Next highest was radiation, with 52 abstracts, followed by insecticides, with 49. Despite the fact that lead has been the subject of study for many years, it received more attention than any other single compound and scored 43 abstracts in the Digest, ranking just above the subject of analytical methods.

The Annual Index, mailed to members last month, is a quick reference to the most important papers on a particular subject. Work has begun on a decennial index which will cover more than 13,000 articles and will be an important addition to your library.

Its working companion, the Publication Source List, should be kept handy on the bookshelf, too. Recently brought up to date and distributed to members, the bulletin lists the names and addresses of some 700 journals, from all of which material has been abstracted for the Digest over the last five years. The introduction to the Source List gives helpful pointers for obtaining reprints, photostats, reports by government agencies, and foreign periodicals.

Industrial Hygiene Digest has proved itself to be a time and money saver for nearly 2,000 representatives of the Foundation's member companies and their associates. As one grateful recipient wrote us recently, his file copies are "pure gold." We hope that you, too, find them a treasure in helping you keep abreast of what is going on in the field of industrial hygiene.

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HAVE YOU READ?

Expert and Technical Testimony. Addresses Presented at the Conference on Expert and Technical Testimony in Medical and Health Problems, conducted by the Institute of Industrial Health and School of Public Health, Oct. 21, 1953. University of Michigan. Continued Education Series No. 53. 63 pp. Obtainable from University of Michigan Press, 311 Maynard St., Ann Arbor, Michigan. \$2.50.

The precursor of this conference was a paper by McCord (IHF Abst. 239, March, 1953), which is reproduced at the beginning of this report. The following papers were presented at this conference.

Attorneys, Technical Witnesses and the Courts. B. A. Doelle-- Of the common faults of expert and technical witnesses, these few loom large: (1) witnesses fail to act with dignity in the courtroom; (2) they fail to present their testimony in simple, non-technical language; (3) they argue with attorneys and the court; (4) they frequently are so wishy-washy, equivocal, or vacillating in their opinions that they destroy the value of their testimony; (5) they frequently lack the necessary facility of expression, ready wit, alertness of thought, sincerity, or any of the many homespun personality characteristics to endear them to the court or jury; (6) they frequently become advocates and cease to stay in character as witnesses; (7) they build exaggeration upon exaggeration, growing bolder with each success, until a final curtain is rung down on their use as witnesses; and (8) they are careless.

A number of reasons are given why physicians are reluctant to testify in court: (1) medicine is not an exact science, and the definiteness of opinion which the attorney demands is foreign to a physician of advanced learning and experience; (2) physicians dislike to have their professional opinions questioned, particularly by abusive and irate attorneys; (3) some physicians are not trained to express themselves readily, nor to think on their feet; (4) physicians and surgeons resent the interruption of their private practice; (5) they have a wholesome suspicion of their professional brothers who make a specialty of giving testimony; (6) they are fearful of having their opinions questioned or derided by their professional brothers; (7) they resent the obvious exaggeration, or actual malingering of their patients in asserting personal injury claims; (8) they do not relish the implication of litigation, sensing that a claim of permanent injury is a reflection upon the treatment; and (9) they resent appearing before "stupid" attorneys. The author elaborates upon each of these faults and objections, and presents examples. Among errors to be avoided are: (1) whispering constantly to the attorney; (2) referring generously to a large sheaf of papers; (3) neglecting to impart knowledge to the attorney; (4) quarreling with the attorney; and (5) exaggerated claims justifying a large fee. Attorneys complain of the difficulty of locating truly

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qualified witnesses. Cooperation between bar associations and medical associations will aid in understanding each others' problems.

A Physician's Obligation to the Courts. The Technique of Being a Good Medical Expert Witness. E. D. Spalding--It is emphasized that it is not the duty or function of a medical expert to win a case, but rather to inform the court and jury on medical matters in which he is especially trained. Before going into court an expert witness should familiarize himself with all the available facts bearing on his phase of a case. Ten rules for governing his testimony are presented. He should: (1) know his rights and limitations as a witness; (2) stick to facts; (3) avoid technical language as much as possible; (4) understand questions before answering them; (5) never hesitate to say, "I don't know"; (6) avoid talking too much; (7) never lose his temper; (8) not subscribe to qualifying statements by the opposing attorney after definitely stating his position; (9) refuse to be restricted to a "yes" or "no" answer; and (10) never compromise the truth or himself. A plan for modifying court procedure has been incorporated in a proposed amendment to Michigan law. In case of conflicting testimony, the Court may select neutral experts from a broad panel approved by the County or State Medical Society, on the bases of integrity, recognition as outstanding, and ability in the expression of technical knowledge and the specific implications.

Judicial Procedure as It Applies to Technical Witnesses. C. W. Joiner--The author presents the fundamentals of court procedure in general and applies them to cases involving expert testimony. The rules of relevancy of testimony are explained. Hearsay evidence is not generally admissible, but some exceptions to the rule are discussed. Among the privilege cases in which testimony should be refused is the confidential communication by a patient to his physician. Some advice is given regarding the conduct of a witness at a trial. The points covered agree with those in the preceding paper, but also include giving lawyers a chance to finish their questions before answering, and, in cross-examination, giving the attorney a chance to object to a question before answering.

Preparation of the Technical Witness Prior to Court Appearance. The Attorney's Viewpoint. T. D. Wade--This paper was abstracted in the January, 1954 Digest (Abst. No. 25).

The Medical Preparation of a Medical-Legal Case. The Physician's Viewpoint. T. J. Curphey--The preparation and testimony in a medical-legal case from the point of view of the physician is a matter that should not be undertaken lightly. When he is invited to testify, he must be certain in his mind that his particular experience warrants participation in the particular case. Having decided on this, his approach should carry that objectivity necessary to render his opinion as having sound medical value to his legal associate in the trial of the case. Prior to the actual trial itself, he should spend the time necessary in going over the medical aspects of the evidence with the

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lawyer, reviewing for him the strong and weak points in the case and laying down an actual plan of trial procedure by which the fullest value of the expert's experience is obtained through the avenues of direct and re-direct examination on the witness stand. This type of preparation should be followed uniformly, whether the case be of serious criminal nature involving the life or liberty of the defendant or whether it be of the nature of a civil or compensation case. In so doing he will be rendering proper service through his professional training and experience to the cause of sound medical jurisprudence, something which is sorely needed in this country, and which incidentally, is the inescapable social responsibility of every physician at this time.

-- Author's summary

The Use of Scientific Records and Exhibits in the Court Room.

E. S. Jones--(1) All accidents and occupational diseases are potential law suits. (2) History immediately taken is important and should be a part of the patient's permanent file with a statement as to source. (3) Tentative diagnoses are of little value. Final diagnosis is a necessity and a part of the record. (4) Casual, unconfirmed impressions are of little value. (5) Technical records must be honest and not prepared as tricks to distort the facts. (6) Only one thoroughly capable of presenting technical exhibits or records should be permitted to present authentic records or exhibits. (7) It is the duty of the physician or the hospital to safeguard records and they should not be impounded by a Court after their useful purpose has been served.

There should be due notice given, when the case is set for trial. It is then incumbent upon the physician to review the facts in the case and prepare himself by careful review of the records and exhibits which he may possess, as well as any other material, which will assist in careful, concise and clear testimony, presented so all may easily understand his statements. Technical records and testimony unexplained may be of no value to a jury and possibly confusing to the jurist. Regardless of how technical a report may be from which the physician is testifying, the physician must clarify it to the Court and the jury or its value may be entirely lost.

-- Author's summary

The Dilemma of Official Health Agencies as to Court Appearance.

W. G. Fredrick--The author calls attention to some difficulties involved when public health officials are called upon to testify in cases regarding occupational health situations or neighborhood nuisance problems. The most important of these difficulties are: (1) loss of neutrality; (2) loss of constructive staff time; (3) record-keeping problems; and (4) unproductive increase in field and laboratory study time to meet rules of evidence. In usual legal procedure, the public health officer can appear in court only as a witness for the plaintiff or defendant although a much better procedure would be to allow him to appear as a witness for the court. Frequent appearance in court labels the agency as "pro-labor," "pro-management," or both. The health agency operates almost exclusively on a service and advisory basis, and

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must enjoy the complete confidence of both labor and industry. Legal actions are great consumers of field staff man hours, which must be subtracted from the health promotion and occupational disease prevention program. Industrial hygiene records that are sufficiently complete to satisfy the rules of evidence are far more costly to produce and maintain than are those necessary for routine health promotion and disease prevention activities.

Perhaps the greatest economic dilemma arises from the large increase in time requirements for environmental studies bearing on a court action. The question of the solution of these problems is, for the most part, unanswered, but it must be faced. Full cooperation with the parties concerned is of great assistance, and conferences have often led to settling of cases without a detailed hearing in court. Neighborhood nuisance litigation presents a difficult problem for which, as yet, no solution is available. This is true especially with a low degree of nuisance which cannot be defined by ordinance. Such disputes are best resolved where experienced counsel for each party collaborate as much as possible in their investigations. When the public official enters such a case he should be permitted to report all the facts of his investigation directly to the court and then stand examination and cross-examination by both parties as required. -- This paper is also published in Arch. Ind. Hyg. & Occ. Med. 9, 148-152 (Feb. 1954).

The Conference was concluded by a demonstration of the desirable versus undesirable qualities, statements, behavior, and mannerisms of good and poor witnesses as presented in the papers given.

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INDUSTRIAL HYGIENE DIGEST
Literature and News

NEWS ITEMS

237 Industrial Health Conference.

The 1954 Industrial Health Conference will be held at Hotel Sherman, Chicago, April 24 to 30. The six participating organizations are: Industrial Medical Association; American Conference of Governmental Industrial Hygienists; American Industrial Hygiene Association; American Association of Industrial Nurses; American Association of Industrial Dentists; and United States Navy Industrial Health Organization. All the Associations have separate programs, with occasional joint meetings. In addition to 115 papers, there will be five panel discussions, numerous luncheon conferences, three banquets, and many committee meetings. A Technical Guidance Clinic will be held throughout the seven days. Among the subjects of special interest to be discussed are industrial hygiene instrumentation, health education, air pollution, radiation hazards, disaster control, lung cancer, new toxicities, and the role of tobacco in the etiology of lung cancer. The Donald E. Cummings Memorial Lecture will be given by Frank A. Patty at the AIHA Banquet Thursday evening, April 29. Preliminary programs can be obtained from Industrial Health Conference, 28 East Jackson Blvd., Chicago, Ill.

238 Study on Chicago Air Pollution.

Plans for a \$25,000 study to combat air pollution in the Chicago area have been outlined by Dr. H. A. Leedy, director of the Armour Research Foundation of the Illinois Institute of Technology and president of the Midwestern Air Pollution Prevention Association. The 3-point program includes: determination of the sources of pollution, analysis of a large number of case histories of smoke violations in the files of the city's air pollution control department, and an educational program to inform Chicago residents on the problem and how it can be controlled. A number of modern analytical methods and sampling techniques which have not been used previously in the area will be utilized. It is planned to reduce information from case histories to IBM or

key sort cards so that the results can be quickly tabulated by an engineer trained in statistical methods. Statistical studies of such data should lead to definite conclusions as to the factors responsible for smoke violation.

-- Safety Maint. & Prod., Jan., 1954

239 Hay Fever Prevention Program.

The Hay Fever Prevention Society, Inc., is developing a comprehensive program to aid the seven to eight million hay fever sufferers in the United States. A vast sum of money is wasted yearly in man hours lost on account of chronic diseases, with hay fever predominating, and the annual loss to agriculture and in farm products due to ragweed and other noxious weeds is about five billion dollars. At least 80% of all hay fever is caused by ragweed. One out of three cases not properly treated becomes asthmatic. Information can be obtained by addressing Herbert W. Kip, Director of Public Relations, Hay Fever Prevention Society, Inc., 270 Park Ave., New York 17, New York.

240 Pneumoconiosis Field Research Scheme.

Work under the British National Coal Board's Pneumoconiosis Field Research Scheme began in October. Surveys will be made of 24 coal mines chosen to represent all conditions found in Britain. Radiological surveys of the miners will be made every two years and detailed records of the dust and other environmental conditions in every part of these pits will be kept. Two medical units, equipped with mobile x-ray apparatus of the latest and most efficient design, have been assembled and trained. The equipment consists of a towing vehicle and a trailer containing the x-ray apparatus, dark room, and all accessories. Films processed by the equipment are developed, fixed, washed, and dried without handling.

-- Coll. Guard., Oct. 15, 1953

241 Compressed-Air Saw for Hazardous Locations.

Power saws that run on compressed air have been created by German engineers. They are designed to work in places threatened with fire hazards. The compressed-air chain-tooth saw, made by a company in Wuertemberg, thus can be used in areas forbidden to saws driven by gasoline engines or electric motors--areas where a backfire or spark might trigger a major explosion. Pneumatic saws in two varieties have been produced so far by the company. The first is a one-man cross-cut saw that makes cuts up to 23.6 inches long. The other is a one-man bowsaw that handles wood up to 13.8 inches thick. Respectively, the saws weigh 33 and 44 pounds.

-- Science News Letter, Jan. 23, 1954

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OCCUPATIONAL DISEASE STATISTICS

242 Occupational Disease Statistics.

	Conn. ¹ Feb. 1954	Ind. ¹ Feb. 1954	Mich. Jan. 1954	Total
Chronic berylliosis (beryllium and compounds)	1			1
Dermatitis	94*	8**		102
Dermatoses			1	1
Hernia			8	8
Hydrogen sulfide poisoning		1		1
Lead absorption	1			1
Lead poisoning		1	1	2
Silicosis			2	2
Silicosis--chronic bronchitis (dust-free silica)	1			1
Silicosis (dust-free silica)	1			1
Silico-tuberculosis		2		2
Silico-tuberculosis (dust-free silica)	2			2
TOTALS	100	12	12	124

1. Occupational disease cases reported to the State Board of Health.

- * Alcohols (N.O.C.), carbon tetrachloride, chlorinated hydrocarbons, chloronaphthalene and chlorodiphenyl, chromium and compounds, dust--metals and compounds, dust--organic, fumigants, insecticides, disinfectants, infections, mechanical irritations, medications, mercury and compounds, oil and solvent (combination exposure), paints and lacquers, plating solutions (N.O.C.), rubber chemicals, and sulphur compounds (N.O.C.) caused one each; fluorine and compounds and hairdressing preparation caused two each; acids, alkalies, foodstuffs, and poisonous plants caused three each; soap solutions, glue, etc. and synthetic resins and chemicals caused four each; solvents (N.O.C.) caused eight; and oils, fats and waxes caused forty-four. The cause of one other was not stated.

- ** Chrome, rubber, spun glass, and wood caused one each; and oil caused two. The cause of two others was not stated.

LEGAL DEVELOPMENTS

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443 Heart Condition--Pre-existing Asthmatic Condition--Compensable Injury or Death Defined--Physical Weakness and Illness in Course of Nature Not Compensable.

An employee whose work is too difficult for him to perform and who is unable to continue to work by reason of physical weakness and illness induced in the regular course of nature from the usual and normal activities of his employment does not thereby suffer a compensable injury as defined by the Act. Accordingly, a reviewing court held that a trial court correctly determined that the widow of an employee in a glass factory, who had worked only two weeks before becoming disabled by myocarditis and who subsequently died therefrom, was not entitled to death benefits where the record showed that her husband had an asthmatic condition for about four years and that she failed to establish anything unusual or traumatic about the decedent's work other than that he was unable to continue because of his own pre-existing physical weakness. The court held that in the absence of a showing of an accident, either physical or traumatic in nature, compensation may not be granted. Affirmed. Lakatos v. Industrial Commission of Ohio. Ohio Court of Appeals. No. 4648. November 17, 1952. -- CCH

444 Fractured Leg--Disability Due to Injury v. Disability Due to Old Age--Findings of Fact--Sufficiency of Evidence.

Where an injured employee was suffering from high blood pressure, an enlarged heart, and other infirmities common to old age at the time he sustained an injury, it was a question of fact for the determination of the Industrial Commission whether he would have been able to continue his work had it not been for the injury. Since there was evidence from which the Commission could determine that it was the natural infirmities of old age and not a fractured leg that prevented the claimant from further employment, the judgment denying the claimant further compensation was proper. Affirmed. Gile v. Board of Education of the Brainerd School District. Minnesota Supreme Court. No. 36,120. January 22, 1954. -- CCH

445 Dishwasher--Contact Dermatitis--Accidental Injury--Sufficiency of Evidence.

A dishwasher who was allergic to a certain soap furnished by the employer and as a result suffered a severe case of dermatitis was awarded compensation and medical expenses where the disability was declared to be an accidental injury and not an occupational disease. Christopher v. City Grill. Mississippi Supreme Court. No. 34639. November 7, 1953. -- CCH

BOOKS, PAMPHLETS AND NOTICES

- 246 Toxicity of Industrial Organic Solvents. Ethel Browning. Revised American Edition. Chemical Publishing Co., Inc., 212 Fifth Ave., New York, N. Y. 411 pp. (1953) \$8.00.

The American edition is a duplicate of the second English edition, revised in consultation with the Toxicology Committee of the Medical Research Council. The first was published in 1937, and the number of new solvents introduced since that time and additional information on the older solvents necessitated a thorough revision. The treatment of the approximately 125 solvents listed is comprehensive. The section on benzene covers 44 pages, and includes properties, manufacture, uses and applications, concentration in air of factories, risk of explosion, estimation in air, blood, and tissues, toxicity in industrial processes, toxic effects in animals and man (in considerable detail), and differential diagnosis. At the other extreme, a number of solvents, that are not widely used and have no known toxicity are considered briefly. When no industrial toxic effects have been recorded and no animal experiments have been conducted, that information is given. The bibliography following each chapter is comprehensive. The bibliography on hydrocarbons covers 44 pages. The book is a valuable reference to those concerned with the toxicity of solvents.

--FFR

- 247 Occupational Disease Reporting. Victoria M. Trasko. Public Health Service Publication No. 288. 80 pp. (Nov. 1953). For sale by Supt. of Documents, U. S. Govt. Printing Office, Washington, D. C. 40 cents. (Limited supply of single copies available free from Div. of Occupational Health, Public Health Service, Washington 25, D. C.).

The first part of the study reviews practices in reporting occupational disease. Two types of reporting are potentially productive of data on a continuous basis: compulsory reporting by physicians to State and local authorities, and reporting for compensation purposes. Both types are shown to be very inadequate, on account of non-uniformity of laws, nonenforcement of the laws, and difficulties in diagnosing industrial diseases. The second part of the publication deals with a pilot study, carried out with the cooperation of divisions of industrial hygiene in 11 states. Of 9,058 reports received, 77% were reports from compensation agencies and 20% directly to the health departments by physicians. The inconsistencies already mentioned were in evidence, but the study proved that cooperation of State industrial hygiene agencies is possible and practical. The third part of the publication is

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concerned with an experiment at estimating the total incidence of occupational diseases in the United States. The data from the pilot study for 1951 were augmented by published and unpublished compensation data for 17 other states. Here, again, state differences in compiling statistics made summarization difficult, and when tabulated roughly according to diagnosis and predominant type of report, show a somewhat different distribution than that obtained in the pilot study. The ratio of occupational disease cases to total-compensated cases was studied in the compensation reports from 8 states. The ratio of cases varied from 1.2 to 4.3%, and the ratio of compensation costs from 0.8 to 8.4%. It is concluded from the entire study that there is at present no adequate means of estimating the incidence of occupational diseases on a national basis. Cooperation between all groups may improve the present situation.

-- Cond. from author's summary.

- 248 Symposium on the Leptospiroses, 11-12 December, 1952. Medical Science Publication No. 1, Army Medical Service Graduate School, Walter Reed Army Medical Center. 224 pp. (1953). For sale by Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. \$1.00.

Leptospirosis is a disease of some concern to the Armed Forces and is in some cases an occupational disease. This symposium presents the views of a number of authorities on various aspects of the disease both in men and animals. The subjects covered include epidemiology, pathology, ocular complications, diagnosis, therapy, and prophylaxis.

-- FFR

- 249 Rehabilitation of Mental Hospital Patients. Review of the Literature. Charlotte G. Schwartz. Public Health Monograph No. 17, Public Health Service Publ. No. 207. 70 pp. (1953). For sale by Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. 45 cents.

This review is designed to serve as a basis for planning rehabilitation services and for future investigation of the areas which require further specification and clarification. The current definitions of rehabilitation are inadequate for program planning and development. An operational definition is used in this analysis. The literature on rehabilitation is reviewed and the analysis is organized around the answers to five major questions concerning the unit of rehabilitation, the process of rehabilitation, the personnel attitude toward patients, the institutional arrangements, and bridging the gap between the hospital and the community.

-- FFR

Any fact is better established by two or three good testimonies than by a thousand arguments.

-- Delos Emmons, The Advertiser's Digest, Jan. 1954

INDUSTRIAL MEDICAL PRACTICE

- 250 First Medical Care Program in the Hotel Industry. F. P. Guidotti. Am. J. Public Health 43, 1030-1035 (Aug. 1953).

On March 1, 1954, the hotel industry of New York City became the first in the country to establish an industry-wide group insurance program for hotel employees. The program was created through the joint action of management and labor organizations. In 1949 a Health Center was established in a five-story building. It provides full facilities for diagnosis and treatment. Details of administration and operation are described, and the medical services rendered are tabulated. In the first year (Oct. 1950-Oct. 1951) 10,000 patients were treated for various ailments and 16,000 diagnoses were made. The cost of operation for the first year was \$600,000, which is approximately \$17 per capita.

- 251 Coronary Artery Disease in Industry. W. G. Garnett. Ind. Med. & Surg. 23, 59-63 (Feb. 1954).

Coronary artery disease has become increasingly important in our medical, economic, and industrial life. The increase in the number of compensation claims involving this disease is due in part to greater incidence of the disease but also to antiquated compensation acts, unnecessary leniency of boards, and lack of knowledge of the disease. The failure on the part of organized medicine to meet the problem realistically has inordinately complicated the picture. Suggestions are offered as to how the problems can be met and resolved. The problem of employment and re-employment of persons suffering from coronary artery disease is also discussed. The roles of industry, the employees, and the labor union in the rehabilitation program are evaluated. Work in itself should not be condemned but encouraged in every physically able individual as a justification for existence in our complex situation as well as for the maintenance of physical and mental health. It is only in the light of honesty and justice toward all that the problem can be equitably resolved.

-- Cond. from author's summary

- 252 Cardiac Disability and Death Caused by Strain: Problem in Workmen's Compensation. L. H. Sigler. J. Am. Med. Assn. 154, 294-299 (Jan. 23, 1954).

Physical and emotional strain may be definite exciting factors in the pathogenesis of acute coronary changes and myocardial injury in the presence

of coronary atherosclerosis. Inasmuch as an acute insult frequently occurs spontaneously, the causal relationship is often open to controversy. Such relationship should be considered established when a severe strain is followed by acute cardiac symptoms and demonstrable acute myocardial damage, even if similar strain had not previously produced such effects. An honest history of the events leading to an attack is most essential in establishing causal relationship. The incidence of clinical recovery from an acute myocardial insult and the rate of continued employment is high. If another such injury occurs after complete recovery, the second attack cannot be attributed to the original strain. Partial or total permanent disability may often follow a cardiac injury due to strain. The extent of disability of each person should be gauged by the degree of underlying coronary disease, the extent of residual permanent myocardial damage, and the functional capacity of the heart.

-- Cond. from author's summary

253 The Harvard Pack Test. A Physical Fitness Test for Mine Rescue Men. D. Davidson. Coll. Guard. 187, 830-832 (Dec. 31, 1953).

A new test for physical fitness, known as the Harvard pack test, has been evolved by physiologists. A form of the test was used by members of the Everest Expedition. No expensive apparatus or involved calculations are necessary. The equipment consists of a weighing machine, a stop clock or watch, a metronome, the harness, cylinder, and breathing bag of the Proto apparatus, and the Harvard step. The procedure is described.

254 Pre-Employment Examinations of 4,506 Federal Employees. T. Levy. Ind. Med. & Surg. 23, 55-58 (Feb. 1954).

A critical survey of the pre-employment examinations of 4,506 Federal employee applicants made over a 10-month period (June 1, 1951, through March 31, 1952) is presented. Among these 4,506 examinees, a total of 2,734 medical defects were recorded. Only eight (0.17%), of the entire group of 4,506 were medically unemployable. Two of these had active pulmonary tuberculosis; one had active urinary tract tuberculosis; five had psychoses.

-- Author's summary

255 Union Health Centers. A Survey, September, 1953. American Medical Association. 535 North Dearborn St., Chicago 10, Ill. 36 pp. (1953).

This survey was undertaken jointly by the Council on Medical Service, and the Council on Industrial Health, through the Committee on Medical Care for Industrial Workers. There are now 14 Union Health Centers in the United States, and this report presents the following information on 12 of those centers: (1) history; (2) membership; (3) objectives; (4) facilities;

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(5) financing; (6) budget and operating costs; (7) administration; (8) business and professional personnel; (9) benefits; and (10) preventive aspects of the services. It is hoped that the data obtained will aid the Committee to develop criteria under which health centers and similar proposals may be evaluated.

- 256 Participation of a Labor Union in the Study of Problems of Psychiatry in Industry. L. L. Tureen. Arch. Ind. Hyg. & Occ. Med. 9, 23-28 (Jan. 1954).

Only a few of the aspects of industrial medicine as approached from labor's side are touched upon in this report. It is immediately apparent that, as this matter is further contemplated, a rich source of study of intergroup relationships and tensions is inherent in the structure of the St. Louis Labor Health Institute. The psychiatrist's role in this particular phase of the work as a directing force in this study and as an interpreting influence in the dynamic exchange is evident and perhaps is ultimately his most important function. In addition, of course, he is able to provide a limited but useful psychodiagnostic and psychotherapeutic function to a segment of the population to which these services are not readily available or are denied.

-- Author's summary

- 257 Industrial Medicine on an International Basis. C. M. Peterson. Ind. Med. & Surg. 23, 35-36 (Jan. 1954).

Speaking before a Regional Conference of the World Medical Association, the author discusses methods of organization and attack on particular problems, such as absenteeism, aging, rehabilitation, occupational and non-occupational disability, and cooperation between public health and industrial interests, on the international scale. He refers to the relations between the International Labor Organization and the World Health Organization, and advises cooperation with those groups.

- 258 Joint ILO/WHO Committee on Occupational Health. Second Report. World Health Organization. Technical Rept. Sec. No. 66. 30 pp. (July 1953). Obtainable from International Documents Service, Columbia University Press, 2690 Broadway, New York 27, N. Y. 20 cents.

The four main portions of this report deal respectively with: (1) measures of general health protection of workers in places of employment; (2) uniform methods of notification of occupational diseases; (3) health service programs in large and small plants and agriculture; and (4) cooperation between public health and industrial health services.

-- Cond. from Bull. Hyg.

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SKIN DISEASES AND BURNS

²⁶⁹ Treatment of Industrial Dermatoses with Special Attention to Protection and Prevention. G. Klein. *Compens. Med.* 5, 3-9 (Sept. - Nov. 1953).

This paper gives valuable suggestions for prevention and treatment of industrial dermatoses. Skin protection should begin with screening of applicants. Persons with dry skin or excessive perspiration are especially susceptible to dermatitis. Little can be done to remedy constitutional trends. Pre-employment patch testing is not a reliable procedure. Ventilation, cooling, environmental and personal cleanliness, and employee education are the most effective means of prevention. Harsh cleansers are to be avoided, as they may be causes of dermatitis. The use of protective creams and ointments is discussed, both in connection with treatment and with prevention. The advantages and disadvantages of certain types of creams are considered. Relatively new employees with a mild dermatitis should continue working under mild treatment, as they may develop immunity. On the other hand, when a worker acquires dermatitis after long exposure to a particular material, polysensitization rather than immunity is likely to develop. Desensitization is usually unsuccessful in such cases. In the treatment of dermatitis, an inflamed skin should be washed as little as possible, and soap should be avoided. Ointments containing antihistamines and anesthetics are not advocated. If immunity does not develop after treatment with ointments and other protective measures, removal from exposure is the only proper procedure. Acute dermatitis with vesicular eruption or oozing should be treated with wet dressings. Tar preparations are advocated for treatment of some acute dermatoses. Among the therapies discussed without definite recommendations for general use are x-ray treatment, antibiotics, cortisone and ACTH, and hydrocortisone acetate. The psychosomatic aspect is discussed briefly.

²⁶⁰ The Diagnosis of Occupational Dermatitis. J. L. Morse. *Compens. Med.* 5, 18-20 (Sept. - Nov. 1953).

The recognition of an occupational dermatitis may be quite obvious in some cases but very difficult to establish in others. A list of "criteria for diagnosis" of an occupational dermatitis was adopted by an A. M. A. committee some years ago, but arbitrary standards do not serve in every case, as there are often other features to be considered. One of the most important fundamentals which is often slighted is the history. The following questions are most important in establishing the history: (1) onset of the eruption--when it occurred, whether others in the occupation were affected, and with what substance the individual comes in contact; (2) site of the eruption; (3) course

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of the eruption, especially whether it coincides with the work period; and (4) character of the eruption, with consideration of possible occupational aggravation of a non-occupational dermatitis. The limitations of the significance of patch tests are discussed. The problem of fungous infections in relation to occupational dermatitis is considered. Some cases of dermatitis require study, even by an experienced dermatologist, before an etiological diagnosis can be made.

- 261 Occupational Skin Disease. Public Health Service Publ. No. 306. U. S. Dept. of Health, Education, and Welfare, and Controlling Chemical Hazards, Series No. 10. U. S. Dept. Labor, Bureau of Labor Standards. 15 pp. (1953). For sale by Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. 10 cents.

This brief pamphlet presents the essentials about occupational skin disease--direct and indirect causes, and prevention and treatment on the part of the employer and the worker.

- 262 Asbestos Warts and Other Dermatoses in Workers with Lagging Materials. G. Farris. *Rass. med. ind.* 22, 1-17 (Jan.-Feb. 1953). Italian.

The author has investigated cases of warts on the hands of 29 workers with lagging materials, including asbestos cord which is wound around pipes, various asbestos-containing slabs, and mixtures of asbestos and cement to be molded to the shape of the tank or other object to be insulated. One to four warts were found in every case. They are due to asbestos fibers which penetrate into the epidermis and become lodged in the corium or true skin. The epidermis shows acanthosis (thickening of the prickle-cell layer) and hyperkeratosis (increased horny tissue) and the corium shows a granulomatous type of reaction with the appearance of giant cells in some cases. Exudative dermatitis may also be present. This condition is attributed to the combined action of the hygroscopic and alkaline cement and the irritating asbestos fibers. The gross and microscopic appearances of the lesions are illustrated.

-- Cond. from Bull. Hyg.

- 263 Dermatitis Due to Pancreas. S. Tara, G. Bouwens, A. Cavigneaux, and Y. Delplace. *Arch. maladies profess.* 14, 44-46 (1953). French.

Two cases are reported of workers employed in a pharmacological laboratory who experienced skin trouble when they manipulated pancreas preparations. Erosion of the skin with bleeding is a feature of this form of dermatitis. Similarly to papaya latex and pineapple juice, enzymes from the pancreas exert a solvent action on the skin.

-- Cond. from Bull. Hyg.

CHEMICAL HAZARDS

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- 264 Gangrene of the Leg Following Carbon Monoxide Asphyxia. P.B.S. Fowler. Lancet 266, (Jan. 30, 1954).

Five cases of gangrene following carbon monoxide asphyxia are reviewed, and a further case is reported. If the possibility of gangrene following carbon monoxide asphyxia is considered, treatment before irreversible changes have taken place may save a limb threatened by this disaster.

-- Author's summary

- 265 Toxicity of Hydrogen Sulfide Gas. Queries & Minor Notes. J. Am. Med. Assn. 154, 375 (Jan. 23, 1954)

The correspondent states that hydrogen sulfide is given off from a stream highly polluted with organic waste from a malting plant. White house paint has been turned brown by the fumes. He asks whether the fumes have any effect on human lung tissue. The reply discusses the toxicity briefly, referring to industrial hygiene texts for fuller information. When exposure is high, death may result in a few minutes from central nervous system damage, but no tissue damage is demonstrated at autopsy. Eye irritation appears at the lowest level of damage. While lung involvement is not the rule, bronchitis and chemical bronchopneumonia have been clearly shown to have resulted. The offensive odor of hydrogen sulfide is no guide to prospective damage, because odor perception is quickly impaired. Blackening of white lead coatings occurs at levels below those causing bodily damage.

- 266 Chemical Keratoconjunctivitis in the Rayon Industry in Saxony. J. Karsch. Klin. Monatsbl. Augenheilk. 123, 440-448 (1953). German.

Chemical keratoconjunctivitis is common in the viscose rayon industry and is known there as "spinner's eye." Symptoms are described. The extent of the inflammation varies considerably among individual workers. This disease is evidently caused by hydrogen sulfide. Carbon disulfide probably increases the harmful effects of hydrogen sulfide, since the former has a drying effect and therefore influences the threshold of concentration. Prevention is mostly a problem of ventilation of the spinning room and machines.

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

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- 267 Toxicity and Pharmacology of Boron Hydrides. A Status Summary of Work Performed up to About January 1, 1953. J. H. Wills. Atomic Energy Comm. Publ. AD-8539. Medical Labs. Special Report 15. 14 pp. (1953).

The boron hydrides (diborane, pentaborane, and decaborane) are highly toxic compounds which must be handled with due respect for their toxicity. The chief danger from diborane appears to arise from the local actions of the inhaled gas on the lungs. The chief danger from pentaborane and decaborane probably lies in the production of convulsions. Poisoning by pentaborane and decaborane can occur by absorption from the skin and conjunctival surfaces as well as by inhalation. No specific therapy is known for poisoning by any of the boron hydrides. Treatment at the present time must be on the symptomatic basis. -- Author's summary (Nuclear Sci. Absts.)

- 268 Studies of Phosphorus Intoxication. I. Changes in Blood, Urine, and Tissues of Dogs Poisoned with Phosphorus. Dorothy J. Buchanan, M. V. Sigal, C. S. Robinson, Katherine Pope, Mary E. Ferguson, and J. B. Thomison. Arch. Ind. Hyg. & Occ. Med. 9, 1-8 (Jan. 1954).

The tissue changes, which vary in severity with the amount of poisoning, consist of extensive hemorrhages of the gastrointestinal tract, fat deposits and necrosis in the liver and kidneys, and enlargement of the spleen, with deposition of hemosiderin. No significant changes in choline excretion, plasma phospholipid choline, or phosphorus levels were observed. Other changes followed the loss in weight. -- Cond. from authors' conclusions

- 269 Anhydrous Ammonia. Data Sheet D-251. National Safety Council. Natl. Safety News. 69, 34, 35, 64, 68-80 (Feb. 1954). Obtainable from National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

This data sheet provides extensive information on the hazards of anhydrous ammonia and its safe handling. Ammonia, strictly speaking, is not a poison, but it has a powerful corrosive action on tissue. The established MAC is 100 ppm, but lower concentrations may have a serious psychological effect and have considerable nuisance value. Since anhydrous ammonia must be stored under pressure, avoidance of leaks from any container or conducting system is important. Many of the recommendations are concerned with prevention of leakage and precautions in case of leakage. Specifications are also given for containers, piping, and valves. Personal protective equipment, first aid, and methods of detection are discussed.

- 270 Do Repeated Inhalations of Very Low Concentrations of Phosgene Sensitize the Animal to a Higher Concentration? D. Cordier and G. Cordier. Compt. rend. soc. biol. 147, 327-330 (1953). French.

Negative results with guinea pigs are reported.

-- Chem. Absts.

- 271 Heart Disease in Chronic Arsenic Poisoning. Clinical Report of Two Cases.
R. L. Robbins. J. Louisiana State Med. Soc. 105, 301 (Aug. 1953).

Two cases of chronic arsenic poisoning are described in detail. In both cases chronic congestive failure of the heart resulted. Its etiology was never adequately explained. -- Cond from Arch. Ind. Hyg. & Occ. Med.

- 272 Comparative Exchange of Calcium, Lead, and Radioactive Lead in Dogs.
J. A. Calhoun, Regina McLean, J. C. Hudson, and J. C. Aub.
Arch. Ind. Hyg. & Occ. Med. 9, 9-22 (Jan. 1954).

Radioactive lead, used experimentally as an indicator for inert lead, is toxic to dogs when injected intravenously in amounts ranging from 0.02 to 0.23 mc. per kilogram. Varying the amount of inert lead did not appear to influence the survival time. Toxicity appeared to be dependent upon the amount of radioactivity. The average urinary excretion of this tagged lead analyzed as radium D was roughly 67% of the total excretion. Parathyroid hormone or variations in calcium diet had no effect on excretion of tagged lead. This is not in agreement with the authors' previous findings with inert lead. A possible explanation is discussed. As much as 60 to 80% of the injected lead was excreted during the lifetime of the animals which survived several months. Only a small fraction of the stored lead was present in organs rather than bone. Dogs given radioactive lead appeared to develop uremia after some months. Apparently the azotemia, leucopenia, and physical deterioration of these animals were due to the radioactivity. The clinical evidence of renal failure was more obvious than the pathological evidence. -- Cond. from authors' conclusions

- 273 Lead Absorption and Liver Tests. J. Rodier and L. Rodi. Arch. maladies profess. 14, 364 (1953). French.

The liver plays an important part in lead poisoning, since it acts as a bulwark to the absorption of lead and permits elimination of the ingested metal through bile. Although clinical signs of lead absorption do not appear until actual intoxication, it seemed unlikely to the authors that the liver should not show some changes as the result of lead exposure. Accordingly, they selected 43 workers in various occupations who had been in contact with lead for an average period of three years and showed definite evidence of lead absorption. Certain liver tests were performed on these workers and on a control group. The tests consisted of a determination of the ratio of esterized cholesterol to total cholesterol, a thymol test, and a study of cephalin cholesterol. The results of these tests did not show significant differences between the two groups. It does not appear that lead absorption is accompanied by distinct hepatic disorders, at least not insofar as fat and protein metabolisms are concerned; however the connection between lead absorption and hepatic insufficiency is not easily to be dismissed.

-- Cond. from Arch. Ind. Hyg. & Occ. Med.

- 274 Lead Poisoning in Ship-Breakers. A. Dietze. Deut. med. Wochschr. 78, 136-137 (Jan. 1953). German.

In demolishing boats, it is sometimes necessary to use a burner in a confined space and a coat of lead paint gives rise to lead fumes. A case of typical lead poisoning in a man engaged in that work is described. Several other cases have occurred on the same ship. -- Cond. from Bull. Hyg.

- 275 Lead and Lead Poisoning in Early America. Lead Compounds. C. P. McCord. Ind. Med. & Surg. 23, 75-80 (Feb. 1954).

The early Colonists were little familiar with lead compounds. An early and widespread industry of the Colonies was pottery making, begun close to 1657. Lead was the common glaze and was introduced lavishly. Lead poisoning among consumers and makers attracted attention. The cosmetics of the period, limited to the use of the gentry, often contained lead with suspected evil consequences. The early glass of America was often rich in lead--up to 92% of red lead. The makers of such glass, more often than the user, became victims of lead poisoning. White lead was little used in America during the Colonial period. -- Cond. from author's summary

- 276 Nephrosis in Chronic Mercury Poisoning. R. P. Lund and C. Tillgren. Nordisk Med. 50, 1018-1019 (July 1953). Swedish with English summary.

Two cases of chronic mercury poisoning with nephrosis as a dominant symptom are described. ACTH and BAL were given for short periods without any conspicuous effect, but 6 to 10 months' freedom from exposure and a high albumin diet brought about recovery and normal mercury excretion. Neither the excretion of mercury nor the time of exposure explain the renal damage in the cases described. The importance of regular urine analysis in workers exposed to mercury is emphasized.

-- Cond. from English summary (Bull. Hyg.)

- 277 The Kidney in Occupational Diseases with Special Reference to Effects of Carbon Tetrachloride. H. Chasis. Compens. Med. 5, 20-25 (Sept. - Nov. 1953).

There is evidence that a common mechanism and a similar renal pathological state may have diverse etiologies, including crush injuries and poisoning by carbon tetrachloride, arsenic, uranium, and mercury. The term "lower nephron nephrosis" should be discarded and the diagnosis should be "acute renal failure" due to the particular agent. The author describes the pathology of this disease, especially as a result of carbon tetrachloride poisoning. By the time the patient develops the symptoms and a few hours

have passed, the poisons have entered the cells and produced necrosis, the ischemia has occurred and produced its focal necrotic areas, and the extent and severity of these lesions will determine whether the patient will recover. Vigorous treatment based on this concept is of value in supporting the patient until healing occurs, but institution of protective measures and the prevention of poisoning is the most productive approach.

- 278 Toxicity Studies on Hydroquinone. A. J. Carlson and N. R. Brewer. Proc. Soc. Exptl. Biol. Med. 84, 684-688 (Dec. 1953).

Chronic toxicity experiments with hydroquinone have been carried out in rats, dogs, and men at dose levels greatly exceeding those to be expected if hydroquinone were utilized commercially as a preservative in food fats. It was found that relatively tremendous quantities of the substance had to be ingested before demonstrable physiological pathology occurred in the experimental animals. Acute studies on rats revealed that the LD50 of fasted animals was approximately one-third that of fed controls. The relatively large amount of hydroquinone that could be administered with impunity indicates that the compound could be safely used as a food preservative.

-- Authors' summary

- 279 Comparative Toxicity of Two Vinyl-Substituted Phosphates. J. K. Kodama, Margarita S. Morse, H. H. Anderson, Mary K. Dunlap, and C. H. Hine. Arch. Ind. Hyg. & Occ. Med. 9, 45-61 (Jan. 1954).

The pharmacologic and toxicologic aspects of two new organophosphorus compounds, diethyl-2-chlorovinyl phosphate and dimethyl-1-carbomethoxy-1-propen-2-yl phosphate, were studied and compared with those of parathion. The study of the mode of pharmacologic action and the signs exhibited, acute and chronic, and specific antidotal procedures indicated no significant difference between the two vinyl-substituted phosphates and parathion.

- 280 Studies on the Mechanism of Action of DFP and TEPP. B. P. McNamara and others. J. Pharmacol. Exptl. Therap. 110, 232-240 (Feb. 1954).

DFP (diisopropyl fluorophosphate) and TEPP (tetraethyl pyrophosphate) produce readily reversible decreases in (1) the tension developed by directly stimulated, denervated skeletal muscle; (2) the amplitude of the spike potential of nerve; (3) the tension developed by skeletal muscle stimulated by slow excitation of its motor nerve; and (4) spinal and respiratory reflexes. Both compounds produce irreversible decreases in (1) cholinesterase in the motor end-plate on skeletal muscle; (2) cholinesterase in the spinal cord; and (3) the ability of skeletal muscle to maintain the plateau

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of tension during excitation of its motor nerve at 50 per second. Animals which had died after administration of DFP had complete or nearly complete removal of cholinesterase activity from the motor end-plates of skeletal muscle and from the spinal cord, but TEPP can produce death despite the presence of cholinesterase in the spinal cord and in the respiratory and other striated muscles. It is suggested that the reversible actions of DFP and TEPP may not result solely from cholinesterase inhibition.

-- Cond. from authors' summary

- 281 Physiological Responses to Parathion Exposure. Correlation between Serum Cholinesterase Activity and Urinary Paranitrophenol Excretion. R. K. Waldman, J. Lieben, and L. Krause. Arch. Ind. Hyg. & Occ. Med. 9, 37-44 (Jan. 1954).

Experimental studies on cynomolgus monkeys exposed to parathion are reported. Urinary excretion of paranitrophenol, a specific metabolite, is the earliest sign of absorption; reduced cholinesterase activity occurs after a lag period. These two findings are closely correlated quantitatively after the first 24 hours following exposure. Based upon these studies and other considerations, recommendations for laboratory tests to be included in programs to control parathion exposures are presented.

-- Authors' summary

- 282 Chronic Intoxication with Pyroxylin Lacquers. R. Schirmer. Klin. Monatsbl. Augenheilk. 123, 449-461 (1953). German.

The cases of poisoning described in this paper occurred in men who for months or years had sprayed or painted parts of machinery with pyroxylin lacquers. Observations on 5 workers indicate that poisoning by these materials first chiefly affects blood coagulation and prothrombin time. A relatively moderate to severe monocytosis with relatively atypical forms also seems to be a comparatively early manifestation. Examination of the sternal punctate gives some valuable information.

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

Do you think the Atomic Age is still in the far-off future? Then consider these facts as reported from atomic research laboratories: the atomic-powered submarine will be a reality in approximately two years; the atomic airplane engine will come into being five years from now, with atomic planes in production within 10 years; atomic battlefield weapons are already here; atomic power for industry will be generally available within five years "under special circumstances."

-- Kenneth R. Wilson in The Financial Post, 10/27/51

INDUSTRIAL DUSTS

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- 283 The Pneumoconioses--Bricks in Search of an Architect. E. R. A. Merewether. Arhiv Hig. Rada 4, 365-382 (1953).

The problem of pneumoconiosis and its historical background are reviewed. Pneumoconiosis presents a difficult economic problem. In 1951, 1300 workers in England died of pneumoconiosis, compared with 5250 deaths from traffic accidents and 11,631 from tuberculosis. If these numbers are considered in proportion to the number exposed to the hazard, the danger from pneumoconiosis becomes evident. Tuberculosis is not the only complication of silicosis; 16% of the 300 workers who died from asbestosis and 1.3% of the 6000 who died from silicosis had primary lung cancer. More attention should be paid in the future to the prevention of silicosis and other pneumoconioses.

-- Cond. from editor's summary

- 284 Aspects of Silicosis in the Italian Mineral Industry. E. C. Vigliani. Arhiv Hig. Rada 4, 383-389 (1953). Italian.

The author reviews the history of silicosis in Italy and presents tables showing its incidence in different occupations. A simple classification into pneumocosis with reticulation and silicotic and tuberculotic alterations is suggested. The author believes that a new law establishing preventive measures will achieve a better solution of the problem of silicosis in Italian industries.

- 285 Clinical Features of Emphysema in Anthracosilicosis Correlated with Pulmonary Function Studies. P. A. Theodos. Trans. Natl. Tuberc. Assn., 49th Ann. Meeting. pp. 148-149 (1953).

Determination of the degree of emphysema in anthracosilicosis by clinical means is generally unreliable despite the fairly good correlation with the appearance of the chest and the degree of chest expansion. A more reliable index may be obtained by the degree of diaphragmatic motion observed fluoroscopically.

-- Author's conclusion

Thirty years ago, when I went into business, a man could spend 95% of his time on his business. Now he has to spend half his time figuring out what he can or cannot do.

-- Secretary of Commerce, Sinclair Weeks

- 286 A Study to Determine Potential Dust Exposure in Connection with Intermittent Rock Drilling in Coal Mines. C. W. Owings and L. Johnson. Bur. Mines Rept. Invest No. 5004. 7 pp. (Oct. 1953). Obtainable from Div. of Publications, U. S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa.

The survey demonstrated that rock drilling in coal mines, even for short periods without dust control, presents a health hazard, as men working at the drills or in the path of return air may be exposed to high concentrations of silica-bearing dust. The use of respirators should be confined to short periods and restricted to situations in which it is not feasible to control dust by other means. In all other situations, dust should be controlled at its source, by using wet drilling or approved dust collectors. It was very difficult to classify any particular type of operation as short-time or long-time drilling, as the exposure times varied widely. Excessive concentrations of dust were encountered during all types of power drilling and with all conditions of ventilation. Generally, electric and hydraulic drills produced less dust than pneumatic drills. Hand-operated drills are usually operated at such speeds that no extremely high dust concentrations are generated. It is suggested, therefore, that dust control measures should be taken while using any type of power drill, and respirators should be worn while using hand-operated drills. -- Cond. from authors' summary

- 287 Silicosis in a Dresser of Millstones. F. M. Troisi. *Rass. med. ind.* 22, 23-27 (Jan.-Feb. 1953). Italian.

Two varieties of stone used for millstone manufacture in Italy contain 89 and 56% free silica, respectively. Clinical notes are given on a case of silicosis in a dresser of millstones, with 40 years' exposure. X-rays showed a reticular fibrosis with micronodular shadows. The right side of the heart was affected. Control measures are suggested. The author has published an earlier paper reporting a number of similar cases (IHF abst. 997, Sept. 1952). -- Cond. from Bull. Hyg.

- 288 Cortisone in Pneumoconiosis with and without Reversible Bronchoconstriction. M. C. S. Kennedy. *Lancet* 266, 77-79 (Jan. 9, 1954).

Twelve patients with chronic lung disease, 10 of whom had pneumoconiosis, associated with variable degrees of bronchoconstriction, responding to adrenaline, were treated for 14 days with 100 mg. cortisone daily. No objective improvement was noted, although 8 patients thought their breathing was better. The objective tests were improved after treatment with aerosol adrenaline. The effect of adrenaline was not enhanced by cortisone therapy. The findings do not suggest that cortisone has a place in the routine treatment of reversible bronchoconstriction associated with the pneumoconiosis of coal workers or pottery workers. No deleterious effects from the therapy were observed. -- Cond. from author's summary

- 289 On Respiratory Insufficiency of Pulmonary and Cardiocirculatory Origin: Experimental Research on Subjects Affected with Silicosis and Heart Disease by the Knipping Method. M. Pasargiklian, E. Sartorelli, and E. Giorgi. *Med. lavoro* 44, 329-382 (Aug. -Sept. 1953). Italian with English summary.

The authors' aim was to examine the mechanisms which cause respiratory insufficiency and the symptoms by which it is manifested, with the possibility of utilizing the latter for the evaluation of pulmonary and cardiac function. The details of the experimental procedures used are given. Respiratory insufficiency is due to the arising of an anoxic anoxia condition which is characterized by pulmonary hyperventilation and low oxygen consumption. In cardiopathic patients, respiratory insufficiency is referred to as stagnant anoxia, but it is clearly revealed by spirographic methods only when it is superimposed by anoxic anoxia. This condition is obtained by decompensating the cardiopathic subject. --Cond. from English summary, *Arch. Ind. Hyg. & Occ. Med.*

- 290 Experimental Infective Pneumoconiosis. E. J. King, C. V. Harrison, G. P. Mohanty, and D. A. Mitchison. *Arhiv Hig. Rada* 4, 289-300 (1953).

Quartz and coal-mine dusts were introduced into the lungs of rats by inhalation, in a high concentration, for four months, and then groups of these dusted animals were infected with a virulent strain of human tubercle bacillus (37 Rv). Dusting was continued for a further period of ten months in the case of coal-mine dust. No variation in lung pathology was seen in the quartz groups, although both produced classical silicotic nodules. In the coal-mine dust the infective group showed slightly more fibrosis, diffuse in nature, than either the noninfected or the tuberculous control group. These are preliminary experiments, and the results must be considered as both tentative and not very conclusive. Work is being continued. -- Authors' summary

- 291 Effect of Cortisone on Experimental Silicosis in the Rat. B. Marenghi and L. Rota. *Med. lavoro* 44, 383 (Aug. -Sept. 1953). Italian with English summary.

Twenty rats were exposed for a period of from one to six months to an atmosphere containing about 14,000 particles of pure quartz per milliliter. Ten of these received injections of 2 mg. of cortisone three times a week, and 10 were kept as controls. The progress of the lung reaction is described for both groups. The amount of cortisone given had very little influence on the initial cellular reaction to silica. Cortisone by delaying or preventing the transformation of reticulin fibrils in collagenous fibers precluded the progressive increase of the nodules and above all their confluence in fibrotic masses. --Cond. from English summary, *Arch. Ind. Hyg. & Occ. Med.*

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- 292 Diagnosis of Diffuse Pulmonary Lesions. J. A. Prior, K. P. Klassen, and N. C. Andrews. Trans. Natl. Tuberc. Assn. 49th Ann. Meeting. pp. 109-112 (1953).

There are at least 80 conditions which may be responsible for the development of diffuse pulmonary lesions, so differential diagnosis becomes very complex. The following categories constitute the major headings under which diffuse pulmonary lesions may be classified: (1) infections; (2) neoplasms; (3) blood dyscrasias; (4) inhalations; (5) circulatory disturbances; (6) generalized diseases; and (7) miscellaneous, including a number of unrelated entities. Personal history, physical examination, and laboratory studies are aids in diagnosis, but biopsy of the lesions has permitted rapid and accurate diagnosis when the more conventional methods fail to establish the true nature of the disease process. The method of biopsy first described by Klassen in 1947 is much preferable to the earlier aspiration and exploratory methods.

- 293 The Roentgenogram--Its Place in Pulmonary Dust Diseases. R. T. Johnstone. Ind. Med. & Surg. 23, 45-49 (Feb. 1954).

The value of the x-ray film in the diagnosis of a pulmonary dust disease is obvious. It is almost indispensable. It is not, however, a measuring rod for estimating disability. Sole reliance on the x-ray film would mean ignoring the occupational history, regional mineralogy, chemistry of the dust involved, nature of the industrial process, concentration of the dust, particle size, length of exposure, presence or absence of adequate preventive medicine, and other factors. Moreover, the accurate interpretation of films requires long experience in studying films as well as clinical experience. Some books and many published papers by persons unfamiliar with these facts have been the source of much misinformation.

- 294 Diagnostic Aspects of Some Cases of Silicosis and Silicotuberculosis. M. Floris, G. Sanna, and G. Floris. Rass. med. ind. 22, 65-103 (Mar. - Apr. 1953). Italian.

The relation between tuberculosis and silicosis is not only of scientific and diagnostic interest but also of social importance. Some of the more notable reports regarding the association between these two conditions are examined and the various criteria in the history, clinical examination and special investigations which may be of use in their differentiation are discussed. Fourteen cases are described in detail with good reproductions of radiographic findings. Reasons are given for their classification into 3 groups--4 of pure silicosis, 3 of simple tuberculosis and 7 where the two diseases co-exist. Great emphasis is laid in the value of strati-radiography over the standard x-ray procedure as (1) Nodular condensation is better seen; (2) the limits of large opaque shadows are more clearly defined; (3) unsuspected cavities may be revealed.

-- Bull. Hyg.

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- 295 The Relationship of Arterial Hypoxemia to Disability and to Cor Pulmonale with Congestive Failure in Patients with Chronic Pulmonary Emphysema. R. D. Miller, W. S. Fowler, and H. F. Helmholz, Jr. Proc. Staff Meetings Mayo Clinic 28, 737-743 (Dec. 30, 1953).

A study was made of 240 patients with chronic diffuse obstructive emphysema. Values for arterial oxygen saturation were recorded by oximetry with the patients at rest, during exercise, and breathing 90 to 95% oxygen. Half of this group maintained normal values for arterial oxygen saturation, even after exercise to the limit of their tolerance. Twenty-three per cent had hypoxemia at rest. In an additional 27% whose arterial blood was normally saturated at rest hypoxemia developed during a standard exercise test. The presence or absence of hypoxemia did not govern the degree of disability in individual cases. Cor pulmonale with congestive failure, when present, occurred almost exclusively among patients who had either transient or persistent hypoxemia, and mostly among those with persistent hypoxemia. There were 18 instances of congestive right heart failure among 122 patients in whom persistent or transient hypoxemia was demonstrated.

-- Cond. from authors' summary

- 296 Treatment of Pulmonary Emphysema with Aerosolized Bronchodilator Drugs and Intermittent Positive-Pressure Breathing. W. S. Fowler, H. F. Helmholz, Jr., and R. D. Miller. Proc. Staff Meetings Mayo Clinic 28, 743-751 (Dec. 30, 1953).

A study of 41 patients with chronic diffuse obstructive emphysema was made to evaluate the relative therapeutic merits of inspiratory positive-pressure breathing, inhalation of an oxygen-generated aerosol of isopropyl arterenol (isuprel), and their combination. The results, judged chiefly by symptomatic improvement and by results of pulmonary function tests, indicate that aerosolized isuprel was superior to oxygen-IPPB alone and equal to the combined treatment. Moderate symptomatic improvement was obtained by the majority of patients under the isuprel aerosol treatment. The basic bronchopulmonary changes, however, were not altered by any of the treatments.

-- Cond. from authors' summary

- 297 Problem of Ultra-Fine Dusts and Its Importance in Industrial Pathology. A. Policard and A. Collet. Arch. maladies profess. 14, 337 (1953). French.

Electron photomicrographs have demonstrated the presence of ultra-fine dust particles (0.1 to 2 microns) in the pneumocotic lungs of certain French rock and coal miners. The relative frequencies of the smaller particles were in direct proportion to size, but the difference in frequency of particles in the rock miners' and coal miners' lungs was in inverse proportion to particle size; the relative frequency was greater in the rock miners' lungs in all cases.

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These particles have been proved harmful; the mechanism of their toxicity has not been extensively studied, but it is clear that there are two aspects of the problem: their chemical action and their surface area. Although they often appear in agglutinations, these are loose enough to allow the inside surfaces of the particles to exercise their influence. It is known that they can fix themselves to the alveolar wall and can travel via the lymphatic system, tending to congregate in the lymph nodes. In combating ultra-fine dust, the same techniques of aspiration and ventilation that apply to toxic gases should be used. -- Cond. from Arch. Ind. Hyg. & Occ. Med.

- 298 Toxicity of Silica. II. Characteristics of Protein Films Adsorbed by Quartz. L. D. Scheel, B. Smith, J. Van Riper, and E. Fleisher. Arch. Ind. Hyg. & Occ. Med. 9, 29-36 (Jan. 1954).

A film of protein is adsorbed from solution by quartz particles 1 to 3 microns in diameter. The amount of protein adsorbed is a function of the concentration and pH of the protein solution. The lack of specificity of the protein film on the quartz is shown by the combination of the film with specific antibodies and by its ability to produce heterogeneous antibodies when injected into the rabbit. The adsorption of rabbit serum by the quartz alters the nature of the serum proteins in the film in some unknown manner which results in a clearly demonstrable agglutination reaction. The agglutination titer in the rabbits in response to the injection of particulate matter of a comparable size has not been obtained with the materials so far tested other than quartz. The alteration of protein structure in the adsorbed film is clearly shown, and it is entirely possible that the toxic action of the quartz particle may be the result of a foreign protein reaction in the tissue.

-- Cond. from authors' summary

- 299 Fibro-Anthracosis of the Lungs in Elderly Individuals in a Smoky City. T. J. Moran. Diseases of Chest 24, 558-563 (Nov. 1953).

Study of a series of 770 autopsies on elderly individuals with an average age of 60 years from the City of Pittsburgh revealed some degree of fibro-anthracosis in 97 subjects, or 12.6%. In 6 instances fibro-anthracosis was the sole cause of death, in 2 others the principal cause, and in 2 others a contributory cause. Six of the 10 (all men) had been coal miners for 4 to 33 years. Analysis of the causes of death in the 97 cases indicated that the presence of fibro-anthracosis does not increase the incidence of or predispose to death from other lung diseases such as pneumonia, tuberculosis, and bronchogenic carcinoma. Fibro-anthracosis was found in only 7 females and the lung damage was slight. In the fatal cases the mechanism of death was congestive heart failure. Right ventricular hypertrophy was marked in almost all the fatal cases. This study suggests that long exposure to a smoky atmosphere does not result in any appreciable degree of lung

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fibrosis, although it may cause minimal scarring after many years. The disease, in the Pittsburgh district at least, is an occupational disease, predominantly if not entirely associated with coal mining.

-- Cond. from author's summary

- 300 Non-Fibrotic Pneumoconioses. M. Marchand. *Archiv Hig. Rada* 4, 402-427 (1953). French.

The author presents an extensive review of the literature on the non-fibrotic pneumoconioses, including: bagassosis, byssinosis, and siderosis; those attributed to aluminum, barium, beryllium, kieselguhr, kaolin, enamel, emery, tin, graphite, lignite, manganese, marble, mica, nickel, bacterial and parasitic infection, sulfur, fluorspar, talc, and vanadium; and those occurring in welders, quarrymen, and bakers. The bibliography includes 237 references. (Editor's note. Nearly all the American and most of the English papers and the available papers from foreign sources, included in this bibliography, as well as others dealing with the same subjects have been previously abstracted in the Digest. The abstracted papers constitute about half of those given in the bibliography.)

- 301 The Effect of Feldspar, Slate, and Quartz on the Lungs of Rats. G. P. Mohanty, D. C. Roberts, E. J. King, C. V. Harrison, and G. Nagelschmidt. *J. Pathol. Bacteriol.* 65, 501-512 (1953).

The effects of dust from pure orthoclase feldspar and from slate from two sources on the lungs of rats were studied by the intratracheal injection technic. Quartz was used as a control. All dusts were below 2 microns equivalent diameter and their chemical and mineral composition as well as their size distribution were determined. The slates were composed chiefly of mica, quartz, and kaolin. The feldspar was found to cause only minimal fibrosis after 17 months. The two slates were slightly more active and produced normal stage 1 fibrosis, which is characterized by cellular lesions, a loose reticulum network, and absence of collagen. There was no difference in response to the two slates. The quartz controls showed collagenous fibrosis after 4 months and confluent fibrosis after 10 months. The amount of quartz given in the two slates was of the order of 10 mg. per rat. Comparison with previous results suggested that the mica and kaolin in the slate slightly reduced the fibrogenic response to the quartz, in contrast to the behavior of coal, which enhanced the fibrogenic effect of similar amounts of quartz.

-- Authors' summary (Biol. Absts.)

Industrial output of the world, excluding the U. S. rose 62% from 1937 to 1951, while that of the U. S. rose 95% in the same period.

-- The Twentieth Century Fund

- 302 The Health Hazard of Limestone and Gypsum Used for Stone Dusting in Coal Mines. A. J. Beal, O. G. Griffin, and G. Nagelschmidt. Great Britain Safety in Mines Research Establishment. Research Rept. No. 72. 12 pp. (1953). Obtainable from British Information Service, 30 Rockefeller Plaza, New York 20, N. Y. 30 cents

It was shown earlier (IHF Abst. 1013, Sept. 1951) that ground shale dust used for stone dusting in mines contained appreciable amounts of quartz and might therefore constitute a silicosis hazard. The use of shale has now been abandoned and limestone and gypsum are now the only materials used for stonedusting in British mines. Samples of these dusts were tested for quartz and for size distribution. Of 30 limestone samples, 23 had 2% or less of quartz, 3 had between 2 and 3%, 3 between 3 and 20%, and 1 (probably sent in error) had over 60% of quartz. Repeated samples 18 months later had the same range of quartz content. On the whole, 35% by weight of the dust was below 10 microns in size and 20% below 5 microns. Fractions of less than 10 microns particle size were prepared from 6 of the samples and their quartz content was determined. In 4 of the samples the quartz content was less than in the whole dust, equal in one, and considerably greater in the other. It thus appears that there may be a silicosis risk from impure limestone, but the risk can be avoided by quality control, since an ample supply of limestone is available. Five representative samples of gypsum dust had dust distributions similar to those of the limestone and their quartz content varied between 0.6 and 1.4%. An appendix describes the chemical determination of quartz. -- Cond. from Bull. Hyg.

- 303 The Epidemiology of "Lobar Pneumonia" on the Kolar Gold Field. G. E. French. Proc. Soc. Study Ind. Med. (India) 5, 19-28 (1953).

An investigation is presented to ascertain the cause of an excess of acute bronchitis and pneumonia among the workers in the Kolar Gold Field of India. The dust is not associated with any significant degree of fibrosis, and any relation of dust to pneumonia is indefinite. A definite rise in the weekly incidence of pneumonia was found to occur at the onset of dry weather; absolute humidity seemed to be beneficial. This factor may depend upon the transmission of airborne microorganisms. The enquiry suggests that, among a group of workers with a pneumonia rate 15 times as high as in a non-hazardous industry in a temperate climate, the working and living conditions are mainly responsible. The response to treatment has been rapid, with temperature returning to normal by the third day in 69% of the cases.

-- Cond. from Bull. Hyg.

The history of human freedom is the history of the limitation,
not the enlargement of government power. -- Woodrow Wilson

- 304 Baritosis. M. Branisavljevic, Z. Kopac, G. Merkulov, and S. Teofanovic. Arhiv Hig. Rada 4, 307-324 (1953). Croatian with English summary.

Baritosis is found among workers in the barite mines and mills of Yugoslavia. The authors examined 31 workers from a barite mill who had been working from 1 to 14 years with no protective measures in a very dusty environment. All complained of cough without much sputum, and some of dyspnea with clinical signs of pulmonary emphysema. No heart, blood, or urinary effects or tuberculosis were found. Radiography disclosed in the lungs of all workers rare, translucent, flocculent nodules different from those in miliary tuberculosis or silicosis. No case was complicated by active tuberculosis or by the expected silicotic component. The main characteristics of baritosis appeared in three stages according to the dissemination, the translucence, and the size of the nodules. The pathologico-morphological findings of the lung of one such worker who had died of another intercurrent disease pointed to bronchitis chronica catarrhalis. The histological finding indicated rarefaction of the lung parenchyma, atrophy of the interstitium, and disseminated nodules. The postmortem clearly showed that there are considerable histological differences between baritosis and other nodular pneumoconioses. Nodules composed of fibrous or sclerotic tissue are entirely absent. Barium nodules are mostly built of barite pigment and contain very few fibers.

-- Cond. from English summary

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 305 The Relations of Hearing Loss to Noise Exposure. A Report by Exploratory Subcommittee Z-24-X-2 of the American Standards Association, Z24 Sectional Committee on Acoustics, Vibration, and Mechanical Shock. American Standards Assn., Inc., 70 E. 45th St., New York 17, N. Y. 64 pp. (1954).

A summary of presbycusis data is given. The audiometric records and noise exposures for a group of almost two hundred persons employed continuously at the same job for periods of from 2 to 44 years is studied in detail. The average hearing losses are presented as a function of years of exposure and of various sound pressure levels in the different octave bands. Trend curves are drawn from these data and compared with hearing losses in six other noise spectra. Included are some data on recovery and intermittent exposures to steady and to non-steady noises.

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- 306 A Noise Survey of Manufacturing Industries. H. B. Karplus and G. L. Bonvallet. Am. Ind. Hyg. Assn. Quart. 14, 235-263 (Dec. 1953).

Sound pressure levels of steady state noises were taken at about 600 locations in 40 different plants selected from a wide range of industries. Measurements were divided into those taken close to principal noise sources, called machine levels, and those further away called area levels. About 50% of the machine levels were between 90 and 100 db. About 50% of the area levels were between 85 and 95 db. A chart gives the approximate relation between overall level and total loudness. Noise levels are analyzed according to the industry in which they were found. A tabulation of the original data showing overall levels, octave band levels, and loudnesses is appended.

-- Cond. from authors' summary

- 307 Reducing Industrial Noise. F. G. Tyzzer. Am. Ind. Hyg. Assn. Quart. 14, 264-285 (Dec. 1953).

Practical methods of noise reduction are discussed. Noise level design goals are discussed and the causes of noise generation are presented. There is information on operational planning and on the use of protective devices. A description is given of reduction techniques at noise sources, along flow paths, at radiating areas, and in working areas. A detailed discussion is given on the effect of ceiling and wall absorption materials. Examples of simple and practical methods of noise reduction are given for some common industrial noise problems. -- Cond. from author's summary

- 308 The Measurement of Noise with the Sound Spectrograph. G. E. Peterson and G. Raisbeck. J. Acoust. Soc. Am. 25, 1157-1162 (Nov. 1953).

The sound spectrograph principle may be employed in quantitative measurement of noise. Measurements may be made with the conventional amplitude section circuit in which, in the customary use of the sound spectrograph, each section provides observation during a few milliseconds of the signal time. A long integrating time circuit for the amplitude sectioner has been developed which provides integration over a period of as much as one or two seconds of signal time. The amplitude sectioning circuit of the sound spectrograph may be employed to determine the relationship between the level of a pure tone and the power-per-cycle of noise. Measurements were made for various types of amplitude analysis with the sound spectrograph. A study was made of the degree to which the section displays conform to the computed values of noise level.

-- Authors' summary

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- 309 A Practical Noise Reduction Treatment for Diesel Engines. J. E. Ancell.
J. Acoust. Soc. Am. 25, 1163-1166 (Nov. 1953).

A noise reduction treatment for Diesel engines is described, which though not the ideal approach to the problem, is practical, economical, and applicable to both new engines and those already in service in the field. The treatment was designed making use of the results of the relative importance of the various noise sources on the Diesel engine. The treatment consisted of a set of sheet metal covers, lined internally with acoustical absorbing material, which were mounted directly over the noisy areas of the engine by means of built-in vibration isolation. Noise reductions for the direct sound were at least 8 to 12 db. which were observed at a distance of one foot from the engine. The total loudness of the engine noise at six feet was reduced from 320 to 220 sones. This is a substantial improvement with regard to voice communication in the immediate vicinity of the engine. The speech interference level of the engine noise at six feet was reduced from 87 to 82 db.

-- Author's summary

- 310 Masking of Speech by Bands of Noise. I. J. Hirsh and W. D. Bowman.
J. Acoust. Soc. Am. 25, 1175-1180 (Nov. 1953).

The threshold of intelligibility for two syllable (spondee) words was measured in the presence of different levels of masking noise. Twelve different bands were used, one (20 to 6600 cps) approximating a white noise and each of the other eleven containing a band of frequencies corresponding to a pitch interval of 250 mels. The absolute thresholds for these bands were also measured to permit transformation of the noise level from an absolute scale to a scale of sensation level. The results show linear relations between the masked threshold and noise level for white noise and for bands of noise between 394 and 1420 cps. For noise bands above 1420 cps. this masking function is accelerated, while the two bands below 394 cps. yield sigmoid masking functions of the bands used, the most effective contained frequencies between 670 and 1000 cps. The signal-to-noise ratio at threshold for this band was about -25 db. while for bands above or below it became gradually smaller than -25 db., reaching a minimum of -60 db. for the highest and lowest bands. White noise was more effective than any band, giving a S/N ratio of -15 db.

-- Authors' summary

- 311 Ophthalmological Problems among Railroad Employees. K. L. Roper.
Ind. Med. & Surg. 23, 50-54 (Feb. 1954).

Attention is called to the newer visual techniques which aid in the selection and placement of personnel in industry, and to the success of visual screening tests in increasing efficiency and avoiding accidents when corrective procedures are instituted. Protection from glare is important in railroad work. Filters or

sunglasses should not alter color perception. A glass for the purpose should have a fairly flat transmission curve and an acceptable density in high brightness levels. Such glasses should be removed when light levels are decreased. Prophylactic chemotherapy measures in the handling of eye injuries are stressed. The frequency of glaucoma among railroad workers is pointed out. Every railroad surgeon must be alert to the detection of early chronic glaucoma, since it is the cause of one-eighth of all blindness.

-- Cond. from author's summary

- 312 Visual Acuity--Results of a Survey of 10,000 Persons. R. H. Wilson and W. E. McCormick. *Ind. Med. & Surg.* 23, 64-72 (Feb. 1954).

The results of visual acuity tests on employees of B. F. Goodrich Company are tabulated and correlated with age and accident records. Properly conducted tests are valuable in determining the visual acuity of large numbers of people, but should not be considered as diagnostic tests. The results show progressive decrease in acuity with age. Visual quality is probably not a great factor in causing accidents. Men under 40 have more accidents than older men. Females have more uncorrectible defects including color deficiency, than males. Uncorrectible defects increase with age. Depth perception deficiency is the most prevalent defect, and the least is one-eye suppression. In the group examined, 90% of all people over 50 years of age need corrective glasses, regardless of their type of work. There is probably little or no connection between unsatisfactory vision and accident proneness, and a visual testing program is not necessary for the sole purpose of reducing accident occurrence. A protective eye glass program would of course reduce eye injuries. -- Cond. from authors' summary

- 313 Ultraviolet Radiation and Vision. J. C. Ogilvie. *Arch. Ophthalmol.* 50, 748-763 (Dec. 1953).

The effects of ultraviolet radiation (300 to 400 millimicrons) on visual functions are discussed. The eye becomes less sensitive to ultraviolet radiation with increasing age. It has been claimed that exposure to ultraviolet radiation will impair dark adaptation, but the weight of evidence is against this view. Under the action of ultraviolet rays, the lens will fluoresce strongly, and the intensity of the fluorescence increases with age. Little or nothing is known of the effect of fluorescence on visual function.

-- Cond. from author's summary

- 314 Choose the Right Color for the Job. H. A. Mason. *Safety Maint. & Prod.* 107, 33-36 (Jan. 1954).

Before the advent of color dynamics, machines were often painted dark gray with a reflectance factor of 5%, and the wall behind the machines

was white with a reflectance of 85%. This situation necessitated frequent eye adjustment and led to eye fatigue, nervous tension, and consequently greater susceptibility to accidents. Application of the principle of color dynamics has led to use of a color with a reflectance of about 25% for the machine, and a color of corresponding hue for the wall with a reflectance of 85%. Thus the contrast is greatly reduced. In addition, the working parts of the machine, to which the operator's eye is directed, may be painted a lighter color. Suitable painting also makes for good housekeeping as the dark colors formerly used camouflage dirt. Safety colors are desirable for fire apparatus, dangerous locations, etc., but color must not be substituted for suitable printed designation of material.

- 315 The Effects of Heat Stress on Mental Performance. D. J. Bartlett and D. G. C. Gronow. Flying Personnel Research Committee, Report No. 846. 16 pp. (Aug. 1953). Obtainable from British Joint Services Mission (Air Force Staff), 1910 K. St., N. W., Washington, D. C.

These experiments were undertaken to discover the possible effects of different kinds of heat stress upon anticipatory perception and judgment. Subjects were given displays on squared cards. The displays represented aircraft which were to be perceived as moving, according to assigned rules, from square to square on a card. In some cases these moves would bring aircraft into collision. The subjects were required to decide how many, if any, such collisions would occur on any given card, which aircraft would be affected, and where the collision would occur. Four different climatic conditions were simulated, ranging from room temperature up to 100° F dry bulb 90° wet bulb. Each subject was exposed to the hot conditions for 1/2 hour before testing and 1/2 hour during the test. For controls, 8 subjects were shown the complete set of 128 cards at room temperature only. The results showed that performance was affected by the number of aircraft represented and by card display size, but there was no important effect due to heat level or to the assigned rate of extent of movement of aircraft.

-- Cond. from authors' summary

- 316 Endurance and Recovery in Repeated Performance of Static Work. Z. Bujas and B. Petz. Arhiv Hig. Rada 4, 349-364 (1953).

Variations in endurance in static work and the rate of recovery after a series of efforts were investigated by means of Henry's mercury dynamometer. The following conclusions were drawn: (1) with equal pause between successive trials, the endurance decreases the faster the shorter the pause between the efforts, but this decrease slows down until a constant level is reached; (2) the decrease does not decrease continuously but stabilizes temporarily on lower and lower levels; (3) the final level is the greater the longer the pause between successive efforts, but the final plateau rises more slowly than the increase of the rest pause; (4) the "average work output," representing the optimum that may be reached during static efforts at a given pace, is

the greater the shorter the pause between successive efforts; (5) when the rest pauses are prolonged, the functional capacity increases with negative acceleration, and this increase is the same for all loads. On the basis of these and earlier investigations, the authors believe that fatigue developed during a single static effort under heavy load is conditioned by functional changes in the nerve centers. On the other hand, fatigue similarly developed under light load is thought to be an effect of local chemical changes which are followed by nervous disturbances. Repeated efforts under heavy loads gradually lead to peripheral accumulation of metabolites; thus the peripheral component of fatigue becomes dominant in this kind of work. For this reason the differences in the rate of reestablishment of functional capacities at work under light and heavy load disappear.

-- Cond. from authors' summary

- 317 The Treatment of Industrial Raynaud's Phenomenon by Physiotherapy.
J. A. Stanley. Reprinted from *Physiotherapy*, 23 pp. (June, July, Aug. 1953).

Various methods of physiotherapeutic treatment of Raynaud's phenomenon of industrial origin are described; the final method adopted was the induction of third degree erythema by general ultraviolet radiation for 10 weekly treatments, with local treatment of the cervical ganglion by the Kromayer lamp every two weeks. The treatment is painful, and difficulty was experienced in inducing patients to undergo it. All cases treated benefited substantially, those having the optimum treatment deriving most benefit. All cases were arrested and most cases were ameliorated. Cases untreated in 1945-46 have become definitely worse. The results are sufficiently good to warrant further research in physiotherapeutic treatment of a condition hitherto considered chronic, progressive and incurable.

-- Cond. from author's summary

- 318 Occupational Vasoneuroses in the Shoe Industry. M. Fleischhacker.
Arhiv Hig. Rada 4, 390-401 (1953). Croatian with English summary.

The problem of vasomotor neuroses in the shoe industry arises in connection with the work on pounding-up machines. The clinical picture includes Raynaud's phenomenon on the second to fifth fingers. All of 16 workers working on those machines from 6 months to 13 years were found suffering from vasoneuroses. The severity of the disease depended on length of employment, intensity of work, and condition of the machines. Attacks of livid swelling occurred several times a day and depended on exposure to cold. The provocation of an attack by cold water was a successful means of diagnosis. When the work is continued the vasoneurosis has a tendency to progress. No spontaneous remissions were observed. Patients who discontinued work can be divided into reversible and irreversible cases. X-ray examination of the joints gave no conclusive information. The capacity for work was not impaired. Selection of workers and limitation of work to 5 years are recommended. -- Cond. from English summary

IN RE: ABRAMS November 1992

RADIOACTIVITY AND X-RADIATION

319

A Study of the Physical Basis of Burn Production with Applications to the Defensive Reaction to an Atomic Bomb Air Burst. Medical Research and Development Board, Office of the Surgeon General. Atomic Energy Comm. Publ. ATI-165291. 94 pp. (1953).

Skin burn phenomena resulting from an atomic bomb air burst are discussed, and ways to reduce their incidence are suggested. Topics discussed include the following: essential features of the burn-producing radiation from an atomic explosion; the influence of the atmosphere on intensity, distribution, and range of the radiation; the protein denaturation hypothesis of burn production; the amount of reaction required for the thermal destruction of the epidermis under any type of heat exposure; the heat flow problems of skin heated by fluids and by radiant energy, as a function of time; the distance from an explosion at which burns will be produced; and the reflectivity of the human skin. Conclusions are applied to military aspects of atomic explosions. The time available for evasive action, the relationship between exposure time and burn area, the effect of rotational movement on burn production, thermal effects of the wind following the shock front, and the effect of background reflection on burn production are discussed.

-- Nuclear Sci. Absts.

320

Concrete for Radiation Shielding. E. J. Callan. J. Am. Concrete Inst. 25, 17-44 (Sept. 1953).

Concrete for shielding nuclear radiation is discussed, with emphasis on factors related to concrete technology and cost. The types of radiation and mechanics of radiation shielding are presented briefly, and data regarding concrete for shielding are reviewed. Tables and curves of concrete thickness required for shielding are given for both ordinary and heavy concrete. Problems involved in the use of special concrete are discussed. An outline of a procedure for designing concrete shielding is presented.

-- Author's summary, Nuclear Sci. Absts.

The single, most important thing in any advertisement which features merchandise is the item itself. The message can tell people about the virtue of a product, but it is an illusion to think it can substitute for lack of virtue.

-- Victor M. Ratner, The Advertiser's Digest, Jan. 1954

IN RE: ABRAMS November 1992

- 321 Gamma-Ray Sterilization of Food Packaging Materials. L. L. Kempe, J. T. Graikowski, and L. E. Brownell. Atomic Energy Comm. Publ. AECU-10. 11 pp. (1953).

Data are reported from representative experiments on the sterilization of various food-packaging material by exposure to gamma radiation from a cobalt-60 source. No damage was observed in any of the samples of plastic, cloth, or paper irradiated. Results indicate that heat- and moisture-sensitive materials can be sterilized in quantity by gamma irradiation without significant damage to the materials. Plastic centrifuge tubes were also successfully sterilized by exposure to gamma radiation.

-- Nuclear Sci. Absts.

- 322 Transport of Radium Sulfate from the Lung and Its Elimination from the Human Body Following Single Accidental Exposures. L. D. Marinelli, W. F. Norris, P. F. Gustafson, and T. W. Speckman. Radiology 61, 903-913 (Dec. 1953).

Six persons who suffered single accidental exposures to radium sulfate dust were examined during the following year for exhalation of radon and for gamma-ray activity from the thorax and from the whole body. Measurements of radium in the excreta from one individual were obtained for 250 days. The observations reveal that the patterns of these measurements are radically at variance with observations made on human cases of chronic radium poisoning, in particulars that are specified. It is concluded that estimates of radium body burden based solely on radon or excretion measurements are likely to be seriously in error if applied to cases of recent exposure to insoluble dusts. -- Cond. from authors' summary

- 323 Evaluating the Safety of Radiation-Sterilized Foods. A. J. Lehman and E. P. Laug. Nucleonics 12, 52-54 (Jan. 1954).

The general principles of testing the safety of foods sterilized by streams of high-speed beta particles or gamma rays are described.

All persons who are now insane (without organic causes) were at one time sane. All normal persons use psychological defenses. It is when psychological defenses are used too long, too often, and too well as an escape from real life and its difficulties that they are harmful and may lead to a condition called insanity.

-- Quotable Quotes, Dr. J. L. Rosenstein

ENVIRONMENTAL MEASUREMENTS

November 1992

November 1992

ABRAMS

IN RE

- 324 Simple and Rapid Determination of Selenium Dusts and Vapor and of Selenium Dioxide in the Air. A. Berton. *Chim. anal.* 35, 91 (1953). French.

The determinations are of hygienic importance because of the toxicity of selenium and selenium dioxide: 0.1 mg. per cu. m. for 8 hours per day has been fixed as the maximum permissible exposure. The determination is made by drawing the vapor or dust-laden air through filter paper, where selenium is adsorbed. The paper is treated with aqueous potassium cyanide, the liquid is then acidified, and sodium sulfite is added. Precipitated selenium is filtered off on a 1 cm. diameter paper and fixed on the paper, after drying, by paraffin, the coloration obtained being a measure of the amount in the sample taken. The minimum amount detectable is 5 micrograms and amounts up to 500 micrograms are determined with an accuracy of $\pm 25\%$.

-- Atm. Poll. Bull.

- 325 Efficiency Studies of the Electrostatic Precipitator. K. E. Lauterbach, T. T. Mercer, A. D. Hayes, and P. E. Morrow. *Arch. Ind. Hyg. & Occ. Med.* 9, 69-75 (Jan. 1954).

Tests of the electrostatic precipitator in collecting a radioactive aerosol have shown that the instrument retains a uniformly high percentage of air-borne particulate material. The percentage of dust penetration through the precipitator was calculated from the original aerosol activity and the activity of the deposit collected on three molecular filters in series following the test instrument. The method of testing has been found to give reproducible results in estimating penetration values as low as 0.005%. Based upon a number of tests of molecular filters in series, the efficiency of this filtering medium appears to be extremely high.

-- Authors' summary

- 326 Two Chambers for Use in Exposing Laboratory Animals to the Inhalation of Aerosols. E. C. J. Urban. *Arch. Ind. Hyg. & Occ. Med.* 9, 62-68 (Jan. 1954).

The details of construction and operation of two types of chambers used for the exposure of numbers of laboratory animals to the inhalation of aerosols have been outlined. In their design, important consideration was given to protecting the operating personnel from exposure to the toxic materials which were studied.

-- Author's summary

- 327 Microchemical Method of Determining Amount of Free Silica in Mine Dust. A. Blanzat and M. Barbe. Arch. maladies profess. 14, 349 (1953). French.

Owing to the smallness of samples of free silica in the form of quartz as it is found in mine dust, a microchemical determination of the amount was called for. The authors chose to use the pyrophosphoric acid method even though the acid attacks some of the free silica in the process of dissolving the silicates which prevent determination of the free silica alone. They improved the method by constructing a standard curve of measurement based on mixtures of quartz and a silicate (feldspar) in which the quartz simulates granulometrically that found in various mine dusts. This method shows two advantages over other methods: its applicability to very small amounts of dust (10 mg. of mineral material) and the reduction of error arising from the granulometric variations of samples through the use of a scale of measurement based on the average granulometry of quartz.

-- Arch. Ind. Hyg. & Occ. Med.

PREVENTIVE ENGINEERING

- 328 Liquid Air Breathing Apparatus. A. J. G. Coulshed. Abstract, Coll. Guard. 188, 67-72 (Jan. 21, 1954).

Most of the self-contained breathing apparatus now in use depends upon liquid air as the source of oxygen. The author describes this type of apparatus and discusses its principles. Among the points considered are: the change in composition of the liquid as it evaporates, and the necessary minimum initial value; the removal and absorption of carbon dioxide; the air flow circuit; the resistance to breathing of the various parts of the apparatus; dead space; the breathing bag or air reservoir; and the excess air bleed-off. Two new forms of apparatus are described: the Aerencheon Self-Contained Breathing Apparatus, which is regenerative, and the East Midlands Life Sustainer, which is non-regenerative.

- 329 Control and Recovery of Dust and Fume in Industry. R. Ashman. Inst. Mech. Engrs. (London). Proc. 1B, 157-184 (1952).

The problem of dust and fume recovery is discussed, and various types of recovery equipment are described. -- Chem. Absts.

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- 330 Filter Efficiency and Standardization of Test Dust. H. Heywood.
Inst. Mech. Engrs. (London). Proc. 1B, 169-184 (1952).

The basic theory is developed for determining the efficiency of air cleaners and filters. Characteristics of natural air-borne dusts, methods of examination of dusts, and methods of preparing standard dusts for testing air filters are described. -- Chem. Absts.

- 331 New Improvements in the Boisari Outfit for the Removal of Dust in Pneumatic Drilling. G. Pancheri. Rass. med. ind. 22, 28-33 (Jan. - Feb. 1953). Italian..

The author has described the outfit and given evidence of its efficiency in a previous paper (IHF abst. 126, Jan. 1952). Various modifications have now been made which have more than halved the weight of the apparatus and reduced its bulk. Details are given and illustrated. Generally speaking, the improved outfit is more suitable for work with the harder rocks which produce a smaller volume of dust: it has advantages when drilling has to be carried out in a very restricted space. Figures of dust analysis and other test data are given in evidence of the efficiency of the improved outfit. -- Bull. Hyg.

COMMUNITY AIR HYGIENE

- 332 Air Pollution. C. J. Regan. Chemistry & Industry. pp. 1238-1244 (Nov. 21, 1953).

The author gives a comprehensive review of air pollution, especially in Great Britain. He deals with the occurrence of the various types of air pollutants, their measurement, their effects, and means of abatement. The effects discussed include corrosion, health effects with special reference to the London fogs and the Meuse Valley and Donora episodes, and damage to vegetation. The question of carcinogens in the air is discussed briefly.

- 333 Smokeless Burning of Waste Process Gases. R. D. Reed. Ind. Heating. 20, 1711-1720 (Sept.); 2436-2440 (Dec. 1953); Trans. Am. Soc. Mech. Engrs. 76, 251-253 (Feb. 1954).

Antismoke ordinances have necessitated smokeless burning of waste process gases. When the ratio of carbon to hydrogen in a combustible material is high, a luminous smoky flame is produced in the absence of excess oxygen.

The two general methods of producing a blue, smokeless flame are (1) mixing the gases with an excess of air; and (2) introducing steam, so that carbon monoxide is formed. Both these methods and a combination of the two are used in practice. This paper deals with the detailed application of these methods, including general design, amount of steam necessary, pressure drop, and other factors. Elimination of corrosion and heat radiation, effects of liquids in the gases, and the use of water seals are discussed.

MANAGEMENT ASPECTS

- 334 Employee Attitudes and Productivity. C. C. Gibbons. Reprinted from Mich. Business Rev. 5, No. 6. 4 pp. (Nov. 1953).

The three points emphasized in this brief paper are: (1) the worker should be kept informed on the operations and policies of the employer; (2) the worker should be free to express himself, especially in making suggestions; and (3) frequent communications between supervisors and staff members. These policies make for better team work among employees and supervisors. Suggestions are given for carrying out these policies.

- 335 Employment of the Aging--Appraising the Barriers. C. Leggo. Ind. Med. & Surg. 23, 73-74 (Feb. 1954).

Two difficulties in the employment of older persons are discussed. The first is in connection with the physical ability of the aging to perform manual work. The superior qualifications of the older worker have often been discussed, but his inability to perform strenuous work must also be considered. Labor-saving machinery has reduced the amount of vigorous effort, but a difficulty lies in the peak activity of some jobs, involving strenuous work for a short time. Union rules often forbid transferring those activities to younger persons. The second difficulty has to do with unemployment of older persons. A most significant cause for rejection of older applicants is the employer's fear of a compensation claim under the "aggravation of pre-existing condition" clause, which is embodied in many state laws. The extremely liberal interpretation of that clause which is now prevalent has greatly increased the risk in employing older persons. Both of these difficulties are problems for labor unions, management, social agencies, social scientists, and the medical profession, and they can be resolved only by cooperation of those groups.

- 336 The Employment of Handicapped Workers in Industry. K. Jansson. Internatl. Labour Rev. 68, 135-150 (1953).

The case for employment of handicapped workers is presented and progress in rehabilitation in various countries is reviewed. At present systematic analyses of processes lag behind, as does also the supply of trained placement officers. The urgent call in wartime for workers gave a great impetus to the employment of partially disabled persons and did much to establish the value of such persons to industry. Hence a new science has arisen for fitting together workers and work, and for recognizing the innate capacities of persons who had been relegated to the industrial scrap heap.

-- Cond. from Bull. Hyg.

- 337 Man and the Machine. The Problem of Boredom. M. S. Viteles. Travail humain 15, 85 (1952). French.

The paper refers to a number of investigations, carried out over the last 30 years by industrial psychologists, into the response of the human being to continued, repetitive work. The monotony of such work is reflected in irregularity in output and in more or less open dissatisfaction with working conditions. Workers differ in their susceptibility to this type of fatigue, but it should be possible to devise suitable selection tests. More important is the need to fit the task to the worker. Boredom can, however, be alleviated by substituting a certain amount of variety for absolute uniformity, without any sacrifice of efficiency. Experiments have shown that properly spaced rest pauses, an opportunity for workers to engage in conversation, and "music while you work" are likely to alleviate the effects of repetitive work. It is emphasized, however, that no single remedy exists for the boredom and other effects of monotonous work.

-- Cond. from English summary (Brit. J. Ind. Med.)

- 338 Group Disability Insurance. A. M. Wilson. Ind. Med. & Surg. 23, 81-85 (Feb. 1954).

The author reviews the history of group insurance. Hospitalization insurance on a large scale began in the thirties. It was followed by surgical expense insurance, and in 1950 the development of insurance for the costs of major illnesses began. Approximately 70% of the population are now covered by some form of health insurance. The basic need at present is to insure continuity of income. The entire problem of the cost of medical care has been affected in a major way by three basic factors: (1) the effect of inflation; (2) the social consciousness produced by "full payment" hospital insurance; and (3) the changing concepts of the practice of medicine under "full payment" hospital insurance. The effects of these factors are discussed. All these factors have led to constantly increasing hospital costs and to crowding of hospitals. Another effect is that young doctors beginning

practice have had little or no training in home care. The remedy lies in more attention to preventive medicine, which is very routine and uninteresting. The author believes that industry should take a leading part in preventive medicine. Preventive medicine must tell us individually, at our place of work, what we individually need to do about our personal health today in order to do a better job tomorrow.

- 339 An Evaluation of Carrier Performance, January-June 1953. Workmen's Compensation Board, State of New York, Mary Donlon, Chairman. 15 pp. (1953).

Performance of insurance carriers in New York State was better than in the preceding six months, in the percentage of first payments made promptly, average number of days elapsed before first payment, controversy of compensated cases, and collective carrier judgment as to the controversy of closed compensation cases. On the other hand, employers were on the average slightly slower in filing accident reports. Detailed tabulation is given.

ACCIDENTS AND PREVENTION

- 340 Abrasive Wheels. A Comparison of State Safety Codes with ASA Code B7.1-1947. U. S. Dept. Labor, Bureau of Labor Standards. 31 pp. (Sept. 1953).

Twenty states have no abrasive wheel codes or standards, while 19 states have codes or standards covering some of the material included in the ASA Standard, and 9 states and the District of Columbia have codes or standards equivalent to the ASA Standard. A detailed state-by-state and rule-by-rule comparison of state and ASA Standards is presented.

- 341 Let the Belt Carry the Static. F. H. Rumble. Safety Maint. & Prod. 107, 13-14 (Jan. 1954).

Specially constructed V-belts which guard against static sparks are employed in explosive atmospheres. Such belts and the principle on which they operate are described in this paper. Two types are manufactured. In one a conducting material is incorporated throughout the belt, while the other has a conducting surface. The relative advantages of the two types are discussed, and standard methods of testing for safety are described.

- 342 Safety Requirements of Floors. Anon., Chem. Age 69, 713-715
(Oct. 3, 1953)

Attention to the prevention of accidents associated with floors should begin at the design stage of the building and its equipment. Suitable layout may avoid heavy concentration of foot and trolley traffic which might cause excessive wear. Steps should be avoided if possible. In selecting a floor finish, resistance to wear, impact, and dampness, and freedom from slipperiness, cracking, and lifting should be considered. The question of best materials has been studied extensively, and a British report dealing with the subject has been prepared. The effects of spillage may be reduced by suitable construction of the finish, by drip traps or other suitable places for spilled material to drain, and by design of machinery so that spilled materials will not reach the floor. Fire resistance is an important factor where flammable materials are handled. Comfort and resistance to wear are among the factors to be considered in selecting a floor material.

- 343 Investigations on the Explosibility of Ammonium Nitrate. J. J. Burns, G. S. Scott, G. W. Jones, and B. Lewis. Bur. Mines, Rept. Invest. No. 4994. 19 pp. (Aug. 1953). Obtainable from Publications Div., U. S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa.

Explosions were obtained in bomb tests charged with chemically pure ammonium nitrate at temperatures between 277° and 344° C, and pressures between 2,600 and 3,600 psi. Explosions occurred in bomb tests on ammonium nitrate fertilizer between 114° and 350° C, and pressures 2,000 to 2,600 psi. When additional carbonaceous matter to the extent of 1.5% bag paper was mixed with the fertilizer, explosions occurred between 134° and 153° C and pressures between 250 and 300 psi. The mere presence of organic matter in amounts contained in the fertilizer appears to be insufficient to cause explosion at low or no confinement, since there are records of a number of fires in boxcars and buildings containing ammonium nitrate fertilizer, with no attendant explosion. Possibly the total mass of fertilizer involved plays an important part. Shipboard tests showed no indication of spontaneous heating in bagged fertilizer-grade ammonium nitrate, although earlier published results have indicated otherwise. The explosion hazard of ammonium nitrate can be materially decreased by adding 25% by weight of an inert diluent such as limestone.

-- Cond. from authors' conclusions

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