

FILE NAME: Industrial Hygiene Foundation (IHF)

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DOCUMENT DESCRIPTION: Multiple Documents & Newsletters from the Industrial Hygiene Foundation

7/11/00

Barry Castleman--

I have reviewed the Industrial Hygiene Digest issues for the months listed below. Those that mention asbestos were copied and are attached. I am billing you 3 hours for time spent reviewing the documents (\$300) , plus \$250 for the copying, for a total of \$550.

Albert Donnay

Dates of Industrial Hygiene Digests reviewed for BC by AD

~~Feb 1939~~

March 1939

April 1939

May 1939

Sept 1939

Oct 1939

Nov 1939 (2 different packets)

Jan 1940

Feb 1940

March 1940

April 1940

June 1940

Oct 1940

April 1941

June 1941

July 1941

Sept 1941 (2 different packets)

Oct 1941 (2 copies of the same packet)

April 1942

Sept 1942

May 1943

July 1943

3/9/39

HWB-000801

Air Hygiene Foundation,
4400 Fifth Avenue,
Pittsburgh, Pa.
February 24, 1939.

NOTE TO MEMBERS:

Enclosed is another bulletin in the series prepared by the Preventive Engineering Committee of Air Hygiene Foundation. The new bulletin deals with "Routine Sampling for Control of Atmospheric Impurities" and gives methods for determining some 40 substances more or less commonly found in industrial atmospheres. Extra copies, in addition to the regular membership allotment, are available at fifty cents each.

H. B. Meller
Managing Director

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- 109 ASBESTOSIS. J. V. Sparks. Brit. J. Radiol. 11, 371-7, (June 1938) (British). The paper describes the clinical and radiological signs of asbestosis. The chief complications are (1) purulent bronchitis, (2) broncho-pneumonia, (3) pulmonary tuberculosis, and (4) carcinoma.
- 110 THE ADSORPTION EFFECTS OF VARIOUS DUSTS ON DILUTED "OLD" TUBERCULIN. S.L. Cummins and E.M. Williams. J. Hyg., 38, 638-46 (1938). The adsorption power of various types of finely-divided dusts for the active part of tuberculin was studied by shaking 1 gram samples of such dusts with 10 ml. of a 0.1 per cent solution of tuberculin for 5 minutes, incubating at 37° for 30 minutes and keeping them overnight at room temperature. The clear liquid was removed, centrifuged, sterilized and tested. It was found that the adsorption power increased in the inversed ratio of particle size, that anthracite and fusian dust of comparable particle size have the same adsorption power, and that sandstone from different locations and shale dust, sericite, chalcedony and quartz dust also adsorb the active principle of tuberculin to different extents. It is suggested that the relatively low morbidity, toxicity and mortality from tuberculosis noted in coal miners exposed to siliceous dust are due to the adsorption of tuberculous toxin by finely-divided coal dust inhaled with the dust from hard stone.
- 111 THE PHYSIOLOGIC RESPONSE OF PLEURAL SURFACES TO IMPLANTED DUSTS. W.R. Bradley and M.W. First. J. Lab. and Clin. Med., 24, 44-52, (1938). Forty rabbits were subjected to intra-pleural implantation of dust and, with 10 additional rabbits as controls, were autopsied after 15, 30, 45, 60, and 90 days. Typically inert, absorptive and proliferative reactions were produced by the pleura in response to various dusts. These responses were essentially the same as those produced in serous cavities elsewhere in the body by other workers. The injection of dusts into the pleural cavities, especially because of its proximity to lung tissue, was found to be suitable in both results and economy.
- 112 RADIOLOGICAL DEMONSTRATION OF PATHOLOGICAL CHANGES INDUCED BY CERTAIN INDUSTRIAL PROCESSES. J.F. Brailsford. Brit. J. Radiol., 11, 393-400 (1938) (British). The author summarizes Roholm's study of fluorine intoxication contracted by those handling cryolite. Eighty-four per cent of the workers examined had bone changes -- a diffuse osteosclerosis, which was on the whole proportional to the period of employment. Half of the workers showed radiographic evidences of pulmonary fibrosis similar to that seen in silicosis but more innocent in nature, but it was undecided as to whether the fluorine or the associated quartz had caused the fibrosis. Against this, an examination of 49 workers in Scotland exposed to alumina and cryolite dusts failed to establish the existence of osteosclerosis or of pulmonary fibrosis in spite of long exposure. Other examples of the radiograph as a diagnostic tool are cited.
- 113 TESTS OF RESPIRATORY EFFICIENCY AND THEIR CORRELATION WITH RADIOLOGICAL APPEARANCES IN THE LUNGS. E.M. Killick. Brit. J. Radiol., 11, 401-4, (June 1938) (British). The tests of respiratory efficiency used were: (1) vital capacity of the lungs; (2) ventilation equivalent for oxygen (vol. of air breathed per 100 cc. oxygen absorbed); (3) volume of dead space; and (4) exercise tolerance tests. Seven men whose pulmonary lesions had been diagnosed as silicosis or asbestosis, all showed well-defined functional impairment on the basis of one or more of the above tests. Eleven arc welders were examined and five of the number, having signs of early pneumoconiosis, gave, on the whole, poorer performances than the other six. It is concluded that tests of respiratory efficiency should help to distinguish between early fibrosis and the deposition of dust in the lungs without marked fibrous tissue reaction.

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- 123 A SURVEY OF INDUSTRIAL HYGIENE CONDITIONS IN THE JEWELRY INDUSTRY OF RHODE ISLAND. J. Wurafic and C.V. Hickey. Div. of Indust. Hyg., State Dept. of Public Health, Providence (1938).
The jewelry industry in Rhode Island comprises 289 plants employing 10,315 workers, about one-half of whom are women. More than half of the plants employ less than 10 workers. It was found that 8912 or 88 per cent of the number were not exposed to any hazardous material or process in any manner and the percentage of those exposed to any degree at all was very small (0.28 per cent). A few (436 or 4.3 per cent) were engaged in electroplating work and the seriousness of their exposure is questioned pending further investigation.
- 124 SEVERAL TOXIC VOLATILE INDUSTRIAL SOLVENTS. D. Glibert. Bruxelles-Med., 18, 1189 (July 19, 1938) (Belgian).
Because physicians are likely to encounter some of the growing number of toxic industrial solvents, the author discusses a few of them in this paper and lists others which are either not discussed at length or are otherwise generally well known. Attention is especially called to the chlorinated hydrocarbon group. He stresses particularly that the solvents as used are rarely pure and that this fact should be taken into consideration along with other factors such as the origin of the solvent, its instability, and the particular conditions of its use in the plants.
- 125 SOLVENTS AND THEIR DANGERS. Wenzel. Zentr.Gewerbehyg.Unfall., 25, 217-24, (1938) (German).
Industrial solvents are classified as to their general use, e.g., viscosity changers, plasticizers, azeotropic mixtures, extractants, degreasers, solvents for solids, impregnators, pharmaceuticals, and carriers for other materials. Many examples are given. The flammability, physiological action, origin and industrial use of many solvents are discussed. Special attention is given to spray booth design and exhaust, paints and lacquers, and solvents used in the rubber and textile industries. The most important phase of worker protection is adequate education as to the danger and proper handling of the solvent in question.
- 126 EVALUATION OF THE ODOR NUISANCE IN THE MANUFACTURE OF KRAFT PAPER. J.M. Dalla-Valle and H.C. Dudley. U.S. Pub. Health Reports, 54, 35-43, (Jan. 13, 1939).
Kraft paper is the brown paper used in retail stores for wrapping packages; heavier grades are used in shipping carton and containers. The authors outline the method used in evaluating the odor nuisance generated in the manufacture of this type of paper by the sodium sulfide - sodium hydroxide process. The odors of hydrogen sulfide, organic sulfur compounds, carbon gases and a chemical smoke containing large quantities of sodium sulfate and sodium sulfide are given off during nearly all processes and pass out through the stacks to be classed as a nuisance in the neighborhood. The human nose is remarkably sensitive to minute traces of these substances in the atmosphere, even in those concentrations that are well below the toxic limit. It is concluded that in the neighborhood of the plants the concentrations of toxic gases are of no consequence. The major contributing factor in the obnoxious conditions is due to the large amounts of solid chemical materials, mostly sodium sulfate, which are blown out through the stacks and soon settle to the ground. The possibility of electrical precipitation for prevention and economical recovery is stressed.

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- 139 CARBON MONOXIDE AND EPILEPSY. H. Symanski. *Samm. v. Vergiftungsf.*, 9, 23-40, (1938) (German).
A blacksmith in a gas works was exposed occasionally to carbon monoxide and at the age of 35 he fell ill with epileptiform attacks. The expert (in a court case) considered this as genuine epilepsy, denying any relationship to carbon monoxide inhalation, since the signs were not present.
- 140 LATE EPILEPSY IN THE COURSE OF CARBON MONOXIDE POISONING. O. Schiersmann. *Ztsch. ges. Neurol. u. Psychiat.*, 163, 656-69, (October 1938) (German).
True epileptic seizures occurred in a war veteran, 60 years old, 14 years after carbon monoxide poisoning from exhaust gases of a benzol engine during the war. The seizures, which developed rapidly, were characterized by convulsions, torso-like and athetoid movements, loss of the reaction of pupils to light, and unconsciousness. Minor seizures had occurred six months after exposure and at infrequent intervals following. Mentally, the patient showed disturbed sleep, apathy, emotional flattening, lack of initiative, weakness of memory, hysterical trends and generally demented behavior.
- 141 TESTIS AND HYPOPHYSIS IN GASSED MALE RATS. C.A. Patterson, E. Smith, and A.D. Pickett. *Proc. Soc. Exp. Biol. Med.*, 38, 455-60 (1938) (British).
Male rats were exposed for 1 hour daily for 50 or more days to an atmosphere containing 0.34 per cent carbon monoxide. The testis and epididymus weight was reduced by 60 per cent and their spermatozoa were reduced in number and motility. The hypophysis became basophilic, with many vacuolated cells, but the gonadotropic hormone content was increased.
- 142 CARBON MONOXIDE POISONING. Howard A. Martin. *Ohio State Med. J.*, 34, 1251-3 (1938).
The author reviews the literature on carbon monoxide poisoning. Symptoms of both acute and chronic poisonings are described and the important ones especially noted. He reviews the various items in the treatment of both types of poisonings and the paper should be of interest to all physicians.
- 143 THE HALOGENATED HYDROCARBONS OF THE FATTY SERIES AS SOLVENTS AND THEIR SIGNIFICANCE TO THE MEDICAL PRACTICE. W. Gueffroy and W. Ehrhardt. *Zentr. Gewerbehyg. Unfall.*, 25, 224-30, (1938) (German).
These solvents as a class are toxic, capable of producing acute poisonings and occasionally blood changes. While the lungs are the chief portal of entry into the body, skin absorption is also possible. The specific properties of some of the compounds are discussed in detail, and they should all be regarded as active toxic agents. No specific medical prophylaxis for chronic poisonings of this class is known.
- 144 CARBON TETRACHLORIDE POISONING. T.M. Perry. *Arch. Path.* 26, 923-41 (Nov. 1938).
A description is given of hepatic (liver) damage and repair in man based on three cases of accidental poisoning studied clinically and at autopsy. Three negroes had ingested a roach poison, a mixture of carbon tetrachloride and ethylene dichloride, which they had mistaken for an intoxicant. Two of the men died too early (6 to 11 hours and 65-70 hours) for evidences of regeneration, but the third who died in 150 hours showed definite tendencies along these lines. There is a complete account of the clinical findings and a good review of the literature.

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Air Hygiene Foundation of America, Inc.
4400 Fifth Avenue,
Pittsburgh, Pa.
March 25, 1939.

HHBB-0009793

REFERENCES TO RECENT LITERATURE ON INDUSTRIAL DISEASES

(A) News Items

- 165 OCCUPATION AND HEALTH, Supplement. International Labor Office, Geneva, 96 pp., (September, 1938). Obtainable from International Labor Office, 734 Jackson Place, Washington, D.C. Price \$5.00 per 500 pages. Supplements to the two volumes "Occupation and Health" are issued biannually. The present work, the second supplement of 1938, contains eleven brochures on various subjects. Abstracts of nine of the important papers are included in this Bulletin.
- 166 INCREASE IN NUMBER OF OCCUPATIONAL DISEASE CLAIMS IN OHIO DURING 1937. Anonymous. Ohio State Med. Journal, 35, 329, (March, 1939). The number of claims increased from 1,388 in 1936 to 1,694 in 1937. As usual, skin diseases were responsible for a large percentage of the claims filed. There was an increase of 95 claims for lead poisoning, largely from 3 plants manufacturing automobile bodies, where ground lead was used to fill cracks and seams in the bodies. Six claims for silicosis (made compensable on July 31, 1937) were considered as within the provisions of the law; an unstated number were classed as non-compensable for various reasons.

(B) Papers on Dust, Dust Diseases and General Industrial Hygiene.

- 167 OCCUPATIONAL DISEASE SYMPOSIUM. Northwestern University Medical School, Department of Industrial Medicine, Chicago, Ill., September 26-27, 1938. Proceedings published January, 1939, Price \$3.00. The following items are abstracts of the papers presented at the symposium which are published in one volume obtainable from the above address:

THE PRESENT STATUS OF INDUSTRIAL MEDICAL EDUCATION. Carl M. Peterson. The number of industrial physicians has almost doubled in the past 10 years and the number of graduates coming in contact with industrial phases of medicine is increasing annually. In reviewing the present status of occupational disease education in the medical schools, it is noted that this type of instruction is on the increase.

THE SCOPE OF THE OCCUPATIONAL DISEASE RESEARCH PROBLEM. Philip Drinker. Research is needed as a guide towards regularly obtaining better statistics and better reporting of industrial disabilities of all kinds. Industrial processes are not eliminated because a process is in some way harmful to the workmen; prevention, based on research, must be practiced, and this prevention always takes a little time to catch up with toxicology.

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- 180 SILICOSIS FROM DIATOMACEOUS EARTH. SUMMARY OF THE LITERATURE. W. Estler. Arbeitsschutz, pp. 229-31 (1938) (German).
The author gives a survey of the use of diatomaceous earth in industry. Research shows that this dust has many particles under 10 microns and some under 5 microns. Some authors report that they do not find silicosis in exposed workers, but Adler-Herzmark, Legge and Rosencrantz have found serious cases of silicosis.
- 181 INDUSTRIAL HYGIENE PROGRAM IN A STATE HEALTH DEPARTMENT. Carl A. Nau. Journal Amer. Public Health Assoc., 29, 151-7, (February, 1939).
The author discusses the general aspects of a program for an Industrial Hygiene Division of a State Health Department. He considers it not only from the aspect of the prevention of the well-known occupational diseases, but also with the idea in mind of improving the health of industrial workers generally. He favors regular medical examinations and use of the collected data in outlining a broad public health program.
- 182 A REVIEW OF THE MEDICAL SUPERVISION OF INDUSTRY BY THE STATE. J.C. Bridge. Journal Royal Inst. Public Health & Hyg., 1, 911-22, (December, 1938) (British).
In this short interesting paper the author tells the story of factory legislation in Great Britain. Starting with the first Factory Act of 1833 he traces the development of State supervision of working conditions and concludes by giving a short summary of the Factories Act of 1937. The paper cannot be adequately abstracted; those interested in the history of industrial hygiene should read the original.
- 183 REHABILITATION OF THE PHYSICALLY HANDICAPPED. H.H. Kessler. Arch. Phys. Therap., 19, 753-6, (December, 1938).
Crippled and handicapped persons can be made useful and happy by intelligent treatment. Where surgery is necessary, the ultimate object must always be kept in mind -- restoration of employability. Wherever it is possible, every effort should be made to return a man to his usual trade; new work usually involves a lower economic status and in every way puts a severe strain on the worker's morale.
- 184 CONSTITUTIONAL FACTOR AND OCCUPATION. G. Pieraccini. Occupation and Health, Supplement No. 2. International Labor Office, 9 pp., (September, 1938).
The paper is a theoretical discussion of vocational selection of workers on the basis of morphological, humoral, physiological, and mental criteria, that would direct them to work in trades which would not be harmful to their health. The author has in mind an extensive application of the theory but admits that it is impossible under present conditions. It may be applied, however, in certain special cases that are more prominent in industrial hygiene work. An evidence of this is the increasing application of physical examinations in industry.
- 185 TO WHAT EXTENT IS THE HEALTH OF INDUSTRIAL WORKERS DEPENDENT ON OCCUPATION? H.M. Vernon. Occupational Physiology, 13, 10-24, (January, 1939) (British).
The recently published Registrar General's Occupational Mortality Supplement for England and Wales shows that the mortality rates of men employed in different occupations differ widely. While the figures suggest that occupation has much influence on health, the Registrar General considers that this may be more indirect than direct, that it is "influenced more by the conditions of life implied by various occupations than by the direct occupational risks entailed". Taking into account all cases of silicosis, asbestosis, lead poisoning, accidents, and other occupational hazards, he attempts to evaluate the relative importance of heredity, direct occupational effects, and the social environment (including nutrition) as

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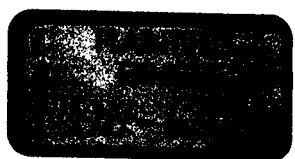
- 207 FUNGUS INFECTION OF LUNGS SIMULATES TUBERCULOSIS CLOSELY. Adelaide R. Smith. Industrial Bulletin, 18, 15-6, (January, 1939).
The molds, including fungi and yeasts, are simple filamentous plants of simple structure, which, having no chlorophyll, cannot synthesize food from carbon dioxide, must obtain it from other organisms, living or dead. They have wide distribution and are found largely in decayed or slightly decayed vegetable matter and in the dust from such material; certain susceptible individuals working in these dusts may become infected with them in various parts of the body. A description is given of a few cases of proved pulmonary infection from fungus, which in this form produces changes much the same as those in tuberculosis, detectable only by cultural methods. The inference is drawn that infections of this type may be much more common than is generally suspected.
- 208 REPORT OF THE USE OF BIOPHOTOMETER AND VITAMIN A THERAPY IN INDUSTRY. O.H. Schettler, R.F. Bisbee and B.H. Goodenough. Journal Industrial Hygiene & Toxicology, 21, 53-5, (February, 1939).
For many years workers matching whiteness of porcelain were unable to do so with reasonable accuracy. After many experiments to improve results had failed it was found possible by the use of a biophotometer to measure the patient's ability to see light and his response to dark adaptation. Therapy with vitamin A, known to be essential for good vision, was begun and the result has been a decrease of 75 per cent in number of rejections of matched white porcelain over a period of a few months.
- 209 THE FEET OF THE INDUSTRIAL WORKER. SYMPOSIUM. E.P. Cathcart, C. Lanbrinudi, W.S. Greer, W. Blood and H. Bradley. Lancet, pp. 1480-6, (Dec.24,1938) (British).
Flat-foot is one of the troubles that most concern industrial workers. Footwear worn at work is much more important than that worn in leisure hours. Some of the defects of modern shoes are pointed out by the authors and remedies to correct them are suggested. It is true that the shoe manufacturers are becoming more alert to the problem and are beginning to give more cooperation to industrial medical officers.
- 210 OCCUPATIONAL CANCER. L. Teleky. Acta d. intern. Ver.f.Krebs., 3, 253-75, (1938) (German).
The author discusses the main industries in which lung cancer is found or expected. The silicosis literature points to the fact that lung cancer is seldom found among silicotics. The high incidence of lung cancer among Schneeberg miners (radioactive mines) is no basis for assuming that other miners are similarly endangered. Among metal grinders carcinoma is two and one half times as great as in the general population. Exposure to asbestos, perhaps because it irritates the lungs, may be conducive to lung cancer -- at least the incidence is fairly high. Exposure to chromate dust seems to favor lung cancer as well as cancer in other organs. There are isolated cases of lung cancer among generator workers, among workers exposed to coal dust, tar and tar distillates, nickel workers, but the numbers are not large. Exposure to radium emanations and radioactive substances is very dangerous.
- 211 DOES WORK WITH COMPRESSED AIR TOOLS RESULT IN ENDANGITIS OBLITERANS? A. Fikentscher. Arch.f.Gewerbepath. u. Gewerbehyg., 9, 65-79 (1938) (German).
The study described covered 250 workers in the iron industry who had used pneumatic tools from 2 to 40 years. The chief signs and symptoms of endangitis obliterans (threatened or actual gangrene, absent pulses, intermittent claudication, trophic disturbances, alarming pains, pigmentation of limbs) could not be demonstrated in any of the subjects. The circulatory disturbances so often observed in workers with compressed air riveters, hammers, etc., are therefore of other origin than an endangitis obliterans.

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(B) Papers on Dust, Dust Diseases and General Industrial Hygiene.

- 261 SILICOSIS-CASE REPORTS. M. Conrozier and J. Magnin. Industrial Medicine, 8, 114-20, (March, 1939).
This article, a short notice of which appeared in our January, 1939 Abstracts (No. 16), has been translated from the French and is reproduced in part in Industrial Medicine for March, 1939. Some of the case-histories of the original paper are presented together with x-ray reproductions. The article, as translated, makes interesting reading inasmuch as it is necessary for the authors, in their presentation, to prove to French physicians that silicosis is a separate disease entity.
- 262 VENTILATION IN THE GRANITE INDUSTRY. E.C.J. Urban. Journal Industrial Hygiene and Toxicology, 21, 57-66, (March, 1939).
This article describes the dust control methods in the granite industry in Vermont. The two most dusty operations are drilling at the pit and finishing in the shops. Without local exhaust each operation develops concentrations far above a safe limit, set at 10 million particles per cubic foot. The most common pit drill is the leyner drill, a long horizontal bar along which a vertical pneumatic drill is moved, drilling holes every 3.5 inches around the sides of the block. The exhaust on this drill consists of a specially designed hood built around the drill rod, exhausting 400 cu. ft. of air per min. Portable exhaust units consisting of hood, hose, box for dust-separating screens or bags, exhaust fan and motor, are available and in common use. In the finishing shops, specially designed hoods on flexible rubber hose are supplied for each machine. Photographs and sketches are included with the article to aid in the descriptions. Proper operation of the available equipment will reduce the operators' dust exposures to far below the accepted standard of 10 m.p.p.c.f. Included also are the approximate costs of the equipment.
- 263 PREVENTION OF SILICOSIS IN SANDBLASTERS. H. Sauerteig. Zbl. f. Gewerbehyg., 25, 297-305 (1938) (German).
The article describes the new regulations for combatting silicosis by the Association of German Iron and Steel Trade Groups, which were published to go into effect in August, 1938. Following the regulations, the results of the examination of 4916 sandblasters is given, 1220 of whom (24.6%) were forbidden further work because their x-rays showed light to severe silicosis. The article also describes the various types of sandblasting, and the necessary technical preventive measures, including many illustrations. Included also is a description of the use of steel shot. Regarding the men employed, all must be over 21, must pass a pre-employment examination and a subsequent examination after two years. No worker shall be employed as a sandblaster more than two years, after which time he must do non-dusty work for another two years. He may then return to sandblasting, after another examination. The examinations are to be given by physicians authorized by the Association.
- 264 ASBESTOSIS. R.R. Sayers and W.C. Dreessen. American Journal Public Health, 29, 205-14, (March, 1939). Read before the Industrial Hygiene Section at the American Public Health Association Meeting, Kansas City, Mo., October 28, 1938.
This paper is a review of the material contained in U.S. Public Health Bulletin No. 241 (See Abstract 804, 1938). It describes an extensive survey made by the U.S. Public Health Service together with the North Carolina State Board of Health in the asbestos textile industries. Asbestosis, a comparatively modern disease, is caused by chrysotile, a hydrated magnesium silicate containing no quartz.

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Its uses have increased greatly during the past 20 years. According to the results of the survey, cases of asbestosis develop quite rapidly where exposure to the dust is over 5 million particles per cubic foot. No cases were found where exposure was less than this figure and it has been accepted as a limit. Definite clinical and roentgenographic evidences of asbestosis has been observed in exposed persons after 5 to 10 years of work in exposures exceeding 5 m.p.p.c.f.

- 265 A STUDY OF QUARTZ-FUSING OPERATIONS WITH SPECIAL REFERENCE TO THE MEASUREMENT AND CONTROL OF FUMES. E.C. Riley and J.M. DallaValle. U.S. Public Health Reports, 54, 352-8, (March 3, 1939).
No cases of silicosis have been reported among fused quartz operators in the United States, although evidences have been found among these men in European countries. The very short hours of daily exposure may account for the lack of silicosis among them in this country. Fused quartz is blown at temperatures between 2700° and 3000° F., at which temperatures it has been shown that the vapor pressure is quite high. The authors collected the fumes in regular impingers (two in series), estimated the amount in solution by the method of King and Dolan. During operations they found from 116 to 341 micrograms per cubic foot, but it is impossible to correlate these findings because of the lack of other similar studies. Because of possible toxic effects of the fumes and the discomfort of the excessive heat, it is recommended that quartz fusing operations be carried on under exhaust hoods.
- 266 CENTRAL MINING -- RAND MINES GROUP. HEALTH DEPARTMENT REPORT FOR THE YEAR 1937. A.J. Ornstein. Johannesburg, So. Africa.
This report deals with the various activities of the Department, particularly with the health conditions of the native labor force employed in the gold mines of the Witwatersrand. The total mortality from all diseases for the year has reached the record low level of 6.82 per 1000 and mortality due to accidents was 1.97 per 1000. The principal disease is pneumonia, the mortality rate for which was 2.60 per 1000. Although the pneumonia rate still remains high, a notable improvement has been achieved when it is noted that the mortality rate for this disease in 1911 was 13.0 per 1000. An analysis, taking into account meteorological conditions, shows that the highest incidence of pneumonia is during seasons of low temperature and high wind velocity. The incidence of pulmonary tuberculosis has also been reduced notably. In 1915 the rate was 12 per 1000, and in 1937 was 1.84 per 1000. At the same time the mortality rate for the disease has dropped from 1.48 to 0.43. The Department maintains 11 hospitals, rescue training stations and supplies the workers with adequate, fully cooked rations.
- 267 TUBERCULOSIS IN INDUSTRY. G.C. Ornstein and D. Umar. Quarterly Bulletin, Sea View Hospital, 4, 164-81, (January, 1939).
The writers take exception to the generally accepted views as to the high incidence of tuberculosis in industry. They recommend caution in attributing an abnormal incidence of tuberculosis to environmental factors in a particular industry when its labor is recruited from sections where the incidence of such infection is abnormally high. They do not subscribe to the opinion that silicotic subjects are more susceptible to tuberculosis than others; they believe that error has arisen in mistaking the lesions due to silica for those of tuberculosis and find it impossible to diagnose tuberculosis in the absence of demonstrable tubercle bacilli. They conclude that the present positive opinions are based only on vital statistics and not on autopsy statistics. This assumption is incorrect as there is in existence sufficient autopsy data upon which to base opinions. The relation of trauma and exposure to obnoxious gases to tuberculosis is also discussed in the paper.

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Air Hygiene Foundation of America, Inc.
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REFERENCES TO RECENT LITERATURE ON INDUSTRIAL DISEASES

(A) News Items

- 341 INDUSTRIAL HYGIENE MEETING. Safety Eng. 77, 10, (April 1939).
A meeting of far-reaching influence to industrial physicians and laymen alike is scheduled by the American Association of Industrial Physicians and Surgeons with the American Conference on Occupational Diseases and Industrial Hygiene, at the Statler Hotel, Cleveland, June 5-8, 1939. The meeting will include scientific sessions on both medical and non-medical topics of value to industrial health.
- 342 SAFEGUARDS IN TUNNELING. Labor Standards. U.S. Dept. Labor, 2, 37, (March 1939).
A conference of industrial hygiene officials was recently held in Washington to discuss the possible health and safety measures in the construction of Pennsylvania's proposed "all-weather highway" between Harrisburg and Pittsburgh. The project, a four lane highway, estimated to cost 60 million dollars, will follow a partially completed railroad grade and will entail considerable tunneling through siliceous rock. It is probable that the New York State Code will be used as a basis for the Pennsylvania regulations regarding the rock drilling. Full time inspectors will be appointed to check dust exposures.
- 343 EXHAUST SYSTEM INSPECTION IN CONNECTICUT. Connecticut Health Bulletin., 53, 24, (January 1939).
A new amendment to the State Sanitary Code, Regulation 280, requires that any replacement, extension or new installation of exhaust systems shall be reported to the State Department of Health for approval. Since the plan has gone into effect a number of new installations have been reported and a variety of changes have been made in existing systems. Although most corrections in the plans submitted have been minor ones, they would have required appreciable additional expenditure, if changes were necessary after installation was complete and the system was then found to be ineffective.

(B) Papers on Dust, Dust Diseases and General Industrial Hygiene

- 344 LIST OF RESPIRATORY PROTECTIVE DEVICES APPROVED BY THE BUREAU OF MINES. H. H. Schrenk. U.S. Bureau of Mines, Information Circular No. 7030 (July 1938).
Obtainable from Div. of Information, Washington, D. C.
In our November and December 1938 Abstract Bulletins (Nos. 795 and 866) we included lists of respirators approved since our Engineering Bulletin No. 2, Part 2 was issued. These lists included the above Bureau of Mines Circulars and two Supplements. The third Supplement to that Circular was issued by the Bureau on March 31, 1939 and includes the following additions:



- 347 THE ASSOCIATION OF SILICOSIS AND CARCINOMA OF THE LUNG. M.O. Klotz. Am. J. Cancer, 35, 38-49 (January 1939).
In support of the view that inhaled dust, particularly silica, may play a part in the production of primary carcinoma of the lung the author presents 4 cases of bronchogenic carcinoma observed in an autopsy series of 50 silicotic subjects. The incidence of 8% obtained in this series is compared with that of 1.7% in a control group of 4,500 routine autopsies performed during the years 1925-36. At first sight it appears that this is very strong suggestive evidence that silica plays a significant role in the etiology of pulmonary cancer, but it should be pointed out, as the author admits, that it is not statistically accurate to compare so small a group of silicotics to so large a group of controls. Other studies previously reported from the Saranac Laboratory, South Africa, and Europe show incidences of 0.73%, 0.70% and 0.93% respectively, the latter among men with no dust history at all. The conclusion is made that it does not seem justifiable to implicate the inhaled dust as a carcinogenic agent, even though the author has attempted to eliminate other causes. It is suggested that heredity may play a part.
- 348 INDUSTRIAL DUSTS AND THE MORTALITY FROM PULMONARY DISEASE. A.J. Lanza and R.J. Vane. Am. Rev. Tuberc., 39, 419-39, (April 1939).
Early occupational mortality studies focussed attention on the importance of dust as a cause of respiratory diseases. Virtually all kinds of dusts were implicated. Present day clinical and laboratory studies point to the serious damage to the lung tissue caused by a few dusts, notably silica and asbestos and to the relatively little damage to the lung tissue caused by many other dusts. The death rates from tuberculosis among men in occupations in which there is exposure to free silica so exceed those found for men in other occupations, as to leave little doubt that silica is implicated. American mortality for silicate and other inorganic dusts are very meagre; British records are more complete but there is doubt as to their true accuracy. There is little or no data on men exposed solely to metallic dusts. Recent statistical studies show higher than average rates for tuberculosis among men exposed to organic dusts, but they are not nearly as high, however, as in exposure to silica dust. The relationship between dust inhalation and acute pulmonary disease remains a good field for further investigation.
- 349 TUBERCULOSIS IN INDUSTRIAL WORKERS. D.E. Cummings, R.N. Downs and M. Berg. Am. Rev. Tuberc., 39, 439-55, (April 1939).
The field division of the Saranac Laboratory has determined the incidence of tuberculous lesions recognizable in good stereoscopic chest roentgenograms prepared on large groups of workmen engaged in several industries located in various parts of the United States. The incidence of tuberculous lesions has been shown to increase with advancing age, rising among steel workers from about 1.0% at ages less than 20 years to 12.5% for ages from 65 to 74. Evidence, which should have a bearing on frequency of industrial physical examinations, has been presented which suggests that the rise in incidence with age is due to the development of new infections at all ages. Approximately two new cases of pulmonary tuberculosis appear to have developed each year per 1000 white male steel mill workers, and seem to have developed at any age with the same facility. The article presents an excellent discussion of the statistical elements of tuberculosis incidence in industry.

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FOUNDATION FACTS

This news-letter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

Vol. I.

September, 1939

No.

Are You Missing Any Bets?

A safety engineer in a company affiliated with Air Hygiene Foundation was recently obliged to design some exhaust equipment. He spent much time and effort looking up data, none of which proved very helpful. After the installation was completed -- with considerable difficulty -- the engineer chanced upon two of the Foundation's engineering bulletins, "Design of Exhaust Hoods" and "Design of Duct Work for Exhaust Systems." He complained:

"Why didn't somebody tell me about these bulletins?"

"Why they're exactly what I wanted!"

The bulletins were available in his organization all the time, gathering dust on someone's shelf. The engineer didn't know such bulletins existed, didn't know his company was a member of the Foundation, didn't know what services the Foundation affords.

Costly cases such as this are all too common. Dr. H.B. Meller, Managing Director, urges Foundation members to "cash in" on the value of their memberships. Inform all interested individuals in your company of your membership in Air Hygiene Foundation and the services they can derive through this membership. A circular describing these services is enclosed. Additional copies are available for distribution through your organization, for bulletin board posting, etc. Incidentally, do you have a complete file of Foundation bulletins? Publication lists are furnished upon request. (See July issue INDUSTRIAL MEDICINE, pp. 324-25, for a good account of the Foundation's activities during the past year).

Plans Progressing for Annual Meeting

Plans are progressing for the 4th annual meeting of Air Hygiene Foundation to be held at Mellon Institute, Pittsburgh, November 14-15. The wealth of important information for presentation forces expansion of the program from a one-day to a two-day conference this year. The program is being keyed to the theme, "Healthy Workmen Make for Healthy Business."

Technical data include: Reports on Foundation's engineering research at Harvard by Philip Drinker, Chairman of the Preventive Engineering Committee; reports on Foundation's medical research at The Saranac Laboratory and University of Pennsylvania by Dr. L.U. Gardner and Dr. E.P. Pendergrass, respectively. Reports on latest developments in employee health protection by Dr. A.J. Lanza, Chairman of Medical Committee. Dr. Lanza will also preside at a symposium on absenteeism which will develop measures for use of member companies in reducing lost time through illness.

On the management side, Andrew Fletcher, Vice President of St. Joseph Lead Company, will point out specific dollar-and-cents savings resulting from proper health precautions. V.P. Ahearn, Executive Secretary, National Industrial Sanitation Association, is to preside at a forum designed to show the importance of employee health in all employer-employee relationships, the impact of health on labor and community relations. Theodore C. Waters of the Foundation's Legal Committee will discuss legal trends and developments of 1939 affecting industrial hygiene.

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had a metastatic pulmonary carcinomatosis; and 199 were uncomplicated. In the entire series of cases studied, 22 cases of spontaneous pneumothorax (4.3%) were found, 8 having second- and 12 third-stage anthracosilicosis. Fourteen occurred in association with tuberculosis. Seven were found among those having simple pneumoconiosis, and one in the case with carcinoma. Intense dyspnea, a sense of impending suffocation, severe pain in the chest, a feeling of constriction on the affected side and shock were symptoms present in many cases; small collections of air produced no symptoms and the condition was discovered only by routine x-ray. Roentgenologically, the condition must be distinguished from emphysematous blebs and pulmonary cysts. While emphysema, bleb formation, and pleural adhesions are always present in anthracosilicosis and are factors which greatly favor the development of pneumothorax, and while the frequent coexistence of tuberculosis and the severe accompanying cough further predispose to pleural accidents, this effect is greatly decreased by the always present thickened visceral pleura which resists tearing or perforation and thus offers an actual protection against the formation of pneumothorax. This explains the low incidence of pleural perforations (4.3%) in this group of anthracite coal miners with anthracosilicosis.

- 629 MULTIPLE GIANT BULLAE ASSOCIATED WITH ANTHRACOSILICOSIS. E.R. Wiese, C.A. Heiken and Robert Charr. *Am.J. Roentg. & Radium Ther.*, 42, 186-91 (August 1939). A case is presented of multiple giant bullae (large blisters or vesicles filled with fluid) of the lung associated with anthracosilicosis which was observed by the authors over a period of several years. They believe the case to be unique because of the multiplicity and the size of the bullae, which could readily have been mistaken for spontaneous pneumothorax. Diagnosis was confirmed by gross post-mortem findings and microscopic examination. The importance of differential diagnosis between bullae and pneumothorax is emphasized and a discussion is given of the two conditions in connection with emphysema of the lungs.
- 630 AN X-RAY STUDY OF THE LUNGS OF WORKMEN IN THE ASBESTOS INDUSTRY COVERING A PERIOD OF TEN YEARS. A.W. George and R.D. Leonard. *Radiology*. 33, 196-202 (August 1939). The authors discuss some of the conclusions they have reached after an extensive experience examining asbestos workers. Each industry or occupation should be studied by itself because the hazards of each vary greatly. The most important variable with occupation is the percentage of free silica in the dust which can cause the development of a silicotic condition in addition to the asbestotic one. The authors are of the opinion that asbestosis is not a progressive disease after the individual has been removed from the dust hazard. They found also that the disease has no causal relation to tuberculosis. Unlike silicosis, X-ray appearance of tuberculosis and asbestosis are quite different. They found no clinical findings pathognomonic of asbestosis and state that diagnosis of asbestosis must depend alone on X-ray evidence.
- 631 PULMONARY ASBESTOSIS. V. A REPORT OF BRONCHIAL CARCINOMA AND EPITHELIAL METAPLASIA. K.M. Lynch and W.A. Smith. *Am. J. Cancer*. 36, 567-73 (August 1939). The authors present the case history of a patient with pulmonary asbestosis and carcinoma and, in addition, make a contribution to the statistics on the incidence of carcinoma and asbestosis. During the past 12 years in 2343 consecutive necropsies (35 cases of asbestosis among them) the incidence of carcinoma was 0.30%. Omitting the asbestosis cases the incidence was 0.21%. Among the asbestosis cases (35 in number) the incidence was approximately 6% (2 cases), but the statistical value of these figures is questionable because of the small numbers. The authors also note the observation that advanced asbestosis may lead to bronchial epithelial metaplasia of a type encountered in other locations where cylindrical epithelium may give rise to squamous-cell carcinoma.

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- 632 ASBESTOSIS. E.W. Baader. Deutsch. med. Wchnschr., 65, 407-408 (1939). (German). A short but excellent description of the origin, clinical aspects and diagnosis of pulmonary asbestosis. Asbestos warts and lung cancer of asbestos workers are discussed. It is comparatively rare to find asbestosis complicated by pulmonary tuberculosis in Germany.
- 633 TUBERCULOSIS IN INDUSTRY. A.R. Riddell. Canadian Pub. Health J. 30, 156-160 (March 1939).
The author concludes that "although the relation of certain occupations to the occurrence of tuberculosis is somewhat disquieting, industry in general does not constitute a menace in this respect." He states that "industrialization has so raised the general standards of living as to more than counteract any adverse influence which specific industries exert." Insurance reports indicate a higher death rate among industrial as contrasted with non-industrial groups in the same community. The influences which may exert an adverse effect on an industry's tuberculosis rating are discussed, particularly posture and overcrowding. The results of surveys of overcrowded plants are revealing. The importance of tuberculosis in relation to silicosis is illustrated by observations on a series of 375 cases which occurred in Ontario during the past 10 years and one group in one of the northern mining camps, where the transmission of tuberculosis to contacts was particularly noted. The economic aspect of tuberculosis exerts a severe strain on the community and industry, and the results of treatment so far as the individual workman is concerned are not encouraging, few are ever again permanently self-supporting. The necessity of preventive measures for early detection of cases is pointed out. Such measures should include chest roentgenograms, supplemented by laboratory facilities.
- 634 TUBERCULOSIS AND CAISSON DISEASE. J. Am. Med. Assoc. (Queries and minor notes) 112, 1990 (May 13, 1939).
A man who had an attack of caisson disease made an almost complete recovery. At that time his lungs were normal although no roentgenograms were taken. A year later the man developed active tuberculosis. The reply states that there is no logical connection between these two conditions; it is quite possible that pre-symptom tuberculosis was present originally but not detected.
- 635 A STUDY OF THE EFFECTS OF EXPOSURE TO DUST IN THE MINING AND MILLING OF PYROPHYLLITE. H.F. Eason, M.F. Trice and C.C. Carpenter. Division of Industrial Hygiene, North Carolina State Board of Health and North Carolina Industrial Commission, Bulletin, 100 pp. (February 1939). For sale by the Division, Raleigh, N. C. Price 50 cents.
Pyrophyllite is a natural hydrous aluminum silicate containing 20% alumina, 74% silica--of which from 25% to 35% is quartz. It is employed in the manufacture of rubber goods, textiles, roofing paper, soap, paint, toilet preparations, and ceramic products. Exposure of workmen in mining and milling processes, which are inherently dusty occupations, constitutes a serious hazard and many of them develop a lung condition designated as pneumoconiosis. The pyrophyllite dust causes a pulmonary fibrosis which appears on the x-ray film as massive tumor-like shadows bilaterally situated in the subapical region or as granular densities throughout the lungs. Emphysema is common and nodulation rare. The pathology appears to be permanent and tends to progress. Tuberculosis is not necessarily a complicating factor. The examinations reported here cover 101 present and former employees; 35% of those with 2 years or more exposure showed evidence of lung pathology. The Bulletin also includes methods for dust control, numerous reproductions of X-rays and microphotographs and many plant and mine scenes.

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FOUNDATION FACTS

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Vol. I.

October, 1939

No. 3

"Get Your Program"

Invitations to the annual fall meeting of Air Hygiene Foundation, together with advance copies of the program, are now being mailed to Foundation members. The meeting will be held at Mellon Institute, Pittsburgh, on Tuesday and Wednesday, November 14-15. If your invitation has not been received please let us know. We will also be glad to issue invitations to any of your associates who may wish to attend. Extra copies of the program will be sent upon request. Some member companies may want to call the program to the attention of their personnel, industrial relations, public relations or legal departments if these departments are not on the Foundation's regular mailing list.

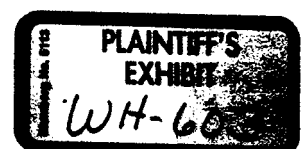
Important "OD" Ruling by Federal Court

Theodore C. Waters of the Foundation's Legal Committee has prepared a memorandum for Foundation members covering the case of "Grain Handling Co., Inc., vs. Sweeney and McManigal." Mr. Waters, member of the Baltimore law firm of Mullikin, Stockbridge, and Waters, describes this case as, "the most important that has been decided by our Courts upon the question as to what is an occupational disease." Mr. Waters' memorandum is contained in the attached issue of the Monthly Abstracts.

No Armistice on Health

The Managing Director reported at a meeting of the Executive Committee of Air Hygiene Foundation in Pittsburgh on September 26 that many industrial concerns realize that the increased industrial tempo may increase industrial health hazards. Some companies overlooked that factor in the rush of war business during the World War. Information received by the Foundation indicated that many firms will not make that mistake again, that they are fully aware of the importance of occupational health in periods of increased production. Unquestionably, this subject will come up for discussion at the Foundation's annual meeting next month.

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- 727 SILICOSIS FROM EXTRACTION AND WORKING OF SANDSTONE IN THE PFALZ DISTRICT. A.V. Chossy. Arbeitsschutz, pp. 168-75 (1939). (German).
The distribution of ages in quarrymen and stonecutters shows that there are quite a few older men in the industry, attributed to the fact that in recent years operations in that industry have not been very active. Medical examinations of 100 quarrymen and 100 stonecutters indicates that silicosis develops slowly and is more common among stonecutters than among the quarrymen. Many men who had worked several decades had not developed the disease and the author concludes that other factors than dust play a large part in the etiology of silicosis.
- 728 FURTHER CONTRIBUTIONS TO THE ROENTGENOLOGICAL DIAGNOSIS OF ASBESTOSIS. E. Saupe. Arch. f. Gewerbepath., 2, 391-406 (1939). (German).
The author, whose recent (1938) atlas of asbestosis was based on the examination of 200 patients, has now examined an additional 420 asbestosis workers and in this paper presents interesting material on the diagnosis of the disease. The complaints and pulmonary changes noticeable by x-ray after only a few months work are caused by a bronchitis. The first signs of asbestosis may appear, however, after 9-10 months exposure. Tuberculosis is rare among German asbestosis workers and the author has encountered no case of lung cancer among those examined.
- 729 SURVEY IN SEVENTEEN CEMENT PLANTS OF ATMOSPHERIC DUSTS AND THEIR EFFECTS UPON THE LUNGS OF TWENTY-TWO HUNDRED EMPLOYEES. L.U. Gardner, T.M. Durkan, D.M. Brunriel and H.L. Simpson. J. Ind. Hyg. & Toxicol., 21, 279-317 (September 1939).
The paper covers a survey of environmental conditions in 17 cement plants in the United States, and physical and roentgenological examinations of 2278 persons in an attempt to correlate medical and engineering findings. Finished cement contains practically no free silica, but some raw material dust has from 1 to 30%, and occasionally 60% free silica. Because of the variable character of most of the employee's occupations no definite correlations could be made between lung change and dust composition. The analysis of the data, however, indicates that prolonged inhalation of dust from finished cement produces such slight anatomic reaction that little or no abnormality is seen in the roentgenogram. The mixed dusts of the raw mills are probably responsible for a limited number of cases of well-marked linear exaggeration, non-disabling in character. Only 8 of the 2278 employees showed evidence of nodular fibrosis attributable to dust, and in 6 of these exposure to silica dust in previous exposure was presumably responsible. The incidence of tuberculosis and other chronic infections of the lungs was found to be less than that in the general population.
- 730 PULMONARY CHANGES IN CEMENT WORKERS. G. Girino and A. dell' Aquilo. Med. del. lavoro, 30, 97-110 (1939). (Italian).
After describing cement work and reviewing the literature, the authors report on their examination of 50 cement workers whose work of sacking cement involved a great deal of dust. Ten detailed case reports are presented with some roentgenograms. The workers suffered catarrh of the upper respiratory tract, their lungs showed signs of pneumoconiosis and several of the x-rays showed fibrosis and nodulation. Tuberculosis is rare and its course favorable. In some cases the heart was hypertrophic.
- 731 TUBERCULOSIS IN RELATION TO THE PNEUMOCONIOSES. W.E. Cooke. J. Roy. Inst. Pub. Health & Hyg., 2, 299-304 (May 1939). (British).
Evidence is accumulating that various silicate dusts are by no means innocuous, and it may be expected that silicatosis, by whatever mineral produced, will render the lungs less resistant to tubercular infection. Almost every industrial dust has been blamed as a cause of pneumoconiosis, often with no foundation in fact, e.g. the case of byssinosis, the coniosis attributed to cotton dust.

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FOUNDATION FACTS

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Vol. 2

March, 1940

No. 3

NWBB-0009970

Please "Return Your Coupon"

The Foundation's report on "Sick Absenteeism in Industry," was mailed to member companies last week. (If your copy has not arrived please let us know.) This report is the first step in a program intended to reduce the losses member companies suffer through sick absenteeism -- one of the most costly drains on management. Therefore, the report is of vital importance to your company. In order to carry out the study the Foundation must of course have information from your firm. Your identity will be scrupulously guarded. Please return the coupon, which is on the last page of the report. When the "returns are in," showing how many companies will participate, we will be able to iron out details and furnish you with further information on procedure. Right now we are anxious to line up a representative number of companies, large and small, to participate in the study. Please return your coupon.

Any Health Hazards?

Are there any health hazards in your plants? The fact that you've had no trouble in the past, or belief that the plant is free of hazards is poor "evidence" in case of claims. You don't determine costs like that. You find out. Find out whether there are health hazards. The Foundation will do this for you as a membership service at bare cost. Take an "inventory" in industrial hygiene.

New Members

The Pullman Company and the Maryland Self Insurers' Association have recently affiliated with Air Hygiene Foundation. It is gratifying to have these two organizations allied in this collective effort of employers to improve employee health. The Foundation's program is limited only by the amount of support received from American industry. This recalls the comment by Mr. Andrew Fletcher, Vice Chairman of the Foundation's Board of Trustees, and Vice President of St. Joseph Lead Company, made at the November meeting:

"In closing I earnestly hope that the present members will avail themselves of the valuable assistance that the Foundation can give, that they will be willing to make some contribution other than their dues for continuing and developing the research activities, and that they will try to obtain as new members other companies from their own industries, even if such companies are competitors in business. I use the word 'business' because in industrial health there are no 'competitors.' All employees gain through improved working conditions, and all employers benefit through lower operating costs."

November 1992

IN RE: AIRA.MIS



186. Clinical Studies in Asbestosis. M. J. Stone. Am. Rev. Tuberc., 41, 12-21 (January 1940).

This report is based upon examination of 180 persons formerly employed in the opening, carding, spinning and weaving departments of an asbestos brake lining plant. Of the entire group, all of which were litigants for compensation, 32 were diagnosed as having no asbestosis; 148 were thought to have some degree of pulmonary involvement, grouped in three stages, on the following basis: Stage I, slightly increased lung markings with a chest expansion limited to less than 2 inches; Stage II, definite x-ray evidence of pulmonary fibrosis and definite symptoms; Stage III, marked pulmonary involvement by x-ray with well-marked symptoms. Details regarding the relationship between duration of exposure and degree of x-ray change are given on 168 of these cases and are shown in the accompanying table.

Exposure Period	Total Exposed	X-Ray Evidence of Asbestosis			
		0	Stage I	Stage II	Stage III
		%	%	%	%
Under 4 years	47	53.2	28.0	17.0	0
4-9 yr.	56	0	64.2	21.4	14.2
10-15 "	40	0	35.0	50.0	15.0
Over 15"	25	0	36.0	56.0	8.0
Average Exposure			8 yrs.	10 yrs.	11 yrs.

Evidence of tuberculosis was found in 9 (5%) of the films of the total 180 cases; in only two was the infection active at the time of the initial examination. One case occurred in Stage II and the other in Stage III. After measurements of the heart shadows it was concluded that asbestosis was particularly prone to produce secondary changes in the heart and pericardium and that "the dyspnea noted in this disease is of cardiac or circulatory rather than pulmonary origin." Thirteen of these patients were re-examined 2 or 3 years later and the changes in the advanced cases seemed more marked but no change in the Stage I and Stage II type. Blood studies seemed to rule out the possibility of associated infections. Since the first examination 18 patients have died; 3 of pulmonary tuberculosis, 5 of broncho-pneumonia, 2 of lobar pneumonia, 2 of heart disease and the rest of various causes. Seventeen were chronic invalids complaining of cough and dyspnea.

187. Air-Borne Matter. H.L.M. Larcombe. Indus. Chemist, 15, 177-8 (October, 1939); 379-82 (November, 1939); and 440-443 (December, 1939). (British).

This is a review of the fundamental characteristics of air-borne matter which must be set down before any detailed research can be made in any particular branch: origins of air-borne matter; measurement of particle size; characteristic dimensions; laws of the behavior of air-borne matter; dusts; Stokes' Law; fumes; smokes; electric characteristics; gravitation; filtration; electrostatic precipitation; and dust explosions. There is also a discussion of inflammable dusts; the effect of air-borne matter on health; kinds of dust; silicosis; and the importance of ventilation.

188. Methods of Rock Dusting American Coal Mines. J. J. Forbes. U.S. Bureau of Mines Rept. Invest., #3465 (1939).

The number and percentage of rock dusted mines is slowly increasing; indications are that the large producers are taking the most precautions. An average cost of rock dusting for protection against explosions in 28 mines is just under 1 cent per ton of coal mined. A survey of rock dusting practice shows the need of more adequate laws for and supervision of the extent and methods of this kind of prevention.



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HWBB-0009994

Vol. 2

April, 1940

No. 4

Audit Your Sick Absenteeism and Cut Losses

Member companies are writing almost daily saying they will take part in the Foundation's study of "Sick Absenteeism in Industry," a study which promises to save participating companies considerable sums of money. Company participation simply involves the keeping of lost time records. See the Foundation's recent absenteeism report for details. Please return the coupon on the back page, if you haven't already done so. More details later as to forms, procedures, etc. Incidentally, this study is receiving national attention in the daily and trade press. Two metropolitan newspapers have written editorials commenting favorably on the undertaking. New York Times carried a half-column article.

Ask Questions on Employee Health

Remember, Air Hygiene Foundation is concerned with every aspect of industrial health, whether it be chemical hygiene, dust or skin diseases. This is shown by the range of literature covered in your attached copy of the monthly "Digest of Industrial Hygiene." The chemical age has brought new volatile solvents into industry at a rapid rate. Still, there is yet to be found a material that can't be handled safely with proper precautions. A wealth of data and experience is being accumulated by the Foundation and rich facilities are available to the Foundation at its headquarters in Mellon Institute. Ask us your questions on all phases of employee health.

Monthly Index of Digest Inaugurated

Starting with this issue of the monthly "Digest of Industrial Hygiene," the Foundation is including an index for each issue. This will be found on the last page. At the end of the year a "master" index will be compiled covering the full year. Meanwhile, as time permits, work is progressing on an index for past years, 1937-39. We hope to have this completed by mid-summer. The index accompanying each monthly Digest, as well as the annual indexes, will make the material more readily available and therefore more valuable to members.

Do You Want the Digest Punched for Loose-Leaf Filing?

An alert member writes: "We have been enjoying our copies....Why not have this valuable data prepared in such form that there would be a left-hand margin punched with three holes so that the recipient could retain the pages in a permanent binder?" This member will receive the Digest in that form. Any others desiring the punch holes may have them by letting us know. Some companies clip up the abstracts for filing.

Able Industrial Hygienist Available

An able industrial hygienist, a Ph.D., now associated with one of the Foundation's leading companies, would consider changing his connection. He has wide experience in this field, is in his early 30's and can be recommended without hesitation. Further information is available through the Foundation.

.....Pennies for prevention save dollars worth of cure.....

NOVEMBER 1992

IN THE AIR HYGIENE



280. Warning Incidence of Silicosis on Rand. S. Africa Min. & Eng. J., 50, 673-5 (January 27, 1940). (British).

This is an abstract of the report on the work of the Miners' Phthisis Medical Bureau for the three year period ending July 31, 1938. The rate of incidence of silicosis has fallen to a new low record; however, there is a marked progressive increase in incidence with increase in duration of service, also with the increase in the amount of time spent in machine drilling. A modification of the system of periodical examination is urged.

281. Detection of Silica-Containing Dust in Lung Tissues by Means of Fluorescence Microscopy. M. Oberdalhoff. Arch. Gewerbepath. & Gewerbehyg., 9, 435-442 (1939). Abstracted in Brit. Chem. & Physiol., p. 158 (February, 1940).

Quartz and other mineral dusts show characteristic fluorescence colors under ultra-violet light when treated with fluorochromes, especially auramine, and then washed with water. Quartz dust can be detected similarly in silicotic lung tissues provided that the specimen is first treated with alcohol-ether to remove the covering of fat on the quartz particles.

282. An X-ray Study of the Lungs of Workmen in the Asbestos Industry, Covering a Period of Ten Years. A.W. George and R.D. Leonard. Radiology 33, 196-202 (1939). A discussion of the exposure to asbestos in the manufacture of brake linings. In 1928 and 1929, 12 workers with symptoms of asbestosis were retired on compensation and were followed for 7 years. In 1933, 800 employees from the same plant were x-rayed and three found to have advanced asbestosis. When the plant closed, 90 men sued for compensation and the authors give a discussion of the trial of 30 cases. During the trial, the 12 men retired 8 or 9 years before were produced. All but the women were performing laborious work, and no progress of the lung condition was apparent. There is a description of the x-ray appearance of asbestosis and the action of the dust on the lung. The authors consider that "the fiber is innocent of producing any pathologic disturbance except an impedance to the air in this region of the lung." Pleuritic changes are also seen -- adhesions and obliteration of the costophrenic angles. Emphysema and changes in the heart contour are other signs. No cases complicated by tuberculosis were found. X-ray will show asbestos in the lungs when there is enough to cause symptoms.

283. The Roentgenologic Aspects of Bronchomycosis. H.P. Doub. Radiology, 34, 267-275 (March, 1940).

The signs and symptoms of the bronchomycoses are similar to those of tuberculosis and often they are at first thought to be tuberculous in origin. Whenever the history or x-ray changes are atypical of tuberculosis, the sputum should be examined microscopically and also cultured repeatedly, so that these cases may not be treated as tuberculous. In early stages, these patients appear to have a mild bronchitis with some expectoration; later they develop many of the signs and symptoms and even the complications of tuberculosis. The final diagnosis rests on the discovery and identification of the offending organism. The roentgen changes are suggestive of a differential diagnosis in some instances but usually only suggest the presence of a fungous infection. The author describes some of the more prominent roentgen signs of the various bronchomycoses.

284. Lungs Affected by Ochre Dust. H. Otto. Arch. Gewerbepath. & Gewerbehyg., 9, 487-495 (1939). (German). Abstracted in Brit. Chem. & Physiol., p. 159 (February, 1940).

The harmful constituents of ochre appear to be iron oxides and silica. X-ray findings in ochre-affected lungs and pathological anatomy of iron-affected lungs are described.

HWB8-0010000

NOVEMBER 1939

INDUSTRIAL HYGIENE



FOUNDATION FACTS

This news-letter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

HWB-0010042

Vol. 2

June, 1940

No. 6

Production--Preparedness--Protection

Industrial illness is a national foe in these days of defense needs. Sick absences from work, occupational disease, etc., slow down production and production now means protection. The health of workmen, too often overlooked, is a keystone of our whole preparedness program. Says Postmaster General James A. Farley:

"All this mobilization will be useless without that other mobilization of the stamina of the manhood and womanhood of America."

Tanks, guns, planes, or battleships can't win wars or protect people alone. They must be operated. More important they must be built. There is work to be done by healthy hands and healthy minds. Illness must not interfere. Further, increases in the production tempo increase industrial health problems. World War I proved that. It also proved that for every soldier in the field, six to eight workers were busy keeping him equipped.

Utilize your Foundation membership and "tell your friends." Ask the Foundation your questions regarding possible health hazards and the protection of employee health, whether these questions involve sick absenteeism, toxic chemicals, dangerous dusts, fumes, etc. Take advantage of the Foundation's plant survey services to check up on hazards. Avail yourself of the Foundation's warehouse of information on industrial hygiene. Available to the Foundation are the broad resources of Mellon Institute where investigations progress in 90 different lines of industrial research.

James H. McGraw, Jr., President, McGraw-Hill Publishing Company, says that imposed on the problem of industrial mobilization is another vital specification -- "sustained speed." Time, he continues, "is the all-essential ingredient of modern war. It cannot be bought with an appropriation, however great; once lost, it cannot be recaptured; we must make effective use of it while we still have it....."

Don't overlook industrial health. It is doubly important now. It is the backbone of production and production is the backbone of defense.

Legal Section Added to Monthly Digest

Starting this month, a short section on current legal developments will be added to each issue of the Digest of Industrial Hygiene. It will contain a few timely, higher court decisions respecting workmen's compensation, occupational diseases and employers' liability. This section, which will also report the enactment of new laws affecting industrial health, is intended to help keep member companies posted on current legal trends. This "news service" is in addition to the Legal Bulletins which are issued by the Foundation through its Legal Committee.

New Member

Latest addition to the Foundation's membership list is the Colorado Mining Association which recently affiliated.

.....Pennies for prevention save dollars worth of cure.....

IN THE AIRS November 1992



- 458 A Study of Experimental Tissue Reactions Following Intravenous Injections of Silica and Other Dusts. F.W. Simson and A.C. Strachan. Publ. So. African Inst for Med. Res., No. 45, 9, 95-122, Johannesburg, January, 1940.
This article describes animal experiments in which intravenous injections were made with quartz, sillimanite, orthoclase, muscovite, rutile, glass and air-borne mine dust. The particles were less than 5 microns in diameter and most of them were under 0.4 microns. Four animals received weekly injections of 2 cc. doses or a total of 300 mgm. of dry weight of dust suspended in sterile saline. With quartz and mine dust, a few of the animals died of shock following the injection. This did not occur with the other dusts. The authors believe that very finely divided silica causes an upset in the normal pH of the blood. All the other animals survived for periods as long as two years when they were killed. Autopsy showed pathological changes in the liver, spleen, lymph nodes and bone marrow. According to these changes the dusts can be classified into two groups: the active group, quartz and air-borne mine dusts which produced fibrosis; and all the others which were non-fibrosis producers. The direct toxic action of the silica on the cell as the primary factor in the production of the silicotic lesion is favored by the authors, but they do not exclude a phospholipid as partly responsible for the fibrosing effect.
- 459 The Nature of Anthracotic Foci. Experimental Research. A.G. Savellini. Folia med., 26, 21-32 (1940). (Italian).
A review of the literature and of the views of some French and Italian workers who are of the opinion that the greater part of the "anthracotic" pigment in the lungs is not truly anthracotic but iron of hemolytic origin. Animal experiments by the author lead to the conclusion that carbon and iron participate in the common anthracotic focus -- some contain carbon, some iron only.
- 460 Two Fatal Cases of Pulmonary Asbestosis. E.C. Vigliani. Rass. med. indust., 11, 26-52 (1940). (Italian).
The first of these cases concerned a woman who worked for thirty years in a factory using asbestos in the manufacture of cord. The second woman worked for seven years in an asbestos factory. Her susceptibility to colds increased while she was working and she suffered all her life from bronchitis and asthma. She died at the age of fifty, with symptoms of a lung disease, nearly thirty years after having stopped work. The autopsy showed interstitial sclerosis of the lungs and asbestosis bodies.
- 461 Clinical Studies and Animal Experiments on Pneumoconiosis Caused by Aluminum. G. Goralewski. Arch. f. Gewerbepath., 9, 676-688 (1939). (German).
Two out of a large number of workers in a bronze powder plant, exposed to an excessive amount of metallic aluminum dust, were stricken on the same day with spontaneous pneumothorax. The original diagnosis was tuberculosis. Both showed small shadows over the entire lung field in the x-ray film. There were no tubercle bacilli, no change in the blood picture, no shift to the left. For ten months there were no changes in the chest x-rays, but the complaints, cyanosis and dyspnea increased. Animal experiments with the inhalation of metallic aluminum dust and metallic copper dust, for 40 days with aluminum powder and 20 days with bronze (copper) powder showed slight proliferation of the connective tissues and thickening of the alveolar walls in the case of the aluminum dust, and somewhat more noticeable similar changes with the copper dust. The author thinks that the disease may be a peculiar kind of pneumoconiosis, and refers to a previous case described in the same journal (which, however, involved inhalation of the spray from aluminum paint rather than aluminum dust). (F.C.F.)



FOUNDATION FACTS

This news-letter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

Vol. 2.

October, 1940

No. 10

HWB-0010119

Fifth Annual Meeting Nov. 12-13.

The fifth annual meeting of Air Hygiene Foundation, scheduled at Mellon Institute, Pittsburgh, Nov. 12-13, will insist that the health of workers is as vital as health of soldiers in girding America. Defense production demands defense of employee health.

Prof. Philip Drinker of Harvard will head a symposium highlighting health safeguards in the mining, mechanical and chemical industries which bear the brunt of preparedness production. In World War I, eight to nine men were busy in the mills keeping one soldier supplied at the front. Participants in the symposium include:

Capt. Ernest W. Brown, Senior Medical Officer, Brooklyn Navy Yard -- Industrial Hygiene and the Navy in National Defense; Dr. P.A. Neal, National Institute of Health -- The U.S. Public Health Service in the Defense Program; Dr. Howard W. Haggard, Yale University -- Noxious Gases; Dr. Carey P. McCord, Detroit -- Health Protection in Electric Welding; William P. Yant, Research Director, Mine Safety Appliances Company -- Protection of Civilians in War Time.

Dr. E.R. Weidlein, Director, Mellon Institute, who is serving the National Advisory Defense Commission, will speak on "Industry in the National Emergency." L. Motcalfe Walling, Administrator, Division of Public Contracts, U.S. Labor Department, will discuss health requirements on government contracts under the Walsh-Healey Act.

Findings from Foundation researches on industrial health will be reported by Dr. L.U. Gardner, The Saranac (N.Y.) Laboratory, Dr. Eliot R. Clark, University of Pennsylvania, and Prof. Drinker of Harvard.

Dr. A.J. Lanza, Chairman of the Foundation's Medical Committee, will report on "what's new" in industrial hygiene. Dr. W.M. Gafafer, U.S. Public Health Service, will report on the study of "Sick Absenteeism in Industry" which the Foundation has started in collaboration with the Public Health Service and the Association of Industrial Physicians and Surgeons. T.C. Waters of the Foundation's Legal Committee will discuss latest legislation affecting workmen's compensation for occupational disease.

Two New Members

Powers X-Ray Products, Inc., and the Industrial Tape Corporation, an affiliate of Johnson & Johnson, recently joined Air Hygiene Foundation.

Chlorine Safety Chart Available

The Mathieson Alkali Works, Inc., 60 E. 42nd St., New York City, issued a revision of its Chlorine Safety Chart. C.S. Glenn, Vice President, replying to our inquiry, states: "We will be glad to send one of these charts to anyone desiring it, and we would be glad to have you so state in your FOUNDATION FACTS."

High health standards are now demanded in British industries under governmental order. Voluntary action by industry for health improvement, as in Air Hygiene Foundation, forestalls such governmental demands.

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AIR HYGIENE FOUNDATION



- 719 A Peculiar Disease of the Lymph Nodes (Eggshells) in Silicosis. E. Schairer. Arch. f. Gewerbepath., 10, 37-42 (1940). (German).
Other workers have described the formation of "eggshells" in the hilar lymph nodes. These are described in detail by the author. He shows roentgenograms of old slate workers showing distinct formation of calcification around a large part of one or more lymph nodes.
- 720 Respiratory Insufficiency in Silicosis. G. Castrovilli and U. Iberti. Med. del Lavoro. 30, 267-280, 289-306 (1939). (Italian).
This is a report on the character of respiration in different stages of silicosis. There is a decrease in vital capacity (the amount of air which can be forcibly expired after a full inspiration) only in the more advanced stage (2nd). Oxygen content of arterial blood is lowered in the 3rd stage, especially in cases with emphysema. With advancing silicosis, the venous pressure is increased. Dyspnea is caused principally by fibrotic processes.
- 721 Action of Talc Dust on the Lungs. A. Policard. Arch. mal. prof. 2, 530-539 (1939-40). (French).
White rats inhaled extremely high concentrations of talc dust (over 5 microns) for 12 days, 3 hours daily. Some of the animals died of congestion of the lungs. Pathological and histological findings of the animals dying or killed during the period of exposure or after 12 to 20 days are given. The dust, which reached the alveoli, is caught by the monocytes. Twelve days after the exposure ceased there was no lung irritation, and twenty days later there was no dust present in the lungs.
- 722 Anatomy, Pathology and Pathogenesis of Pulmonary Asbestosis. G. Mottura and E. Fugiano. Rass. med. indust. 11, 233-284 (1940). (Italian).
These are the histopathological findings in two cases of asbestosis, both in women. There is also a discussion of the subject of asbestosis bodies.
- 723 Degeneration of the Cervical Spinal Cord with Secondary Spinal Muscle Atrophy Caused by Work with Compressed Air Tools. R. Massen and H.E. Buttner. Arch. f. Gewerbepath. 10, 19-23 (1940). (German).
The authors believe that there is a possibility of a "vibration-traumatic injury" in a 64 year old coppersmith after 36 years hard work with a jackhammer. He had paralysis of both arms and legs, analgesia and loss of sense of temperature. Autopsy showed a small focus of dislocation in the marginal portion of the lateral column. There were "degenerative processes in the cervical and upper dorsal portion of the spinal cord."
- 724 Caisson Disease with Special Reference to the Bones and Joints. B.L. Coley and M. Moore, Jr., Ann. Surg. 111, 1065-1075 (February, 1940).
Bone lesions are described in two patients, one of whom had had 8 definite attacks of the "bends" during 16 years as a caisson worker; the other had had one attack during a period of 4 months as a worker under pressure. The bone lesions consist, roentgenographically, of medullary areas of increased density surrounded by a thin band of calcification, interpreted as areas of infarction. There is no involvement of the bone cortex and the lesions usually present in the diaphysis of the femur, tibia and humeri may or may not involve the epiphysis and secondarily the joint. The roentgenographic findings of joint injury resemble those characteristic of arthritis deformans. Pain and deformity may be associated with the joint lesions, while the medullary areas of involvement appear to be "silent".

1
November 1992

STEWART WILSON
UNIT 1000

April 1941



- 259 Phagocytosis of Foreign Material in the Lung. O.H. Robertson. *Physiol. Rev.*, 21, 112-39 (January, 1941).
The author reviews the modes of entrance, distribution and disposition of foreign material in the respiratory tract. First, the progress of foreign particles to the lung is impeded by the sinuous course of the nasal passages, the sticky mucous character of the surfaces, action of the cilia of the membrane and the cough reflex. Disposition of the material that has entered the terminal respiratory units is less simple. The principal method is by phagocytosis by amebic cells, the type of cell employed depending upon the character of the foreign matter. Bacteria such as the pneumococcus are handled by the polymorphonuclear leucocytes, which appear in great numbers. However, with mineral dusts, the large macrophage normally present in the region goes into action. They quickly engulf silica dust particles and carry them rapidly to lymph vessels and lymphoid tissue. On occasion the amebic cell degenerates, leaving the silica free in the parenchymal tissue. With asbestos, the process is somewhat different on account of the large size of the dust fiber. Macrophages accumulate around the fiber and form giant cells in which the so-called asbestosis bodies appear. Inasmuch as the lung appears to act as a filter for foreign material injected intravenously, it has been suggested that the pulmonary capillary endothelium carries on phagocytic activity. The evidence, however, is to the contrary. The same is true of the cells lining the tracheo-bronchial tree. A bibliography of 155 references is included.
- 260 Asbestosis in Grinders and Drillers of Brake Bands. Brachmann. *Arbeitsschutz*, p. 172-4 (1940). (German).
Brake bands are made of sheets of asbestos, or are pressed out of asbestos waste products and a filler, impregnated with artificial resin. Afterwards the bands and plates are ground and drilled. In Saxony all workers in asbestos plants must be examined annually. Clinical and x-ray examination of the grinders, drillers and men who file individual pieces has shown a few light cases of asbestosis after 2 years' work, and in nearly all such workers after 5 years employment.
- 261 The Struggle Against Asbestosis Today. Ehrhardt. *Arbeitsschutz*. pp. 191-3 (1940). (German).
The paper is a brief description of asbestosis, rather than an account of the struggle against it. The author states that no relationship was found between nasal dust filtering ability and degree of asbestosis.
- 262 Methods of Avoiding the Dust Danger in Asbestos Plants, Valid from August 1, 1940. Anonymous. *Arbeitsschutz*. pp. 263-5 (1940). (German).
The new regulations concerning exhaust systems, established by the manufacturers, insurance association and German factory inspectors, are described. The efficiency of the systems must be tested by a representative of the insurance association.
- 263 Regulation to Change the Regulation Regarding Manufacture of Glass, Grinding, Etching, Painting, Glass Containers and Related Industries, Dated September 13, 1940. Anonymous. *Arbeitsschutz*, p. 263 (1940). (German).
The German regulations prescribe that x-ray examinations be made of all workers employed at certain jobs in rooms where glass containers or refractory materials are produced or where sandblasting is conducted. The examinations are repeated every second year. All persons engaged in producing lead-containing mixtures or using lead colors are to be examined at least every 6 months.

03118039



FOUNDATION FACTS

This news-letter is issued monthly to member companies and trade associations affiliated with Air Hygiene Foundation. Its purpose is to report Foundation news and activities. Air Hygiene Foundation is a partnership of industry and science organized to protect the health of the 15 million workmen in heavy industry.

HWBB-0010320

Vol. 3.

June, 1941

No. 6.

Engineering Research Report

Findings from a Foundation supported study of "Fundamental Factors in the Design of Lateral Exhaust Hoods for Industrial Tanks," will be issued to member companies in the near future. This practical study was made by Leslie Silverman, who held one of the Foundation's fellowships at Harvard University.

Brief Bulletin Coming on Skin Diseases

No. 4 in the Foundation's series of brief bulletins on Industrial Health Defense will be issued shortly. This bulletin, prepared by a noted dermatologist points out that many cases of skin diseases arise in the wash room, rather than in the production process. Strong soaps injure the skin.

Nutrition in Plain English

Instead of stressing the thirty-odd chemical or technical ingredients of an adequate protective dietary, public health workers might well emphasize simply that nutritional requirements are well met except for calories by the daily intake of the following foods: 1 quart milk for a child (1 pint for an adult) as drink or food; 1 egg; 1 serving of meat, fish or fowl; 3 servings vegetables (one of them green leafy or yellow), including potatoes; 2 servings fruit (one of them raw); 1½ patties of butter; 1 serving whole grain cereal.

---Illinois Health Messenger.

Defend the Defense Worker

Total war demands total defense. Use your Foundation membership to help defend the defense worker. Some 15 of them are necessary to maintain a soldier at the front. Today's wars are won in mines and mills.

Sabotage

"The employee is the objective in the destruction of plants! If the foreign agent can't win the employer over to his side as an agent of destruction, then he seeks to destroy that employee"....

From, "Sabotage," National Foreman's Institute.

Consoling Notes

The Census Bureau assures us that the chance of being killed by lightning is only about 1 in 338,000.

Greek Philosopher Galen said, almost 1,900 years ago: "Employment is Nature's best physician and essential to human happiness."

.....Defend the Defense Worker!.....

IN THE AIR ARMS November 1992



gives the main provisions affecting labor contained in the law itself and in the regulations issued thereunder, together with a brief description of the agencies charged with enforcing or administering the law, and the procedures they use for obtaining compliance.

- 429 Lifting Heavy Weights in Defense Industries. Margaret T. Mettert. U.S. Dept. of Labor, Women's Bureau. Special Bull. No. 2, U.S. Govt. Printing Office. 11 pp. For sale by Supt. of Documents, Washington, D.C. Price 5 cents.
- During the World War women in industry were called on to lift heavier loads than normally, and in all probability the same condition will soon arise. The normal load which women habitually lift is not over 25 pounds, but an analysis of war-time occupations here and in Great Britain shows that much heavier loads were often carried. The following recommendations are made for the conservation of women's health and strength: (1) guard against injury to physique in the lifting of heavy weights; (2) analyze the elements in weight lifting to develop methods of saving energy; (3) overcome the dangers involved in lifting weights by introducing lifting and conveying devices, providing efficient conditions for work, and informing workers as to proper methods for lifting; (4) train workers to use the most economical methods of carrying weights; (5) protect the health of workers in heavy industries by physical examinations; and (6) state regulation of weight lifting is more effective through the general authority granted regulatory bodies than through specific laws fixing maximum weights. Each point is discussed in some detail. Six states now have laws regulating weight lifting, which are summarized.

Papers on Dust, Gases and General Industrial Hygiene

- 430 Asbestosis. A. Wolff. Nord. Hyg. Tid. 21, 1-33 (1940). (Norwegian). Zentr. Gewerbehyg. Unfallvermut. 27, 193-4 (1940). (German).
- The author describes three cases of asbestosis which occurred in Norway in factories where asbestos was used as packing material for acid containers. In one case asbestos particles were present in the expectoration. The disease has not hitherto been observed in Scandinavia.
- 431 Some Investigations in the Slate Quarries. Observations on the Lungs of Slate Workers. A. Feil. Ber. 8 intern. Kongr. Unfallmed. u. Berufkrankh. 2, 986 (1939); Zentr. Gewerbehyg. Unfallvermut. 27, 40 (1940). (German).
- French slate contains 84% combined silicates (alumina, lime, magnesia, potash, etc.) and only 6-7% free silicic acid. Examination of 251 slate workers who had been exposed to the dust under varying hygienic conditions revealed no signs of silicosis. The tendency to emphysema and chronic bronchitis is increased. Since the slate contains much sericite, these findings do not indicate that sericite is the chief cause of silicosis. In spite of the relative harmlessness of the dust, prophylactic measures are necessary.
- 432 Silicosis in the Steel Foundry. L.M. Merritt. Presented at Steel Founder's Society of America, Columbus, Ohio. December 17, 1940.
- Silica is brought into the steel foundry in three ways. A great volume of sand is used in the molding process and in cores. Silica flour is used in facings and in cores -- this source is more dangerous because the silica is very finely ground. Tripoli is the third source but in recent years, its use is on the decline. The best method of controlling dust from these materials is to prevent its formation or remove it at its source. Maintenance of good housekeeping is absolutely essential.

HWBB-6619328

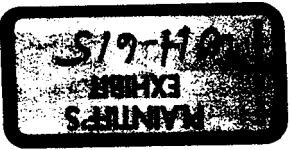
November 1932

THE ALBION

THE ABOVE AMES

NOVEMBER 1999

July 1941



workers in the Chicago district, selected to form a comparable age group, were studied as controls. The data, classified according to age, occupation, and number of years employed, are presented in a number of tables and charts. The comparison indicates a tendency of bituminous miners to develop presilicotic lung changes after prolonged employment. At the mine where the study was made 2% of the workers showed presilicotic changes and 1% showed nodulation in their chest roentgenograms. These changes occurred principally among undercutting machine operators and coal loaders. The shortest exposure period necessary to produce nodulation was observed in a rock driller who had worked at his trade 11 years.

- 565 Hydrogen Sulfide Poisoning in Cleaning Sulfuric Acid Tanks. T. Bauer and H. Berger. Arch. f. Gewerbepath., 10, 259-87 (1940).
Arsine poisoning occasionally occurs in cleaning sulfuric acid tanks or trucks. Two serious poisoning cases, one fatal (Abstract No. 860, December, 1940) followed cleaning such tanks. In the fatal case, examination of the tank air showed nothing, but after stirring the tank residue, the air contained 98 mg. of hydrogen sulfide and only traces of arsine. The author (Bauer) concludes that death was caused by inhalation of hydrogen sulfide, probably caused by reduction of the wet ferrous sulfate to ferrous sulfide by oil in the residue, followed by action of the acid on the sulfide. Berger disagrees with Bauer regarding the cause of the presence of the hydrogen sulfide, attributing it to action of the acid on thioarsenite formed from the arsenic trisulfide present in the residue and the sodium carbonate used to clean the tank. In reply, Bauer defends his own interpretation, but both agree in general on preventive measures, including: avoiding the introduction of organic material, removal of as much as possible of the residue, neutralization of the remainder with soda, filling the tank twice with fresh water, and working only with a compressed air helmet or with plenty of fresh air. Tests should be made for arsine, hydrogen sulfide, and nitrous fumes.
- 566 Chronic Hydrogen Sulfide Poisoning in Dogs. P. Moser. Arch. f. exp. Path. u. Pharm. 196, 446-54 (1940).
Hydrogen sulfide was inhaled by dogs for 7 hours daily, first 0.014 mg. per l., and later 0.15 mg. per l. At the lower concentration the dogs showed little change; at the higher concentration there was lachrymation, coughing and coryza. The animals were quieter than usual and displayed a form of nausea, especially on leaving the exposure chamber. No blood changes or loss of weight occurred. Two of the dogs had diarrhea and one died showing pulmonary edema at autopsy. In fatal human cases, almost the only symptom found has been lung edema.
- 567 The Dust Retaining Ability of the Nose in Asbestosis. W. Ehrhardt. Arch. f. Gewerbepath., 10, 309-25 (1940).
The author examined the dust-retaining ability of the nose in 238 asbestos workers, using Lehmann's method. No constant relation between this ability and tendency to asbestosis could be discovered. The dust-retention capacity was below 40% in several men who showed asbestotic lung changes, but many others remained healthy in spite of a similar low capacity. The two men with severe asbestosis had a good dust retaining capacity. The author concludes that this test has no essential value and may be abandoned in pre-employment examinations of asbestos workers.
- 568 Radiation as a Factor in the Sensation of Warmth. F.C. Houghten and others. Heating, Piping & Air Cond., 13, 123-34 (February, 1941).
Tests were made in two identical experimental rooms, one heated with ordinary radiators and the other with warm air. The former was comfortable at an effective temperature about 1° lower than the latter, but the structural heat loss of the room heated by the radiator was 8% higher than the other.

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NOVEMBER 1992
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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 combined research and service institution to protect the health of workers in industry.

Vol. 3.

September, 1941

No. 9.

Stressing the theme, "Defend the Defense Worker!" the sixth annual meeting of Industrial Hygiene Foundation (formerly Air Hygiene Foundation) will be held at Mellon Institute, Pittsburgh, on Wednesday and Thursday, Nov. 12-13. Latest progress in health protection of workers will "pass in review."

The Medical Section includes the first report on findings from the Foundation's study of Sick Absentecism in Industry. This study was started on January 1st of this year with the collaboration of the U.S. Public Health Service and the American Association of Industrial Physicians and Surgeons. A number of representative companies affiliated with the Foundation have been keeping records of their sick absences. The experience of these companies is being analyzed by Dr. W.M. Gafafer, Senior Statistician, U.S. Public Health Service. Andrew Fletcher, Vice President and Treasurer, St. Joseph Lead Company, will make an economic analysis of the data.

Other program highlights:

- The Role of Employee Health in Industrial Relations
- Health Protection for Top Supervisors
- Experimental Work on the Use of Aluminum to Combat Silicosis
- Trends Toward Compensation of Tuberculosis as an Industrial Disease
- Employability of the Physically Handicapped
- Impact of Chemical Priorities on Industry
- A Safe Substitute for Mercury in Certain Industries
- Protection of Workers in Wartime, (ventilation of blackout plants, etc.)
- Aggravation of Old Hazards and Possible New Ones Under Emergency Conditions
- Large X-Ray Film, Paper, Miniature Films -- Which Should be Used for Chest Surveys in Industry?
- Findings from a Major Study of Fatigue
- Findings from Industrial Hygiene Surveys of 30 Munitions Plants

The Foundation's Medical and Engineering Committees, headed by Dr. A. J. Lanza and Prof. Philip Drinker, will report latest developments and trends in industrial health, together with findings from the Foundation's medical and engineering researches. Prof. T. F. Hatch of Penn will report on the Foundation's study of existing exhaust systems. Administration of the Mine Inspection Act will be discussed with questions and answers. The Legal Committee will analyze occupational disease laws, court decisions and pending state and federal legislation.

Further details will be sent to members shortly. Meanwhile, plan to grant this program your best personal priority! --- November 12 and 13.

03118079



- 710 Silicium, Silicates, Silicosis. W. Giese. *Klin. Wehnschr.* 19, 558-560 (1940). (German).

Rabbits were injected intravenously with finely ground silicate dusts: clay, feldspar, sericite. Deposits of the dust were found in the spleen, liver and lymph glands but no increase in fibrous tissue. Opal (amorphous silicic acid) was also injected and the results were large deposits of dust with many giant cells, but no fibrous tissue. Opal is more soluble than quartz; therefore, the conclusion is made that the dissolved silicic acid is not the fibrous-producing substance alone. Quartz is the only substance producing silicosis. Dust taken from markedly silicotic lungs was also injected, and this again produced silicosis. A decrease in the amount of the injected dust could not be found. The author was able to show the formation of a covering, characteristic of asbestosis bodies, by feldspar, sericite and also opal, but in the smallest particles only, in the cellules. He concludes that dissolved silicic acid but not the quartz may produce this covering. Quartz shows no morphologically demonstrable appearance of dissolution; in the tissue the dust deposited in callosities retains its fibrous producing effect.

- 711 Pulmonary Cancer Produced by Asbestos Dust in Experimental Animals. M. Nordmann and A. Sorge. *Zeitschr. f. Krebsforsch.*, 51, 168-182 (1941). (German).
Experimental work with mice inhaling asbestos dust over a period of from 47 to 90 days for 3-1/2 to 5 hours a day produced asbestosis bodies and pronounced foci of diffuse fibrosis after the 20th week. Proliferation of the bronchial epithelium was found, such hyperplasia encroaching on neighboring alveoli. This was followed by a metaplasia to pavement epithelium with cornification, which later seemed to be a transition to malignant neoplasm. The first well-developed carcinoma was found after 240 days. By this time only 10 of the mice had survived and 2 carcinomas were found among them. In the first series, 33 of 50 mice lived longer than 6 weeks; 14 showed abnormal growth of the epithelium, 5 metaplasia and cancer. In the second series, 28 (of 50) lived more than 6 weeks; 16 showed abnormal growth, 5 metaplasia and cornifying cancer.

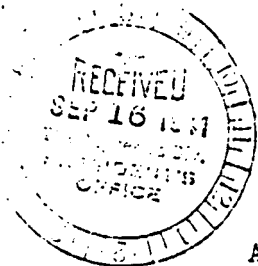
- 712 A Case of Pulmonary Asbestosis Accompanied by Tuberculosis. H. Hannesson. *Tubercle.* 22, 40-44 (February, 1941).

During the period 1933-1939 inclusive, there were 90 known deaths from asbestosis in Great Britain, of which 32 were associated with tuberculosis. This reports the case of 44 year old man who had been an asbestos blower, supplying the material to a cleaning machine. Although supplied with a respirator, he had never worn it. He was thin, had a high temperature, emphysema, and bilateral crepitations over wide areas. Clubbing of the fingers was marked and the sputum contained both asbestosis bodies and tubercle bacilli. The roentgenogram showed "widespread progressive nodular tuberculous infiltration with cavitation in all zones of the right lung fields and in the upper and mid-zones of the left lung fields.... The right dome of the diaphragm was elevated. There was no radiographic evidence of pneumoconiosis." A diagnosis of asbestosis and tuberculosis was made. The patient died within a month of spontaneous pneumothorax. Pulmonary findings showed both to have extensive fibro-caseous tuberculosis with cavitation; macroscopically they were like those of pure tuberculosis. Microscopically there was revealed caseous tuberculosis with many tubercle bacilli and typical reticular fibrosis of asbestosis with thickened pleura. There is a discussion of the diagnosis of the pure and complicated disease.

The Manufacturers Association of Connecticut

HARTFORD ~ ~ ~

GENERAL



September 15, 1941

Bulletin No. 837

ATTENTION: - Industrial Nurses - "Trained Attendants"

A person employed by industrial plants to practice nursing under the direction of a licensed physician is required to be licensed as a registered nurse (R.N.) or as a trained attendant (T.A.). Connecticut licensing requirements are as follows:

A. The graduate nurse having completed a course in an accredited school of nursing may be licensed

1. By examination in Connecticut; or
2. Without examination in Connecticut if her course in nursing equals that set up in this state, and he or she has been licensed by examination in some other state.

B. The trained attendant may apply for licensing

1. By examination if he or she has completed a one year course accredited by the Board of Examiners for Nursing; or
2. Without examination if he or she has completed an accredited course for trained attendant work in another state and is licensed there under a similar title; or
3. BY WAIVER (UNTIL MAY, 1943) IF HE OR SHE (a) HAS HAD THREE YEARS RESIDENCE IN CONNECTICUT, (b) HAS HAD THREE OR MORE YEARS OF EXPERIENCE IN THE CARE OF THE SICK, AND (c) IS A CITIZEN OF THE UNITED STATES OR HAS DECLARED INTENTIONS OF BECOMING A CITIZEN.

Attention is called to the last section, in order that those employed to do industrial nursing who are not now licensed may become properly certified for same. Application blanks or further information may be secured from the Board of Examiners for Nursing, State Office Building, Hartford, Connecticut. We will be glad to answer any questions.

- 710 Silicium, Silicates, Silicosis. W. Giese. *Klin. Wchnschr.* 19, 558-560 (1940). (German).

Rabbits were injected intravenously with finely ground silicate dusts: clay, feldspar, sericite. Deposits of the dust were found in the spleen, liver and lymph glands but no increase in fibrous tissue. Opal (amorphous silicic acid) was also injected and the results were large deposits of dust with many giant cells, but no fibrous tissue. Opal is more soluble than quartz; therefore, the conclusion is made that the dissolved silicic acid is not the fibrous-producing substance alone. Quartz is the only substance producing silicosis. Dust taken from markedly silicotic lungs was also injected, and this again produced silicosis. A decrease in the amount of the injected dust could not be found. The author was able to show the formation of a covering, characteristic of asbestosis bodies, by feldspar, sericite and also opal, but in the smallest particles only, in the cellules. He concludes that dissolved silicic acid but not the quartz may produce this covering. Quartz shows no morphologically demonstrable appearance of dissolution; in the tissue the dust deposited in callosities retains its fibrous producing effect.

- 711 Pulmonary Cancer Produced by Asbestos Dust in Experimental Animals. M. Nordmann and A. Sorge. *Zeitschr. f. Krebsforsch.*, 51, 163-182 (1941). (German).

Experimental work with mice inhaling asbestos dust over a period of from 47 to 90 days for 3-1/2 to 5 hours a day produced asbestosis bodies and pronounced degrees of diffuse fibrosis after the 20th week. Proliferation of the bronchial epithelium was found, such hyperplasia encroaching on neighboring alveoli. This was followed by a metaplasia to pavement epithelium with cornification, which later seemed to be a transition to malignant neoplasm. The first well-developed carcinoma was found after 240 days. By this time only 10 of the mice had survived and 2 carcinomas were found among them. In the first series, 33 of 50 mice lived longer than 6 weeks; 14 showed abnormal growth of the epithelium, 5 metaplasia and cancer. In the second series, 28 (of 50) lived more than 6 weeks; 16 showed abnormal growth, 5 metaplasia and cornifying cancer.

- 712 A Case of Pulmonary Asbestosis Accompanied by Tuberculosis. H. Hannesson. *Tubercle.* 22, 40-44 (February, 1941).

During the period 1933-1939 inclusive, there were 90 known deaths from asbestosis in Great Britain, of which 32 were associated with tuberculosis. This reports the case of 44 year old man who had been an asbestos blower, supplying the material to a cleaning machine. Although supplied with a respirator, he had never worn it. He was thin, had a high temperature, anophysama, and bilateral crepitations over wide areas. Clubbing of the fingers was marked and the sputum contained both asbestosis bodies and tubercle bacilli. The roentgenogram showed "widespread progressive nodular tuberculous infiltration with cavitation in all zones of the right lung fields and in the upper and mid-zones of the left lung fields.... The right dome of the diaphragm was elevated. There was no radiographic evidence of pneumoconiosis." A diagnosis of asbestosis and tuberculosis was made. The patient died within a month of spontaneous pneumothorax. Pulmonary findings showed both to have extensive fibro-caseous tuberculosis with cavitation; macroscopically they were like those of pure tuberculosis. Microscopically there was revealed caseous tuberculosis with many tubercle bacilli and typical reticular fibrosis of asbestosis with thickened pleura. There is a discussion of the diagnosis of the pure and complicated disease.



FOUNDATION FACTS

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HWBB-0010378

Vol. 3

October, 1941.

No. 10

J. E. C. B.

Dear Mr. Member -

Plan to attend the Foundation's
Sixth Annual Meeting at Mellon
Institute, Pittsburgh, Nov. 12 & 13.

Maximum production demands
maximum precautions.

Defend the Defense Worker!

Sincerely,

Industrial Hygiene Foundation



IN THE AIRLINES
November 1992

- 821 Respiratory Infections -- Their Control in Industry. H.M. Hall. Ind.Med., 10, 376-379 (September, 1941).
Respiratory diseases are the first concern of the industrial physician. They may be controlled not only through education, and early detection, through periodic physical examinations, but also through the employment of "routine epidemiologic procedures"; in other words, by encouraging the use of single-service paper cups and utensils, or of thoroughly sanitized glass and tableware, in all eating places patronized by workers, inside as well as outside the plant area, to block the route of travel of respiratory diseases.
- 822 The Industrial Medical Service of the Standard Oil Company of New Jersey and Affiliated Companies. Anonymous. J.A.M.A., 117, 542-543 (August 16, 1941).
The Standard Oil Company of New Jersey has maintained a medical service for its employees all over the world for 23 years. One hundred nine full time physicians are employed, and, in the tropics, operates 32 hospitals with 1041 beds. The service renders care to 186,344 employees. Placement and periodic physical examinations are emphasized; records are kept showing the causes for all disability lasting one or more days. Employees in this country average 6.31 days' disability a year, significantly lower than that given for the country as a whole. Interesting differences are shown for U.S., European, and tropical employee groups. Sanitation and tropical diseases are being investigated, and a special study of 800 persons with hypertension is underway.
- 823 Industrial Health Marches On. C.D. Selby. J.A.M.A., 117, 159-161 (July 19, 1941).
Morbidity statistics from two large companies show that the greater part of lost time is caused by non-industrial accidents and diseases. In one company the ratio of non-industrial to industrial causes is 300 to 1. High on the list of causes of absence are appendicitis, non-occupational injuries, genito-urinary diseases, and influenza. Thus the role of the physician in treating workers falls into the field of preventive medicine and public health.
- 824 Iron Pneumoconiosis in Electric Welders. F. Koelsch. Arch. f. Gewerbepath., 10, 519-528 (1941). (German).
Forty welders who worked with plain steel rods were examined. Eighteen showed no dust deposits in the lungs, 18 showed light deposits, 3 had a more marked effect and one a very definite pneumoconiosis. This last man has been working for seven years. His chest x-ray showed shadows up to the size of a lentil, of moderate density and with sharp borders. There is a tendency in this condition toward bronchitis and irritation of the upper respiratory tract.
- 825 Complicated Intrathoracic Lymph Silicosis, A Compensable Disease According to the German Regulation. J. Hagen. Arch. f. Gewerbepath., 10, 502-518 (1941). (German).
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November 1942

STRAUB, ALBERT

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IN THE AIRS November 1992

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- 828 Effect of Silicic Acid on Phagocytosis. E. Zanetti and L. Piccioli. Mod. del lavoro, 32, 19-28, 39-45 (1941). (Italian).
Admixture of fine silica dust in tiny doses to blood seems to first diminish and then augment phagocytosis. Dissolved in blood, it increases phagocytosis up to 130%. This increase is brought about by stimulation of the leucocytes which increases either the number of phagocytosed bacilli or the number of phagocytosing leucocytes.
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The solution of ashed material is electrolysed directly, without previous separation of the lead. The electrodes can be washed and other metals can be complexed, so that the lead deposit on the cathode is almost entirely free from other substances. The lead can then be determined by the use of dithizone, the polarograph, or by other methods.
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---Remember the Meeting, Nov. 12-13---



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004469

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NOVEMBER 1992

STUART A. WILSON

Mr. E. J. ...
Dr. Walmer
Dr. Hyatt

HWB-00075.1

INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

- MEDICAL
- ENGINEERING
- LEGAL ... decisions and trends

Industrial Health News



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4400 FIFTH AVENUE
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03118157

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EXHIBIT

WH-618

several departures from standard foundry practice which introduce materials not usually encountered in foundries. Thus, in addition to the usual air contaminants characteristic of foundries, there may be water soluble fluorides, hydrofluoric acid, sulphur dioxide, chromic acid, carbon tetrachloride, magnesium oxide, and magnesium metal -- and this list will probably grow as time goes on. Data are presented as to concentrations of fluorides found in the vicinity of several operations which may give rise to these compounds in air. In addition, concentrations of MgO and SO₂ from pouring and "salting out" are reported. Difficulties experienced as a result of these exposures and suggestions for overcoming them are presented.

- 364 The Metabolism of Fluorides. W. Machle and E.J. Largent. Presented at Amer. Ind. Hyg. Assoc. Convention, Cincinnati, O., April, 1942. Mottled enamel, industrial fluorosis, Darrms, Gaddur, and fluorine cachexia are clinical abnormalities caused by the absorption of excessive amounts of fluoride. Moreover, acute fatal poisoning has resulted from the ingestion of fluorides. The existence of these problems of public health and industry has occasioned investigation of the behavior of fluoride in the bodies of human experimental subjects. Balance experiments have established levels of intake and output of fluoride with the subject on a normal diet. The urine was found to be the principal route of excretion. There was increased absorption and retention when fluoride was added to the diet in different amounts (up to 25 times the normal intake). Within rather wide limits a relatively constant proportion of the excess fluoride was stored in the body. Absorption of fluoride in quantities up to 1 mgm. per diem was not associated with storage, but amounts greater than 2 mgm. per diem resulted in storage. The quantities stored were not released and excreted after the intake was reduced to normal levels. The absorption of fluoride is greatly affected by the aqueous solubility of the fluoride salt ingested. Very large amounts of fluoride may be stored in the bones without the appearance of roentgenologic changes, although the bones are abnormal.
- 365 Silicon and Silicon Halogens. Queries & Minor Notes. J. Am. Med. Assoc., 118, 857 (March 7, 1942). In reply to a query concerning industrial poisoning by "silicon gas," several possible forms of exposure are discussed. Air-borne suspensions of the element silicon might be construed as gaseous in the fume liberated on electric furnace treatment. The fine particles of such fumes collect as long cobweb-like streamers in flues, rafters, etc. It has been shown by animal experimentation that this form is inert and incapable of producing tissue changes except phagocytosis. The same was found true of coarser particles 1 to 3 microns in diameter. On the other hand, some of the gaseous compounds of silicon are injurious. Silicon tetrafluoride is a colorless, irritating gas. The tetrachloride has a suffocating odor and is used in the preparation of smoke screens. Several other halogen compounds are known. Of the organic silicates that might be inhaled as vapors, ethyl silicate has been found to be highly toxic on injection into animals.
- 366 Bronchiogenic Carcinoma in Association with Pulmonary Asbestosis. Report of Two Cases. H.H. Holleb and A. Angrist. Am. J. Pathology. 18, 123-125 (January, 1942). Two cases are reported in which men between 40 and 50 were found to have both asbestosis and a primary carcinoma of the lungs. A table listing 10 reported cases, collected from the literature, in which both diseases occurred, is presented. The authors conclude that the data from 2 cases, with some reports in the literature in doubt, are insufficient for a statistical evaluation, and that caution should be used in ascribing carcinoma to asbestosis. In one case the carcinoma was in a region least affected by asbestosis, but where carcinomas often occur.

03118178

INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

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Industrial Health News



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03118197



- 833 Physiological Studies Pertaining to Deep Sea Diving and Aviation, Especially in Relation to the Fat Content and Composition of the Body. A.R. Behnke, Jr., Bull. N.Y. Acad. Med., 18, 561 (September, 1942).
An outline is presented of the physiologic factors that enable divers and aviators to work in a pressure environment of 16 atmospheres or in a rarefied medium of 0.20 of an atmosphere respectively. Of especial interest are the quantitative studies pertaining to the absorption or elimination of gaseous nitrogen which in turn have permitted estimates of fat content and composition of the body of the healthy, adult male. On the basis of determinations of specific gravity, values near 1.099 indicate no excess fat and the body contains only about 10 per cent by weight of lipid matter that is regarded as essential. A reading for specific gravity of 1.080 is indicative of approximately 10 per cent excess fat. A figure of 1.062 indicates that there is 20 per cent excess fat, while a value of 1.036 denotes that 33.3 per cent of the body weight consists of excess fat.
- 834 Chrysotile Asbestos as an Indicator of Subtle Differences in Animal Tissues. L.U. Gardner. Am. Rev. of Tuberc., 45, 762 (June, 1942).
In the course of experiments upon the action of asbestos fibres upon living tissue it has been observed that this irritant is not like finely divided quartz, which provokes specific cellular responses in any organ of all species of animals investigated (tadpoles, fish, chickens, mice, rats, guinea pigs, rabbits, cats, dogs, monkeys and man). Asbestos fibres are acted upon to produce the "bodies," described by Cooke, only in the lungs of a few species like man, guinea pigs and white mice. They do not form in other organs of these species nor have they been observed in the lungs of white rats or dogs; in rabbits' and cats' lungs there are occasional atypical ones. Fibrous tissue reaction is also limited to the lungs, but none at all has developed in those of mice and dogs. The subtle differences in tissues responsible for such variation have not been identified but they may be of significance to the general problem of most resistance to other irritants like tubercle bacilli. -- Author's summary.
- 835 Industrial Hygiene Regulations (Regulations 1-3) - September 18, 1941. Colorado State Board of Health Bull., 5, 4-6 (November, 1941).
No process, material or method of working, known to have an adverse effect on health, shall be used unless arrangements have been made to maintain the occupational environment in such a manner that injury to health will not result.
Exposure to dust, fumes, etc. shall be kept below concentration limits, as established in a table of suggested maximum permissible concentrations. This table includes 8 dusts, among them cement (15 million particle per cubic foot), organic dust (50 million), talc (15 million), 45 gases and vapors (benzol 100 p.p.m., toluol 100 p.p.m., methanol 100 p.p.m.), 9 metallic dusts and fumes. There is added a table of lower explosive limits of 46 inflammable vapors.
- 836 Pneumoconiosis of Coal Workers. Anonymous. Lancet, 6197, 689 (June 6, 1942).
This is a brief article discussing the Medical Research Council's report on chronic pulmonary disease in South Wales coal miners. See Abstract No.496, June, 1942 Digest.
- 837 Dust Diseases in Russia. Anonymous. Lancet, 6177, 85 (January 17, 1942).
A short summary of status of dust diseases in Russia, in particular for the Donets Coal Mining industry, is given. The work in the Donets' area has been wiped out by the war.
- 838 Firedamp. Recent Research on the Ignition of Firedamp and on its Movement in Air. H.F. Coward. Trans. Inst. Min. Engrs., 101, 229 (April, 1942).
Recently there have been gas ignitions apparently by sheathed explosives. An investigation has shown that the firedamp contains from five to nine per cent

03118206

MMBB-00007560

NOVEMBER 1942

STANDARD

1942

INDUSTRIAL HYGIENE
November 1992

Industrial Hygiene Digest
(Ind. Hygiene Foundation)
(Initial & Forward)

T. Lyle Hazlett, M.D.

~~D. C. Barnes~~
E. C. Barnes

~~F. M. Castro, M.D.~~

H. W. Speicher

Miss Bell (Review)

T. Lyle Hazlett, M.D. (file)

03118252

INDUSTRIAL

DIGEST

NWBB-0007612

Literature Abstracts

- MEDICAL
- ENGINEERING
- LEGAL --- decisions and trends

Industrial Health News



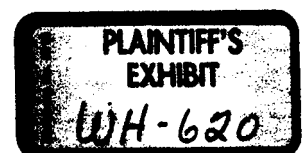
Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

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03118253



Methods of Detection and Determination

- 480 Electron Microscopy on Asbestos Dust and on Lungs in Asbestosis. J. Kuehn. Arch.f.Gewerbepath., 10, 473 (April 16, 1942). (German).
The author reports some microscopic studies of asbestos and of lungs of asbestosis victims for the purpose of determining what variety of asbestos is responsible for asbestosis. Serpentine (chrysotile) asbestos is the form generally used, and it was supposed that it would be found in lungs with asbestosis. Sundius and Bygden disclosed, however, that only hornblende asbestosis is demonstrable in the lungs, suggesting that serpentine dust is decomposed in the tissues. The author used the electron microscope to study the form, size and structure of asbestos, both in free dust and as found in the lungs. It is usually easy to distinguish the two forms under the electron microscope, the serpentine variety being generally curved, clear and transparent, and hornblende rigid and greater in diameter. However, examination of the particles from 3 lungs did not indicate clearly what variety was present. The photomicroscopic determination of the refraction exponent, suggested by Sundius and Bygden, was then employed. That method revealed that the large asbestos needles isolated from the lungs were of the hornblende type. It is concluded that serpentine asbestos is decomposed in the lungs and is the essential cause of fibrosis. When asbestosis lungs are macerated with nitric acid and hydrogen peroxide, both free asbestos needles and asbestosis bodies are obtained. Hornblende asbestos shows no signs of decomposition by the organism, either in the free needles or on the asbestosis bodies.
- 481 Polarigraphic Determination of Lead in Bones. E. Weinig. Z.Physiol. Chem., 273, 158-162 (1942). (German).
The polarigraphic method, which is fully described, has the advantages of use of smaller amounts of material, simpler preliminary treatment of the bone ash, and the automatic action of the polarigraph.
- 482 Biochemistry of Silicic Acid. IX. Isolation and Identification of Minerals in Lung Residues and Air-Borne Dusts from Coal Mines. G. Nagelschmidt and E.J. King. Biochem. J., 35, 152-158 (1941).
The isolation of mineral residues from lungs by digestion with hydrogen peroxide, and removal of carbon from these residues and from air-borne dusts by heating to 380°C are described. The minerals in the residues are then identified by x-ray diffraction methods. Data are presented for the constituents present in a lung residue and a mine dust; the main components are quartz and a member of each of the mica and kaolin groups.
- 483 A New Method for the Determination of Free Silica in Industrial Dusts. A. Salazar and L. Silverman. J.Ind.Hyg. & Tox., 25, 139-148 (April, 1943).
The authors describe a new method for free silica determination, in which the dust sample is first passed directly through a controlled flame, fusing practically all particles except those of silica. The fused sample is then collected by an electrostatic precipitator and removed to a microscope slide for analysis. The method can be applied to air-borne or rafter dust samples. The amount of free silica is determined by a direct count of the fused and unfused particles. Possible interfering materials are refractories and those which decrepitate at high temperatures. These interferences are not very common and when present may

03118279

NOVEMBER 1942

STRAUBER, A. M. S.

Industrial Hygiene Digest
(Ind. Hygiene Foundation)
(Initial & Forward)

T. Lyle Hazlett, M.D.

E. C. Barnes-

F. M. Catto, M.D.

H. W. Sticher

Miss Bell (Review)

T. Lyle Hazlett, M.D. (file)

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DIGEST

NW88-0007651

Literature Abstracts

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Industrial Health News



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Industrial Health Hazards and Their Effects

H468-0007661

- 662 Epidemiologic Aspects of Anthrax in Massachusetts. I.R. Tabershaw and G.E. Morris. *New England J. Med.*, 228, 92-93 (January 21, 1943).
It appears to be impossible to destroy anthrax at its source. Sporadic cases of native origin will always occur. It is extremely difficult to disinfect hides and skins. The anthrax spore undoubtedly survives the first two or three processes in tanning -- that is, washing, fleshing and liming -- but probably can not survive the entire process. No significant improvement in the method of killing anthrax spores has been evolved in the last twenty years; and even if it were possible to disinfect hides and skins, it is doubtful whether this would be warranted, especially at the present time. Therefore the method of control must be chiefly one of education and sanitary precaution until the hides have passed through the tanning process. The more severe cases and the most frequent deaths have occurred in truckmen and longshoremen, who are not aware of the possibility of this infection, and who neglect to report for treatment early. The prompt diagnosis and treatment in tannery workers seem in large measure responsible for the lessened mortality and morbidity among them. Physicians treating an cutaneous infection in a tannery worker or truckman should bear in mind the possibility of anthrax and should culture material from the lesion. In order to keep this disease in check effectively, an educational program must be directed toward truckmen, tannery workers, longshoremen and all others who handle raw hides, from their arrival in this country to their conversion into finished leather. -- Authors' summary.
- 663 Tripoli and Silicosis. C.P. McCord and S.F. Meek and G.C. Harrold. *Ind. Med.*, 12, 373-377 (June, 1943).
The mineral tripoli contains approximately 98% free silica, and is usually in a finely divided state. Proliferative reactions may be produced by all varieties of true tripoli. However, cases of human silicosis from tripoli are rare. The authors have sought the causes of this behavior and have come to the following conclusions: (1) the high porosity of tripoli gives a large surface area per unit of mass; (2) this high specific surface favors adsorption phenomena, including presence of hygroscopic films; (3) tripoli has an unusual degree of dipolar electric attraction, causing many particles to cohere; and (4) an additional artificial factor is that tripoli must be waterproofed before use as a foundry parting to prevent the hygroscopic films. The waterproofing compounds are physiologically inert as their melting points are well above body temperature and they are not easily removed. The extent of physiologic inertness appears to depend on the efficacy of the coating process. Not all particles below 5 microns are coated.
- 664 The Dust Hazard in Tremolite Talc Mining, Including Roentgenological Findings in Talc Workers. W. Siegal, A.R. Smith and L. Greenburg. *Am. J. Roentgenol.*, 49, 11-29 (February, 1943).
This is a report on a study of atmospheric contamination in the mining and milling of tremolite talc in Northern New York State. It is notable that although the free silica content in all cases was found to be less than one per cent, an incidence of 14.5 per cent of advanced fibrosis was found (32 out of 221 exposed). All cases occurred among men exposed to tremolite talc for 10 years or longer. The authors report that the pathology associated with this exposure suggests a

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- 715 Disinfection with Moving Hot Air. H. Kliewe. Ztschr. f. Hyg. u. Infektionskr. 123, 727-733 (May, 1942). (German).
Cultures of five species of non-sporing and two of sporogenous bacteria were dried on filter-paper, and these were placed in linen bags which were distributed among packages of clothing in a hot air sterilizer. Cultivation of these objects after the maintenance of different temperatures for various periods showed that in order to be sure of destroying non-sporing bacteria it is advisable to use a temperature of 100°-110°C. for 1½ hours; the temperature necessary for destroying spores (130°C. sufficed for those tested) is such as would damage fabrics. Hot air sterilization is therefore unsuitable for clothing if total disinfection is required, but the usual object is to destroy the agents of infectious diseases, which are non-sporing bacteria and viruses. As might be expected discontinuous heating for short periods on successive days was no more effective than continuous heating for the same total period.
- 716 Heat and Ventilation in Air Raid Shelters. W.J. McGuinness. Heat., Pip., & Air Cond., 15, 193-196 (April, 1943).
This article gives the requirements for heating and ventilating air raid shelters. The various types of bombproof and splinterproof shelters are shown. The bombproof type is too expensive to construct, hence the most common type is the splinterproof. Shelter size is fixed by number of occupants. No more than 50 people should be placed in the same room. Space and volume requirements for overground and underground shelters are given in a table. Heat requirements are low because of the number of occupants, however, heat losses in England are different from ours because of climatic conditions. On this basis an underground shelter is preferable for American climatic conditions because of the lower ground temperatures which aid in heat loss maintenance. Ventilation requirements are given and the various types of systems employed are illustrated. Mechanical systems with filtration are recommended.
- 717 Wartime Operations Emphasize Industrial Hygiene Problems of Asbestos Industry. Illinois Labor Bull., 3, 10, 11, 22 (February 28, 1943).
The control of asbestosis must be an engineering control because there are no medical means to detect the disease until much harm has been done. Engineering control consists of two important principles: (1) Adequate exhaust, (2) Good housekeeping. By experiment it has been estimated that if the air contains less than 5,000,000 particles of asbestos per cubic foot there is small chance of the workers developing asbestosis. The article lists the procedures in the manufacture of rigid and of textile asbestos products and shows that further protective measures are still needed in most plants.

Industrial Medical Practice

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- 718 Industrial Health - Its War and Postwar Significance. C.O. Sappington. Ind. Med., 12, 361-364 (June, 1943).
The paper considers war and post war problems of industrial health, which are classified into those of medical administration, those of public health in industry and in the community and those relating to industrial hygiene and sanitation in the plant. Brief but rather comprehensive discussions of the following problems are presented: Venereal disease control; Nutrition; Immunization; Preplacement and periodic examinations; Women in Industry; Dermatoses; Absenteeism;