

Air Hygiene Foundation of America, Inc.
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Pittsburgh, Pa.
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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:



References to Recent Literature - 2.

SCHEDULE 14D--GAS MASKS.

Type C.-- Ammonia Gas Masks.

8. Acme Ammonia Gas Mask. Approval No. 1420, issued to Acme Protection Equipment Co., Inc., March 25, 1939.

SCHEDULE 19A--SUPPLIED-AIR RESPIRATORS.

Type B.-- Special Hose Masks without Blowers.

1. Davis Air Line Mask. Approval No. 1913, issued to Davis Emergency Equipment Co., Inc., March 10, 1939.

Type CE - Abrasive Blasting Helmets, Hoods, or Masks.

4. Willson No. 31 Abrasive Blasting Helmet. Approval No. 1914 issued to Willson Products, Inc., March 10, 1939.
5. Pangborn Blast Helmet, Type DF-2. Approval No. 1915, issued to Pangborn Corporation, March 23, 1939.

SCHEDULE 21 -- MECHANICAL FILTER RESPIRATORS.

Lead dust --

5. McDonald Dustfoe Respirator for Lead Dust. Approval No. 2126, issued to B. F. McDonald Co., March 10, 1939.
6. Dustfoe Respirator for Lead Dust. Extension of approval No. 2126, issued to Mine Safety Appliances Co., March 10, 1939.

Type A and Lead Dust.

6. Willson Respirator No. 752L. Approval No. 2127, issued to Willson Products, Inc., March 10, 1939.

- 345 MEDICAL CONTROL OF SILICOSIS AND TUBERCULO-SILICOSIS. L.U. Gardner. Surg. Gynecol. & Obstet., 68, 579-82 (February 15, 1939).

Disability does not necessarily parallel anatomic changes in silicotics. It can only be judged by observation and physical examination of the man. Four categories of silicotic lesions are described carefully: (1) beginning silicosis which exhibits some linear exaggeration on the x-ray, (2) presence of nodules, (3) presence of massive or conglomerate fibrosis, and (4) tuberculous infection, which is quite common. Silica inhalation is thought to reactivate old healed tuberculous foci, and Dr. Gardner has found it possible in animal experiments to reactivate any focus still containing live tubercle bacilli. In silicotics diagnosis of tuberculosis is often difficult because of the chronicity of the infection. By the time the tuberculosis is discovered, it usually runs a quick course and the victim dies within 6 to 12 months. Since no effective kind of treatment has been found, emphasis must be laid on prevention.

- 346 HEMATOGENOUS TUBERCULOSIS AND SILICOSIS. J. Gershon-Cohan and L. Cohen. J.Am. Med. Assoc., 112, 602-5 (February 18, 1939).

The article deals with diffuse fibrosis, and discrete miliary or acino nodulary forms of pulmonary tuberculosis. Characteristic of these is a tendency either to resolution or fibrosis. Fatigue is the most prominent symptom and cases may go on without suggestive symptoms for years. Many cases heal without symptoms. The lesions are shown on x-ray to consist of fibrous tissue formation leading to early calcification. In considering silicosis the authors believe that the progress of silicosis is affected by subsequent infections of which tuberculosis is an important factor. They quote South African investigators, who, in describing tuberculo-silicosis, indicate that it is a disease which is characteristic neither of pure silicosis nor of pure tuberculosis. The authors believe that silicosis is activated to a tuberculo-silicosis by hematogenous tuberculosis.

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November 1993

STANFORD UNIVERSITY

References to Recent Literature - 3.

- 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.

WBB-0009816

NOVEMBER 1939
SARANAC LABORATORY

References to Recent Literature - 4.

- 350 TUBERCULOSIS CONTROL IN INDUSTRY. W.A. Sawyer. Am. Rev. Tuberc. 39, 456-78, (April 1939).
The results of an effort to control and reduce the amount of tuberculosis in a group of industrial workers are presented. In 1921, the first roentgenological survey of the employees showed 2.3% were positive for clinical tuberculosis. This had been reduced to 0.47% in 1938, which was lower than the rate for the city in which the plant was located. The reduction in incidence was made possible by very close supervision of patients, together with intensive education of all employees.
- 351 LOBAR PNEUMONIA IN ANTHRACITE MINERS: MORTALITY AND COMPLICATION STATISTICS. A.C. Cohen and Robert Charr. J.Ind.Hyg. & Toxicol., 21, 124-5, (April 1939). The authors say that practically every anthracite miner has bronchitis. Those who have been miners for 15 years or longer usually develop nodular or massive anthracosilicotic consolidation in the lungs. Pulmonary arteriosclerosis, lymphatic fibrosis, emphysema and myocardial degeneration are common in far advanced anthracosilicosis. The authors studied the records of 11 hospitals in the anthracite region of Pennsylvania for mortality statistics among miners as compared with non-miners. Of 688 miners with lobar pneumonia 31% died, as compared with 40% among 484 non-miners. The variation was greater in younger men receiving initial exposures to the mine dusts. It was also found that the incidence of delayed resolution was slightly higher among the mining group. An outstanding pathologic finding among the miners was that, unlike tuberculosis, lobar pneumonia affected principally the non-anthracosilicotic areas of the lung.
- 352 MINERS' DYSPNEA. J.N.Peterson, J.M.Peterson and C.W.Startup. Lancet, pp.147-9 (January 21, 1939). (British).
Thorough medical examinations were made of 36 coal miners in South Wales who were incapacitated by reason of respiratory disability. The degree of dyspnea was measured by work on a bicycle ergometer and the vital capacity was taken on a spirometer. Radiography divided the men into three groups: (1) those with no evidence of gross lesion; (2) those with "cricket ball" type of shadows; and (3) those with definite mottling and reticulation. The average vital capacity varied from 1667 cc. for the first group, to 1263 cc. for the second group and 1051 cc. for the third. The degree of dyspnea was found to be closely related to the vital capacity per sq. meter of body surface, and to be a more reliable guide than the radiogram to the respiratory incapacity. The more dyspneic men gave lower figures than did the less dyspneic for acidity of the urine and apparently the dyspnea is accompanied by a change in acid-base equilibrium.
- 353 SILICOSIS AND LEAD POISONING AMONG POTTERY WORKERS. R.H.Flinn, W.C.Dreessen, T.I.Edwards, E.C.Riley, J.J.Bloomfield, R.R. Sayers, J.F. Cadden and S.C. Rothman. U.S. Public Health Bulletin No. 244, 178 pp. (February 1939). Obtainable from Superintendent of Documents, Washington, D.C. for 30 cents, cash. This bulletin reports the results of an extensive survey of the pottery industry in West Virginia. The types of plants visited were those manufacturing tableware, sanitary ware, electrical porcelain and wall and floor tiles. The bulletin is complete in its coverage of the subject and includes the descriptions of all processes, dust counts in each operation, analyses of all dusts for free silica, and methods of dust control now in use. The medical section of the bulletin is also complete. It includes a description of the methods followed, x-ray reproductions, and the incidence of lead poisoning and silicosis among the various occupations involved. In occupations in which the dust concentrations exceeded 4 million particles per cubic foot, the proportion of workers

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References to Recent Literature - 5.

found to have silicosis increased with increasing dust concentration and increasing length of employment. Nine of the twelve workers exposed more than 30 years to more than 16 million particles per cu. ft., for instance, had silicosis. Approximately three-fourths of the workers employed more than 30 years in the clay shop were found to have silicosis and about half of the slip house workers employed more than 30 years were found to have the disease. The incidence of lead poisoning was found to be remarkably low. This is due to the fact that "fritted" glazes are now used; the lead in the fritted glaze is in the form of insoluble lead silicate and is much less hazardous than that in earlier glazes. Only one case of lead poisoning was found during the survey. A list of recommendations for engineers and physicians and an annotated bibliography of 79 items are included.

- 354 PRELIMINARY REPORT OF A STUDY IN THE BRICK AND TILE INDUSTRY IN WEST VIRGINIA. West Virginia State Health Department, Division of Industrial Hygiene, Charleston. 28 pp. (1939).
This report presents the results of a survey which included dust counts, petrographic analyses of the materials, and a medical study involving x-ray examination of most of the men. The results indicate that the clays and shales used in the making of brick and tile can produce lung changes that are demonstrable by x-ray. The free silica content of the dusts varied from 3% to 10% and the dust should not be considered entirely innocuous insofar as its ability to produce lung changes is concerned. It was found that an unnecessary amount of dust was generated in the manufacture of the brick and tile. Where control measures had been adopted, it was found that the processes could be carried out without the production of excessive dust.
- 355 EVALUATION OF THE INDUSTRIAL HYGIENE PROBLEMS OF NEW HAMPSHIRE. F.J.Vintinner. State Board of Health, Division of Chemistry and Sanitation, Concord. (1938).
This report parallels those made recently in other states with the object of showing what the occupational disease problem is. A great deal of detail is given in sixty tables showing the type, numbers and distribution of exposures to the various hazards.
- 356 FIRST ANNUAL CONGRESS ON INDUSTRIAL HEALTH, AMERICAN MEDICAL ASSOCIATION. J.Am. Med. Assoc. 112, 445-51, 641-6, 739-46, (February 4, 11, 18, 1939).
The first annual congress on Industrial Health, held in Chicago, January 9-10, 1939, brought forth some interesting discussions by recognized authorities in this field. Several separate reports describe the relationships between the industrial physician and employer, employee, the private practitioner and the insurance company. A program for committees on industrial health in state medical societies is described. Four papers cover the activities of the various governmental agencies along industrial hygiene lines together with the work of independent organizations in this field. The problem of the extension of medical service to small companies is discussed and an example of its application is reported. Reprints in an abstract form are obtainable from the J. Am. Med. Assoc. 535 North Dearborn Street, Chicago.
- 357 X-RAY DIFFRACTION ANALYSIS AS APPLIED IN PNEUMOCONIOSIS. H.C. Sweany and R. Klaas. J.Am.Med.Assoc., 112, 610-4 (February 18, 1939).
This paper reports further details of the authors' work on the detection of quartz in human lung tissue by the x-ray diffraction method (see Abstract 879, 1938). Finely ground dried lung tissue was used for the analysis and thin samples were prepared by packing the material into disks 0.2 to 0.3 mm. thick,

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References to Recent Literature - 6.

which prevented the masking of the patterns of the inorganic constituents by the large amount of organic material present. Case reports of 32 subjects are given, the subjects being divided into three groups: (1) controls with no dust exposure, (2) silicotics and (3) borderline cases. X-ray diffraction methods showed quartz was absent in the first group, was present in all cases of the second group and was present in about half of the cases of the third group. Chemical analysis showed that silica was present in all the cases. Presumably the silica present, as shown by chemical analysis, is amorphous silicon dioxide or is all in the form of silicates. The authors state that they hope to be able to determine quantitatively, or at least semi-quantitatively, the concentration of quartz in dried lung tissue. The development of the method along these lines would be a noteworthy advancement in this field.

- 358 A PHOTOMETRIC METHOD FOR MAKING DUST DETERMINATIONS. J.F. Cadden and E.T. Roetman, Bureau of Ind. Hygiene, State Department of Health, Charleston, West Virginia, Bulletin. 7 pp. (February 1939). Further information can be obtained from the above address.
A description is given of a photometric method for determining the amount of dust in a suspension. The apparatus consists of a constant light source, a lightproof chamber for the container holding the suspension, a photoelectric cell (in the light-proof chamber) and a meter outside. The suspension may be impinger collected samples, the washings from the electric precipitator or from other apparatus for collecting dust. The readings on the cell may be calculated in particles per cc. of suspension or in mg. per cc. It is stated that calibrations must be made for each dust or type of dust from particular locations. The method is rapid, accurate and consistent as shown by tabulations of results included in the bulletin.
- 359 THE SHATTERING OF DUST PARTICLES BY THE IMPINGER. D.G. Beadle. J. Ind. Hyg. & Toxicol., 21, 109-20 (April 1939).
Experiments by South African investigators appear to prove conclusively that both the Owens dust counter and the konimeter shatter quartz particles on impingement and that this shattering gives rise to misleading results both as to the number of dust particles present and also as to the size distribution of the particles. The dusts collected by these two instruments showed more very fine particles than the thermal precipitator, used as the control instrument. No experiments were made with the Greenburg-Smith impinger but the conclusion is made that this instrument will also shatter particles as its velocity of impingement is greater than either of the other two instruments. No conclusions are drawn as to the implications which may result from particle shattering by these instruments. (See also Abstract 170, March 1939).
- 360 A NOTE ON THE SHATTERING OF DUST PARTICLES IN THE IMPINGER. H.H. Watson. J. Ind. Hyg. & Toxicol., 21, 121-3 (April 1939).
The author, who is from an experiment station in Wiltshire, England, conducted an experiment using the Greenburg-Smith impinger and the thermal precipitator in collecting samples from an artificial dust cloud. He found a light-field count with the impinger sample to be much less than the thermal precipitator count (about one-half in this case) which he attributed to the inability to see particles smaller than 0.8 micron with light-field technic. Using dark-field technic, however, on the same sample he found the impinger count to be considerably above the thermal precipitator count. This he attributed to the shattering of the particles by the impinger and the fact that they could be seen under dark-field conditions.

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NOVEMBER 1939
J. IND. HYG. & TOXICOL.

References To Recent Literature - 7.

- 361 TIME LOST BY INDUSTRIAL WORKERS FROM DISABLING SICKNESS AND ACCIDENTS DURING THE EARLY DAYS OF DISABILITY. W.M.Gafafer. Am. J. Pub. Health, 29, 359-70 (April 1939).
The majority of sick benefit organizations, whose records furnish most of the available time-lost data, subscribe to a 7 day waiting period before payments begin and thus the records of these organizations contain no information on cases of less than 8 calendar days' duration. An opportunity to study shorter periods of incapacity presented itself when the requisite data were made available by the records of one day absences or longer among the employees of a public utility company. Of the total days of disability from various causes, the following percentages occurred during the first 7 days of the disability; respiratory diseases, males 67%, females 62%; digestive diseases, 42% and 48%; non-industrial accidents, 33% and 36%; nonrespiratory-nondigestive diseases, 26% and 44%; and industrial accidents, 21% and 11%. The corresponding percentages for all causes are 45% for the males and 52% for the females. Charts and data are presented which make possible the determination of the percentages of total days lost during any interval within the first 3 weeks after onset of disability.
- 362 THE REHABILITATION OF THE INJURED WORKMAN. D. Stewart. Lancet, pp. 129-32 (January 21, 1939). (British).
The cost of compensation to industry and to the community is great and greater percentages of this cost should be directed to more useful channels. Amendments to the British Compensation Act are being considered that will facilitate the procurement of compensation funds by the injured, and which will also pay more attention to rehabilitation and to treatment of the injured workmen.
- 363 THE NERVOUS ELEMENT IN SICKNESS. J.R.Lumb. Industr. Welfare, 21, 47-50 (February 1939). (British).
Many cases of sickness are due to nervous disfunction, such as those caused by fear of loss of employment, special stresses connected with certain of the heavier trades, and troubles at home. Efficient supervisors can, by their attitude and individual dealings, make or mar the potential neurotic under them. They should be able to size up the personalities of their subordinates and not handle each in the same manner.
- 364 SIGNIFICANCE OF CHEMICAL FINDINGS IN THE PATHOLOGY OF PNEUMOCONIOSIS. A. Policard. Arch. des. maladies prof., 1, 473-87 (December 1938). (French).
The writer discusses the silicosis problem with special regard to the silica contents of various organs of workers in dusty trades as well as of persons not exposed to dust. There are many tables in which data are assembled from the literature and some new analyses. The author stresses the importance of applying a combination of histological and mineralogical methods in studying the lungs.
- 365 BIOCHEMISTRY OF SILICIC ACID. VII. DEPRESSION OF THE APPARENT SOLUBILITY OF SILICA IN BODY FLUIDS. E.J.King and W. Roman. Biochem. J., 32, 2283-7 (1938).
The solubilities, in ascitic fluid, of silica and various silicate dusts, separately and in combination, were determined. The solubilities range from 7 mg. silica per 100 cc. for pure quartz to 0.1 mg. per 100 cc. for kaolin. The solubility of quartz is depressed in the presence of shale and other silicate minerals, and silica is removed from solution in the presence of these silicates.

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November 1992

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References to Recent Literature - 3.

- 366 SILICOSIS OF PORCELAIN WORKERS. de Leobardy. Arch. de l'Inst. med. leg. Lille, (1938). abstr. Med. du travail, 11, 37-8 (1939). (French).
The author reports that silicosis among porcelain workers was very widespread in Limoges from 1840 to 1910, and was recognized by physicians as a lung fibrosis distinguished from tuberculosis. The incidence fell after improvement of air conditions.
- 367 EMERY DUST AND THE LUNGS. J.Am.Med.Assoc. (Queries and minor notes), 112, 571 (February 11, 1939).
The inquirer has a patient who is believed to have acquired pneumoconiosis by prolonged inhalation of emery dust. As the reply states, natural emery is seldom used now in abrasive wheels and has been replaced largely by carborundum. Animal experiments with these substances indicate that the characteristic lesion produced is one of inertness associated with typical foreign body reactions, in contrast to the proliferative reaction from silica dust.
- 368 HYGIENE IN THE HEMP INDUSTRY. R. Tecco and C. Bessero. Rass. Med. Industr. 9, 242-57 (1938). (Italian).
Respiratory diseases are common among the workers and an examination of 450 of them showed that 70% suffered from diffuse bronchial catarrh or asthma or tuberculosis. In some workshops there is considerable dust, and exhaust ventilation with well enclosed machinery is necessary. Part of the irritant action of the dusts is due to the soft flexible fibres, but the chief action is due to mineral particles derived from the agricultural operation in gathering the hemp. Another element in the problem is the maintenance of high temperatures and high humidities in the workshops which results in modifications of the organic functions of the workers. It was learned that the excessive moisture and heat conditions as now maintained are not entirely essential for the product and that lower, more temperate conditions will suffice.
- 369 INVESTIGATION OF PNEUMOCONIOS IN A FACTORY MAKING TILES AND GLAZED STOVES. E. Saupe and H. Bredau. Arbeitsschutz, pp. 36-41 (1939). (German).
The authors present a survey of a clinical investigation of 70 pressers, 52 potters and 37 other exposed workers. It is interesting that the nasal filtering efficiency of the men is low, as a rule, and that there is no marked parallelism between this efficiency and injury to the lungs. They discuss the roentgenologic aspects of the examinations; coarse fibrosis is not seen, nor the "snowstorm" effect, and the silicotic foci are not sharp.
- 370 CONSIDERATIONS AND REFLECTIONS ON THE SOURCES OF OCCUPATIONAL DISEASES. L. Carozzi. Med. du Travail, 10, 275-96 (1938). (French).
The article is an interesting description of the author's conception of occupational diseases of historic and prehistoric times. One difficulty in understanding the subject lies in the fact that the old writers used but one term for different substances and the meaning is not always clear. The author believes that in neolithic times, 14,000 years ago, there must have been silicosis, probably contracted in locations where tools were made.
- 371 INSTITUTE OF INDUSTRIAL MEDICINE OF THE MEDICAL SCHOOL OF LYON. Etienne-Martin. Med. du Travail, 11, 37-78 (1939). (French).
The institute was founded in 1930 to teach industrial hygiene subjects to undergraduates and the first degrees were awarded in 1933. The number of students has increased gradually and in 1937-8, eleven degrees were granted. Lectures on all phases of industrial medicine are given.

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NOVEMBER 1939

INDUSTRIAL MEDICINE

References to Recent Literature - 9.

- 372 NOTIFICATION OF COMPRESSED AIR ILLNESS. Factory Department, Home Office, London Form 1986 (November 1938). (British).
Compressed air illness has been recently added to the list of notifiable diseases in Great Britain. The object of the notification is to afford Factory Inspectors a clue to dangerous conditions over which they can exercise control. In a description of the symptoms and physiological effects, it is pointed out that young men of 18 to 26 are less liable to the ill-effects than are older men and also that those with superfluous fat are less immune from the effects. Compression up to about 3 atmospheres above normal can be endured without trouble. The risk arises in the return to normal atmospheres and it is necessary for decompression to be effected much more slowly than compression.
- 373 INDUSTRIAL DISEASES AND INTOXICATIONS IN DIFFERENT COUNTRIES. A. Feil. Presse med., p. 168 (February 1, 1939). (French).
The author has collected material on industrial disease statistics from European countries and the United States (New York only). In Germany in 1935 some 8601 cases were reported but only 1125 were compensated. Special note is made that in France an expert's testimony is not necessary in compensation cases--only that of the patient's physician. The author suggests that compensation would be better controlled in France if the subject were examined more carefully by an expert or commission of medical experts.
- 374 DUST CONCENTRATION IN FOUNDRIES. Theodore Hatch, C.E. Williams and B.G. Dolin. Industrial Bulletin, N.Y. State Dept. of Labor, 18, 89-95, (February 1939).
The present study was undertaken to arrive at a standard of permissible dustiness for the foundry industry. Foundries were grouped into three classes with respect to housekeeping and other working conditions: (1) good, (2) fair and (3) poor. Median dust concentrations for the three classes were: (1) 15 million particles or less per cubic foot, (2) 30 million, and (3) over 30 million. An analysis of the dust counts and the various operations suggests that exposures can reasonably be kept within the limits of the first group. Conditions meeting these requirements are being secured at the present time by practical means of dust control now at the disposal of all foundry operators. Based on medical studies of silicosis in the foundry industry, it appears reasonable to conclude that an average plant concentration of 15 million particles per cubic foot will prevent the occurrence of the disease.
- 375 DUST COLLECTING SYSTEMS. Concrete, Cem. Mill Ed. 47, 147-9 (April 1939).
A very good review of the principles of dust control and collection is presented, most of which has been taken from Bulletin No. 21, Part 2 of the National Silicosis Conference. The summary states that it is unwise to attempt too wide an application of any particular type of final dust separator, whether it be cloth arrester, a wet collector or a precipitator. The manufacturer can generally define the uses and limitations of each particular type of equipment. The purchaser should demand of the manufacturer a statement as to the probable performance of the system under definite conditions and should receive detailed instructions as to its operation, upkeep and repair.
- 376 A CASE HISTORY OF DUST. J.B. Lamenzo. Occup. Hazards & Safety, 1, No. 7, 19-21 (April 1939).
A description is given of an installation of exhaust equipment for the shakeout department of a foundry, which is called the greatest dust producing operation of that industry. The exhaust hood drawing 25,000 cu. ft. of air per minute is built in three sections over the long pit below the shakeout, also built in three sections. When the first section of the pit is filled with sand the first section of the exhaust hood is removed and the shakeout moved to the second pit, and so on, until the three pits are filled. The system is expensive, requiring a large fan with a 75 horse power motor, but apparently operates satisfactorily.

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NOVEMBER 1939

STANDARD

References to Recent Literature - 10.

- 377 DUST SEPARATION WITH THE CYCLONE. THE CYCLONE AS A VORTEX SINK. E. Feifel. Forsch. Geb. Ingen., B9, 68-82 (1938). (German).
One of the most simple and effective means for dust separation is the cyclone separator. Most design work has been based on empirical data and trial and error. The author has given considerable attention to the action taking place in the cyclone, especially in the so-called dust-charged whirl. By considering the flow as an ideal vortex sink a mathematical analysis has made it possible to estimate the effects of varying service conditions. Some experimental data confirm the validity of the calculations.
- 378 THE FLOW OF AIR AND ITS DISTRIBUTION THROUGH DUCTS. PART 3, ELBOWS AND MISCELLANEOUS RESISTANCES. J.R.Zwickl. Heat. & Vent., 36, 51-3, (April 1939).
The pressure loss in elbows is partly due to friction, partly due to impact loss. The impact losses are greatest, and the friction losses least, in elbows of short radius. At a radius of 2 pipe diameters the sum of the two are at a minimum and, if possible, pipes should be designed to take advantage of this fact. In pipes where sharper bends are necessary, metal strips called turnblades are installed which greatly reduce impact losses by a virtual increase in the radius-diameter ratio. Miscellaneous other types of pressure losses are discussed: losses in a plenum chamber used sometimes as the discharge chamber of a fan; entrance losses; converging and diverging ducts; and resistance of filters, heaters, coils, grilles and other similar equipment.
- 379 AN ACCURATE METHOD FOR THE DETERMINATION OF THE COMPONENTS OF A HETEROGENEOUS PARTICULATE MINERAL SYSTEM. F.H.Goldman and J.M.DallaValle. Am.Mineralogist, 24, 40-7 (1939).
This paper deals with the determination of weight percentages of any constituent of a mineral powder by making a count of the number of particles. Methods for obtaining the shape factor of a mineral and plotting size distribution curves are given. Results obtained by using the method on mixtures of quartz, hornblende, feldspar (orthoclase) and dolomite are given. The method is applicable to all powders and rock dusts provided they have a uniform distribution and that they are large enough to be counted and identified.
- 380 THE INFLAMMATION OF COAL-DUST CLOUDS BY ELECTRIC ARCS. T.S.E.Thomas and R.V. Wheeler. Trans. Instn. Min. Engrs. London, 96, 227-32 (January 1939). (British).
For the inflammation of clouds of bituminous coal dusts by electric arcs, a density of not much less than 0.05 oz. per cu. ft. of air is necessary. The density of the cloud can be estimated roughly by its power to obscure a light. With particles of the size met with at a conveyor loading point, a cloud of the minimum concentration necessary to propagate a flame would completely obscure a 4-candle power light at a distance of 10 ft.
- (C) Papers on Industrial Poisons, Cancer, Dermatitis, etc.
- 381 AIR CONDITIONING IN INDUSTRY. PHYSIOLOGICAL REACTIONS OF INDUSTRIAL WORKERS TO HIGH EFFECTIVE TEMPERATURES. W.L.Fleisher, A.E.Stacey, Jr., F.C.Houghton and M.B.Ferderber. Heating, Piping and Air Cond. Jour. Sect., 11, 107-11, 191-4, 255-73. (February, March and April 1939).
The paper reviews the developments of present knowledge on the relation between the length of exposures of workers to hot atmospheres and the resultant disturbance in their physiological equilibrium. Of the various reactions, body temperature and pulse reaction are indicated as being the most significant. Recommended as an index for limiting the exposure of workers in hot temperatures is an average body temperature rise of one-half degree in the experienced worker,

NW88-0009823

NOVEMBER 1939
STRAITS
TIMES

References to Recent Literature - 11.

one and one-half degrees in the occasional worker. A chart is presented for indicating the rise in temperature or increase in pulse rate for different lengths of exposure in different types of atmospheres, for different activities. The paper is an excellent discussion of the physiological effects of exposure to high temperatures.

- 382 TEN YEARS' EXPERIENCE WITH INDUSTRIAL HYGIENE IN CONNECTION WITH THE MANUFACTURE OF VISCOSE RAYON. H.L.Barthelemy. J.Ind.Hyg. & Toxicol., 21, 141-51 (April 1939).

Carbon disulfide and hydrogen sulfide are the two compounds most important in industrial hygiene work in viscose rayon plants. Other chemical compounds, caustic soda, sulfuric acid and ammonium sulfide, offer substantially the same problem as in all chemical plants. Carbon disulfide is found in the churn and spinning rooms, while hydrogen sulfide is generated only in the spinning room. In 10 years of operation only three cases of acute carbon disulfide poisoning have been reported in the plant, with all three patients recovering completely. More prominent were injuries to the eye in the spinning rooms from a combination of the two gases. It was found that if the carbon disulfide was kept below 0.1 mg. per liter (30 p.p.m.) and hydrogen sulfide below 0.03 mg. per liter (20 p.p.m.) no trouble whatever was experienced.

- 383 A SIMPLE DEVICE FOR SAMPLING AIR-BORNE BACTERIA. Alexander Hollaender and J.M. DellaValle. U.S.Public Health Reports. 54, 574-7 (April 7, 1939). Single copies obtainable from Supt. of Documents, Washington, D.C. for 5 cents.

A device for sampling air-borne bacteria has been constructed which has made use of the impingement principle and which has taken advantage of the convenience of the standard Petri dish method of culturing bacteria. It consists of a small metal container in which the dish is placed, under an inverted glass funnel. The air sample enters the funnel passing vertically downward and over the dish, the bacteria being thus impinged on the nutrient agar. Tests were made with this device indicating that it has an optimum sampling rate of 1 cubic foot per minute. The results are accurate and are shown to be easily duplicated.

- 384 THE WORK AND OCCUPATIONAL DISEASES OF GLASS WORKERS. F. Mauro. Folia med., 35, 5-22, (1939). (Italian).

Following a description of the glass workers trade and a discussion of the literature concerning it, the author presents the results of examining 605 glass workers. He did not find what he calls the classic diseases (emphysema, cataract, syphilis, silicosis) but does report many diseases of the respiratory tract and of the skin. Among the younger workers there was an unusual number of heart ailments, due, probably, to high temperatures and hard work.

- 385 ANTHRAX IN INDUSTRY. H.F.Smyth, Chairman. Fifth Industrial Anthrax Committee Report, Am. Public Health Assoc., Mimeographed. 26 pp. (1938). Copies obtainable from Nat. Inst. of Health, U.S.Public Health Service, Washington, D. C. The present report reviews the literature for 1934-7 with an annotated bibliography of 111 references. It is divided into the following sections: incidence, bacteriology, immunology, vaccines, sources of infection, portal of entry, case reports, treatment and prophylaxis.

- 386 TREATMENT OF ACUTE SEVERE CARBON MONOXIDE POISONING WITH BLOOD TRANSFUSIONS. K.G.Koch. Munch. med. Wchnschr., 86, 126-8 (1939). (German).

The author describes the therapy of acute carbon monoxide poisoning and reports on two cases that recovered after repeated transfusions of large amounts of blood.

HW88-0009824

November 1992

STANFORD UNIVERSITY

References to Recent Literature - 12.

- 387 THE URINARY SULFATE TEST IN THE SUPERVISION OF WORKERS EXPOSED TO BENZENE. C.M.Jephcott and F.M.R.Bulmer. *J.Ind.Hyg. & Toxicol.*, 21, 132-40 (April 1939). As a result of experiments over a period of two years, the authors conclude that the urinary sulfate test, used in the diagnosis of benzene poisoning, is not as positive as has been commonly supposed. This is due, they say, to the fact that benzene and its end products are not all eliminated through the urine as ethereal sulfates and that certain other conditions such as diet, constipation, etc., will affect the amounts of sulfate in the urine. They state that a measure of urinary sulfate, calculated in grams per liter, may be as good or better an index of benzene inhalation as the inorganic-total sulfate ratio now used. Their method of measuring the total sulfate is described. The most important point brought out in the paper is that too much reliance should not be placed on the urinary sulfate test; at least it should not supplant complete medical supervision of workers exposed to benzene.
- X 388 VITAMIN C TREATMENT IN LEAD POISONING. H.N.Holmes, E.J.Amberg and K.Campbell. *Science*, 89, 322-3 (April 7, 1939). Apparent cures by vitamin treatment of chronic lead poisoning have been achieved by the authors in preliminary experimental work. Half of a group of 34 patients showing lead poisoning were given daily 100 mg. of synthetic vitamin C in tablet form but no extra calcium. The other half continued their previous treatment with calcium gluconate and supplemented this with 100 mg. of vitamin C. Both groups gained in health, but the 17 men given vitamin C alone showed better results. The conclusion, supported by test tube experiments, is that vitamin C reacts with toxic lead ions to form a poorly ionized and much less toxic compound. Therefore, lead destroys this vitamin so necessary to health, while generous vitamin C supplements to the diet remove the lead from the field of action. The experiments, which may prove exceedingly valuable, are not yet completed. A full report on the work is to be published later in a medical journal.
- 389 EFFECT OF NICOTINIC ACID ON INCREASED PORPHYRINURIA OCCURRING IN SEVEN PAINTERS. E.S.Gross, Y.Sasaki and T.D.Spies. *Proc. Soc. Exp. Biol. & Med.*, 38, 289-92 (1938). Since the porphyrinuria seen in pellagra disappears after the administration of nicotinic acid, the authors tried the chemical on seven painters with at least 15 years exposure to lead. As controls the urines of 45 students were used. With but few exceptions, all the controls showed negative tests. For three days the painter's urines were all positive; then, following the administration of 2 daily doses of nicotinic acid, the characteristic pink color of the positive test began to disappear and at the end of 9 days tests, all were negative. The test was continued for 14 more days without nicotinic acid and the color returned gradually to what it had been in the beginning.
- 390 EXAMPLE OF AN INSTALLATION FOR THE CONTROL OF THE HYGIENIC EXPOSURE ARISING FROM THE APPLICATION OF POTTERY GLAZES. S.C.Rothmann. *Ind. Med.*, 8, 8-12 (January 1939). This paper covers an environmental survey of a pottery plant where "dinnerware" is manufactured. The lead concentration in the plant ranged from an average of 1.2 mg. per 10 cu. meters to 167 mg. per 10 cu. m. With an air velocity of 400 f.p.m. in the face of the spray booth, the lead concentration near the spray machine operator varied from 0.7 to 65.0 mg. per 10 cu. m., the average being 4.4 mg. The allowable concentration of lead in air as suggested by the U. S. Public Health Service is 1.5 mg. per 10 cu. m.

W488-0009625

November 1992

LIBRARY

References to Recent Literature - 13.

- 391 MICROANALYTIC DETERMINATION OF LEAD IN BODY FLUIDS. I.H.Beck and G.Straube. Klin. Wchnschr., 18, 242-4 (1939). (German).
 The authors present a series of control experiments indicating that satisfactory results of lead determination by the electrolytic method of Schmidt and Weyrauch, modified by Kecke and Muller, can be achieved by non-chemists in a general hospital. They recommend, however, the establishment of a central experimental laboratory.
- 392 LEAD POISONING IN THE MANUFACTURE OF AUTOMOBILE BODIES. K.Humperdinck. Arbeitsschutz, 42-3 (1939). (German).
 The author follows his earlier study (see Abstract 243, 1939) with the present report on two additional plants. In one of them there were two cases of lead poisoning and three others with slight symptoms. The use of grinding wheels in the process generates large quantities of lead dust.
- 393 THE COMPARATIVE TOXICITY OF SOME IMPORTANT SOLVENTS. D. Matruchot. Presse med., p. 167 (February 1, 1939). (French).
 The author considers that Lehmann's list of comparative toxicities of chlorinated hydrocarbons is misleading because (1) he used the threshold of narcosis (anesthesia) as a criterion and (2) the present commercial substances are very much purer than those available in 1911 when Lehmann did his experimental work. As the criterion of intoxication Matruchot uses death. The subjects were 160 guinea pigs, which were gassed in bell jars through which the gas mixtures were passed. He obtained two lists, one in which the animals were gassed with concentrations equivalent to 1/3 saturation at 20°C. and the other in which all concentrations were 140-150 mg. per liter of air. The toxicity in the first list varied mostly with the vapor tension as would be expected. In the second list, considering the toxicity of trichlorethylene as 1.0, other compounds showed the following toxicities: dichlorethane 1.6, benzene 2.5, carbon tetrachloride 2.6, chloroform 4.7, trichlorethane 5.0 and tetrachlorethane 6.0.
- 394 THE METABOLISM OF CHLORINATED NAPHTHALENES. R.V.Cleary, J.Maier and G.H.Hitchings. J.Biol.Chem., 127, 403-9 (February 1939).
 The metabolism of a mixture of polychloronaphthalenes was studied. The substance was found to be absorbed completely when given in olive oil solution to albino rats in doses up to 15 mg. per day. No significant storage of the material could be detected in lung, liver, skin or kidney, nor was any significant amount excreted in the urine. Both the rat and dog apparently were able to remove and excrete the chloride promptly. A rise in the urinary ethereal sulfate fraction, but no significant change in the neutral sulfur excretion, was noted following chloronaphthalene feeding in the dog.
- 395 ACUTE ETHYLENE DICHLORIDE POISONING. Z.T.Wirtschafter and E.D.Schwartz. J.Ind. Hyg. & Toxicol., 21, 126-31 (April 1939).
 Three cases of acute ethylene dichloride poisoning following an unusual exposure to the vapors are presented. Initial symptoms were dizziness, nausea and vomiting followed by weakness, trembling and epigastric cramps. Evidence of liver damage was the presence of extremely low blood sugar levels. Leucocytosis occurred in each case. No hemolysis was noted, nor no evidence of kidney damage was observed. A severe dermatitis of the hands resulted from direct contact with the liquid. Recovery followed in each case following calcium therapy and a high carbohydrate diet. Ethylene dichloride seems to be somewhat less toxic than carbon tetrachloride when exposure is by inhalation, but it should nevertheless be employed with caution.

MINIATURE ABSTRACTS
November 1992

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- 396 TOXIC LIVER DAMAGE. R. Assmann. Deutsch. Med. Wchnschr., 65, 81-4 (1939). (German).
The author first describes liver injuries (pregnancy toxemias and those from the thyroid) arising from endogenous causes; then those caused by medicine, food poisons and infections; then liver function tests and therapy. He does not take up the matter of toxic injury to the parenchyma by chronic exposure to injurious substances.
- 397 WHEN HANDLING MERCURY. Eng. & Min. J. 140, 33, (Jan. 1939).
Because of the insidious nature of chronic mercury poisoning, and because of the obscurity and variation of the early symptoms in different individuals, prevention is of paramount importance. The following are some of the recommendations enumerated to assist as much as possible in prevention: (1) working places should be ventilated; (2) a negative pressure should be maintained at all times in the furnaces of mercury boilers, stills and similar equipment; (3) for emergency work wear an air line respirator or an approved gas mask with the proper canister; (4) mercury should be stored only in tight flasks or under water; (5) spilled mercury can be dangerous if not cleaned up immediately; and (6) the best personal hygiene and cleanliness should be observed by the workmen.
- 398 HEMOPOIETIC ACTION OF ZINC, MANGANESE AND NICKEL. M. Polonovski and S.B. Briskas. Compt. rend. Soc. Biol., 129, 493-6 (1938). (French).
It has been known that iron and copper have an anti-anemic action. To check an attributed analagous action by zinc, manganese and nickel, the authors ran an extensive series of experiments with young rats rendered experimentally anemic. Three groups of rats were fed milk exclusively, with the addition of zinc sulfate for one group, manganese chloride for the second group and nickel chloride for the third. Iron was substituted for the salts during the last few days of the experiments. The results were essentially negative, causing the authors to conclude that none of the three metals produce an anti-anemic action. Minor differences in the results of the three experiments are explained on the basis of copper-ion reserve.
- 399 DANGERS OF BAKELITE. J. Am. Med. Assoc. (Queries and minor notes), 111, 340 (1938).
The inquiry concerns a patient whose deafness has recently become acute and resists treatment. He works in a plant manufacturing one of the synthetic resins (bakelite) made from ammonia and formaldehyde. As the reply states, such workers frequently suffer dermatitis or irritation of the upper respiratory tract. Other substances employed in the manufacture of bakelite are mentioned (phenol, dimethylcresol and wood flour). Benzene is sometimes employed. Deafness, as the only symptom of chemical poisoning, is unusual.
- 400 POISONING FROM AIRPLANE "DOPES". J. Am. Med. Assoc. (Queries and minor notes), 112, 870 (March 4, 1939).
Cloth used in airplane manufacture during and after the war was coated with toxic substances. Since most planes are now made of metal, cloth is now used chiefly for toy or model planes. The "dopes" now used are also less toxic; they are lacquers containing acetates, alcohols and toluene. Acetate may give rise to irritation and toluene in adequate amounts may cause blood changes--anemia and leucopenia.

88-0009827

References to Recent Literature - 15.

- 401 EXPERIMENTAL STUDY OF OXYGEN THERAPY IN PHOSGENE POISONING. E. Dumoulin, E. Charlier and L. Dautrebande. Compt. rend. Soc. Biol., 129, 508-1 (1938). (French). A total of 210 rats were exposed for 3 to 5 minutes to an atmosphere of 1.143 grams of phosgene per cubic meter of air (282 p.p.m.) sufficient to cause loss of consciousness. In each experiment (of about 15 animals) half were placed in atmosphere enriched in oxygen for as long as 15 days, the remainder in normal atmospheres. Where the oxygen content was 90% the condition was unfavorable as the percentage of increased deaths in the treated group was greater than in those not treated. When the oxygen content was 50%, there were no benefits, and the percentage of deaths was the same for treated and untreated groups. The presence of 10% carbon dioxide in either experimental range had no effect whatever.
- 402 RECURRENT BOILS FROM ARSENIC COMPOUND. J.Am.Med.Assoc. (Queries and minor notes), 112, 662 (February 18, 1939). Operators using an arsenic compound for killing mosquitoes on hyacinths develop boils on arms and chest after a week's exposure. The condition improves after one week's rest. This is not the usual form that an arsenic dermatitis takes although arsenical furunculosis (boils) have been described. The men should not be exposed again if the arsenic is actually causing the trouble; moreover, they should be examined for other symptoms of arsenic poisoning.
- 403 LIGHTNING CLEANER. J. Am. Med. Assoc. (Queries and minor notes), 111, 2412 (1939). This is the name of an industrial cleansing fluid often used on furs and linings. Its use causes nausea, epigastric pain, vertigo and drowsiness. Since the makers claim it to be non-explosive, and without fire risk, it can be inferred that it may contain one or more of the chlorinated hydrocarbons such as carbon tetrachloride. The solvents may cause serious damage, especially to the liver, and should be employed with great care.
- 404 AMMONIA GAS BURNS. G.M.J.Slot. Lancet, 2, 1356-7 (December 10, 1938). (British). Six women were burned following an explosion of an ammonia gas pipe in an ice cream factory. The victims were hospitalized within an hour, where five of them recovered after treatment for shock. The sixth woman died in spite of excellent care. Autopsy showed acute laryngo-tracheitis, acute tracheobronchitis and acute broncho-pneumonia, as well as probably toxemia from the burns, resulting in nephritis. Tannic acid and hexylton jelly treatment of the burns gave satisfactory results.
- 405 HAZARD FROM AMMONIA FUMES IN BEAUTY SHOP. J. Am. Med. Assoc. (Queries and minor notes), 112, 871 (March 4, 1939). As little as 400 p.p.m. of ammonia vapor will cause irritation and 100 p.p.m. is the maximum for long exposures. Higher concentrations may cause pulmonary edema and the continuous coughing may aggravate an existing pulmonary disease. Ammonia should be replaced by some harmless substance.
- 406 CYANIDE FUMES IN THE PLATING ROOM. Nathaniel Hall. Products Finishing, 3, 34-41, (1938). The operation of any solution which has a cathode efficiency of less than 100% gives rise to the evolution of gaseous hydrogen which, depending on the type of solution, either may be evolved as fine bubbles or else may rise with explosive force thus producing a spray of solution containing the cyanide compounds. This is one method by which cyanide contaminates the surrounding atmosphere. A method for the detection of the cyanide in air is described. The toxicological effects and safe limits are also discussed.

HW88-6009828

NOVEMBER 1992
REF AMMS

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- 407 HAZARDS AND SAFETY IN ELECTROPLATING. M.J.Moll. Occupational Hazards & Safety 1, 8-12 (February 1939).
Each of the steps in the process of electroplating is described together with the hazards encountered in each and the best available methods of prevention. Without certain preventive measures there are hazards presented in all of the processes--grinding, de-greasing, acid-dipping and plating--but it has been shown that these preventive measures can be installed at costs that are commensurate with the benefits.
- 408 METHODS FOR THE DETECTION OF TOXIC GASES IN INDUSTRY. III. SULFUR DIOXIDE. Dept. of Scientific and Industrial Research. H.M.Stationery Office, London, (1939). (British).
This is the third in a series of descriptions of simple methods for detecting various gases encountered in industry. Thus far the methods have been confined to drawing the air through a filter paper impregnated with the appropriate chemicals and comparing the resulting stain with that of standards. For the detection of sulfur dioxide, the paper is impregnated with a starch-potassium iodide solution with the addition of iodide-glycerol to keep the paper in a wet condition. Concentrations in the neighborhood of 4 to 10 p.p.m. can be estimated and the tests may be run by comparatively unskilled personnel. The air is drawn through the paper by a specially constructed hand-operated pump.
- 409 METHODS FOR THE DETECTION OF TOXIC GASES IN INDUSTRY. IV. BENZENE VAPOR. Dept. Scientific & Industrial Research, H.M.Stationery Office, London, (1939) (British).
Chemical methods for the detection of benzene are usually lengthy and complicated. A more simple test has been devised, involving the absorption of the vapor in concentrated sulfuric acid solution containing a trace of formaldehyde; an orange-brown color is produced, even traces of benzene being sufficient for this result. The air sample is drawn through the solution by means of a hand operated pump of definite capacity (126 ml.) and the number of strokes to produce a certain standard color is determined. Two substances interfere: toluene produces the same color and naphthalene produces a black film on the surface of the reagent, but neither is encountered often enough to present serious objections. Concentrations of benzene as low as 1 part in 10,000 can be detected. The standard color is prepared from sodium nitroprusside.
- 410 THE DETERMINATION OF INDUSTRIAL GAS DISPERSOIDS. E. Anderson. Trans. Am. Inst. Chem. Engrs., 34, 589-601 (1938).
Experiments were conducted to show that the amount of suspended matter in gases, or gas dispersoids, can be estimated correctly by the so-called metered volume filtration method, provided certain precautions as to the sample tube velocity be taken. Contrary to certain published data, but in agreement with theoretical considerations, the correct average sampling tube velocity is less than the flue velocity, and for a small sampling tube (1/4 in.) it should be about 95% of the latter. Earlier published data are also quoted which indicate that ordinary filter paper is sufficiently impervious to retain particles approximately 0.5 micron in diameter, such as sulfuric acid mist and tobacco smoke.
- 411 COLORIMETRIC DETERMINATION OF POISONOUS GASES AND SUSPENSIONS IN THE AIR BY THE F. HAHN AND R. KLOCKMANN METHOD. V.P.Maevskaya and N.P.Komar. Zavodskaya Lab., 7, 36-41 (1938). (Russian).
The determinations were carried out in a modified Hahn and Klockmann colorimeter and in Hehner cylinders. Full details are given for determining ammonia in air with Nessler's reagent, nitrogen peroxide with the Griess reagent and lead and cadmium as sulfides in colloidal solutions.

HWB-6009829

November 1992

JIN LIBRARY

- 412 L. HILL'S NASAL REFLEX AND ITS SIGNIFICANCE IN THERMOREGULATORY SKIN REFLEXES. G. Lehmann. *Arbeitsphysiol.*, 10, 418-35 (1939). (German).
The author concludes from Hill's work that radiation of any one place on the skin with long-wave ultra red rays causes a capillary expansion of the nasal mucosa and contraction of the nose, whereas cooling and radiation with short-wave ultra red causes expansion of the nose. The author carried out a series of experiments which lead him to conclude that these phenomena are based on changes in temperature gradients on the human skin. These reflexes are not limited to nasal mucosa but plethysmographic experiments on external ears, fingers and auricle show that thermoregulatory reflexes on the skin are set in motion by changes in the temperature gradient. These reflexes expand or contract the capillaries of the rest of the skin; they are of great biological significance.
- 413 METHOD OF INVESTIGATION OF OCCUPATIONAL SKIN DISEASES. L. Schwartz. *Surg. Gynecol. & Obstet.*, 68, 583-6 (February 15, 1939).
To investigate industrial dermatitis intelligently, the physician must not only know how to differentiate these skin diseases from the common ones, but also must have some knowledge of chemistry. This will enable him to appreciate many of the industrial hazards. A discussion with the plant superintendent indicates what the incidence of skin disease is, and what raw materials are used. Plant physicians, nurses and patients are interviewed, medical records examined, followed by an inspection of the plant to investigate the processes, general conditions, as workers' clothes, etc. History, site of eruption and appearance of the lesion are important in arriving at the diagnosis. Some puzzling cases solved by the Public Health Service are described.
- 414 THE ENGINEERING, CHEMICAL AND HYGIENIC ASPECTS OF DERMATOSES. G.C. Harrold. *Occup. Hazards & Safety*, 1, No. 7, 27-9 (April 1939).
The general principles of prevention of dermatoses in industrial plants is discussed. Some of the measures that are discussed briefly are: enclosure or partial enclosure of the materials, local exhaust, use of vacuum cleaners, isolation of processes, substitution of materials, and the use of disinfectants. The paper is to be followed by others on other phases of the prevention of industrial dermatoses.
- 415 INDUSTRIAL DERMATOSES FROM LUBRICATING OIL. G. Hausser. *Presse med.*, p. 295, (1938). (French).
Mineral oils are employed to lubricate metal pieces on a moving belt. The oil, mixed with the mineral particles from the metal, splashes the worker and impregnates his clothes. The resulting dermatitis may be (1) a simple eczema like that of cement workers, (2) a melanosis, or (3) folliculitis and pyrodermatitis. The first two are rather rare, the last very common. At first it resembles a banal acne, comedones develop and later pustules. Abscesses may develop and occasionally hyperkeratosis. The pathology, etiology, bacteriology, hygiene and therapy are discussed. In France the condition is not compensable, but must be reported.
- 416 DERMATITIS FROM CEMENT. *J. Am. Med. Assoc.* (Queries and minor notes), 111, 1867 (1938).
The question concerns a severe dermatitis among men unloading bags of cement. It is also said to irritate the lungs and one worker got severe bronchial pneumonia after unloading a car. These workers had handled cement before with no untoward effects but this cement is said to have been hot. The reply states that persons who perspire freely are most frequently affected and that cement dermatitis is more common in hot weather than in cold. Reference is made to different types of cement dermatitis, to irritation of the upper respiratory mucosa and to ulcers of the buccal mucosa. Workers should wear impermeable clothing and if necessary, wear respirators. Cleanliness is important and skin can be protected by ointments or talcum powder.

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- 417 NEW SUBSTANCES FOR IMPREGNATING WOOD. K. Humperdinck. Arbeitsschutz, 44-5, (1939). (German).
It is reported that several chemicals, such as arsenates, dinitrophenol, aniline, potassium bichromate, fluorine compounds and mercuric chloride, have been used for impregnating wood in recent years. The greatest danger in the process is from the dust that arises when these materials are added to the solvent. Skin and mucous membrane irritation from the arsenic are found, together with cases of light poisoning. Precautionary measures are necessary.
- 418 OCCUPATIONAL ACRICHININ KERATITIS. I.D.Kaplan and A.M.Lapidus. Viestnik. Opth., 13, 409 (1938). (German).
Workers in factories producing this product develop, in addition to symptoms of general intoxication, a keratitis characterized by edema, erosions, and a greenish-yellow discoloration of the cornea. Relief from the subjective symptoms is rapid, but the discoloration and corneal dullness may remain for two months.
- 419 CANCER OF THE HUMAN LUNG FROM DUST FROM TARRED ROADS. P.Valade. Presse Med., p. 161 (February 1, 1939). (French).
Primary lung tumors can be induced in mice painted with tar or exposed to inhalation of dust from tarred roads, but it is difficult to correlate or transfer these results to humans. Animals other than mice should be employed in experiments and an inquiry should be carried out on workers exposed to such dusts.
- 420 EXPERIMENTAL STUDY OF TOLERANCE TO INTRAOCULAR FOREIGN BODIES OF RUSTLESS STEEL OR NON-MAGNETIC ALLOYS. M.Dollfus and I.Borsotti. Arch. d'Opth., 2, 911 (1938). (German).
From their clinical and experimental observations the authors reach the following conclusions: (1) The presence of an oxidizable metal, iron, steel, or copper, within the eye provokes by its chemical nature a severe disorder which leads to rapid loss of vision and irremediable retinal lesions. (2) Rustless steel, on the contrary, more and more employed in industry, is tolerated like any other inert chemical body, such as glass, within the eye. Siderosis does not result. (3) Every effort must be made therefore to determine the nature of the intraocular metal before operating. If it is rustless steel or non-magnetic alloy it is wiser to refrain from attempting extraction, because experience has shown that the eye supports the foreign body without damage. Such a foreign body is only dangerous by carrying infection or by traumatic lesions that it may have provoked.
- 421 HUMAN EFFICIENCY IN LOWERED OXYGEN. A.Koch and H. Heymann. Arbeitsschutz, 10, 353-66 (1939). (German).
It was found that the total oxygen intake was not significantly altered when breathing oxygen-poor mixtures. The minute volume was increased about in proportion to the reduced oxygen content. It is much more difficult to endure oxygen lack during hard work.
- 422 PHYSIOLOGICAL INVESTIGATION OF BODILY WORK IN HIGH MOUNTAINS. A. Krupski, F. Schauf, A. Lung, F. Almasy, K. Sutter and A. Nabholz. Ztschr. f. d. ges. exp. Med., 104, 736-55 (January 16, 1939). (German).
Very complete physiological data are given of a well trained Alpinist before, during and after arduous climbing. Blood examination made immediately after the work showed a 4% fall in erythrocytes, and an 83% increase in leucocytes, especially neutrophils. Detailed results of blood, plasma and urine examinations are included, but there are none on the respiration.

HW 6886 0009831

November 1939

STUDY IN THE ALPINE

References to Recent Literature - 19.

- 423 CEREbroSPINAL FLUID PRESSURE AT LOW ATMOSPHERIC PRESSURES. EXPERIMENTAL STUDY. P. Bergeret and P. Giordan. J. physiol. et path. gen., 36, 1050-8 (December 1938). (French).
Experiments on dogs are described which demonstrate the effect of low atmospheric pressures on the spinal fluid pressure. The relation of the latter to venous hypertension and hypertension of the spinal fluid ceases when the animals are supplied with oxygen.
- 424 METABOLISM DECREASE IN OBSTRUCTION TO INHALATION. W. Ludwig. Arbeitsphysiol., 10, 406-17 (1939). (German).
The effect on metabolism of increasing the dead space in gas masks and of various resistances through filters was studied in 10 experiments. Respiratory minute volume was increased with increased dead space and even more so by greater filter resistance. The vital capacity is lowered by filter resistance, the respiratory quotient increased. Usually the dead space effects neither. With the mask on, oxygen utilization in all experiments was lowered by about 41%. Unfavorable influence of increased resistance is greater than that of dead space. Wearing a mask decreased work efficiency, but the effect is reduced after the wearer becomes used to the mask.
- 425 THE PHYSIOLOGICAL EFFECTS OF ULTRA VIOLET RADIATION. H. Laurens. J. Am. Med. Assoc., 111, 2385-92 (1938).
This is a long review with a bibliography of 85 items. In it the author discusses the effects of ultraviolet radiation on eyes, blood, metabolism, growth, mineral metabolism, bacteria, protozoa, proteins, and mode of action.
- 426 ULTRA VIOLET AIR SANITATION. F.W.Robinson. Ind. & Eng. Chem. (Ind. Ed.) 31, 23-6 (January 1939).
This paper is a review of the literature on the destruction of micro-organisms by ultraviolet rays. Arguments for its use in hospitals, railroad cars and other places are presented.
- 427 ELECTRIC WELDING, PARTICULARLY EYE HAZARDS AND PROTECTIVE MEASURES. T.J.Carter. U.S.Naval Med. Bull., 37, 138-42 (January 1939).
The hazards connected with welding include burns, electric shock, eye injuries, exposure to radiation and inhalation of toxic fumes. Of the gases, only carbon monoxide and acetylene are mentioned. Metal-fume fever is not uncommon. The most important source of risk in welders is exposure to radiations from the electric arc. This aspect of the hazard is discussed in some detail and the Navy's specifications for welder's goggles are listed.
- 428 FATIGUE AND RECOVERY. L.R.Muller. Klin. Wchnschr., 18, 114-8 (1939). (German).
The author holds the view that in fatigue and recovery of muscle and nerves, mineral metabolism, not food metabolism plays the decisive role. Fatigue and recovery are caused by discharge and charging of electric potentials. The potential difference between positively charged organ cells and the negatively charged blood fluids surrounding them is in turn caused by concentration difference of mineral matter. Fatigue is basically a fall in the potential difference and recovery an increase.
- 429 WHITE RATS AS VECTORS OF LEPTOSPIRAE ICTERHAEMORRHAGIAE. K. Roelcke. Ztschr. f. Hyg. u. Infektionsk., 121, 369-75 (1938). (German).
The author presents cases of 7 persons with Weil's disease whose infection may be traced to healthy laboratory white rats. Of 112 rats tested, 15 were carriers.

HWBB-0009832

November 1939

STUDIES IN
HYGIENE AND
MEDICINE

References to Recent Literature - 20.

- 430 QUESTIONS REGARDING METABOLISM DURING BODILY WORK. E. Simonson. Travail humain, 8, 385-406 (1938). (French).
General considerations, such as oxygen debt, the action of lactic acid on hemoglobin in the muscle, the augmented influx of adrenalin, and the influence of the cerebral cortex, are discussed at length. The author discusses theories explaining various amounts of work expended in a given time by different muscles performing different kinds of work. He concludes that the large differences (3-33%) cannot be explained by mechanical factors only; there must be difference in the chemical processes in various muscles during different kinds of work. The improvement of efficiency from training is also to be traced to chemical processes.
- 431 HEAT URTICARIA. G.M.Lewis. Arch. Dermatol. & Syphil., (Society Trans.) 39, 365-6 (February 1939).
The author describes the case of a young man extremely sensitive to heat who became itchy and noticed redness and swelling of skin when exposed to heat. Lesions appeared on the hand when he held a hot cup, heat from the sun produced pruritic lesions on the legs, and a test tube filled with hot water and held against his skin produced an elevated wheal. Ice did not affect him. In the discussion, a similar case of sensitivity to cold was described.
- 432 INFECTION BY INTESTINAL PROTOZOA AMONG MINERS IN THE LOIRE AREA. C.Garin and E.Roman. Bull. Soc. de path. exotique, 31, 904 (December 14, 1938). (French).
In the course of a year the authors examined the feces of 1000 miners in the Loire district. Many were found to be infected. Entamoeba dysenteriae appeared in moderate frequency, Lamblia very rarely, and Pseudolimax butschlii were very common.
- 433 WEIL'S DISEASE IN GLASGOW SEWER WORKERS. R.D.Stuart. Brit. Med. J., pp. 324-6 (February 18, 1939). (British).
Weil's disease, characterized by fever, conjunctival congestion, jaundice, subcutaneous and submucous hemorrhages, and caused by a long spiral bacteria, spirochete, is most common among miners, sewer workers, butchers, and fish cutters. It is not common in this country, but one author believes it is because the disease goes unrecognized in most cases. The cases reported here were contracted in Glasgow sewers. It was found that rats in the sewers were highly infected, and they are the most logical important carriers of the disease.
- 434 A CASE OF SPIROCHETOSIS ICTERHAEMORRHAGICA IN A MINER. A. Magnin. Med. du travail, 11, 4-17 (1939). (French).
A detailed description is given of a case of spirochetosis (see preceding abstract on Weil's Disease). The author mentions especially the presence of white dermographism on the abdominal skin, angina pectoris and white coating of the whole palate. There was very high temperature and jaundice. A relapse with two phases was observed. Possible modes of infection are discussed.
- 435 CONCENTRATIONS OF SULFUR COMPOUNDS IN CITY AIR. L.R.Burdick and J.F.Barkley. U.S.Bureau of Mines, Information Circular No. 7066, 14 pp. (April 1939). Obtainable free from Div. of Information, U.S.Bur. of Mines, Washington, D.C.
This paper summarizes the work that has been done to measure the sulfur dioxide concentrations in various cities in this country and abroad. Details of each particular survey are not given, but reference is made to a complete bibliography.

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November 1939

STRAITS TIMES