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INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

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

Industrial Health News

Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

4400 FIFTH AVENUE

PITTSBURGH 13, PA.

INDUSTRIAL HYGIENE FOUNDATION

FOUNDATION FACTS

Industrial Hygiene Foundation. The Foundation is a non-profit association of industries for the advancement of healthful working conditions.

Vol. 6. January, 1944 No. 1.

Practical Data on Employing the Veteran

The panel discussion on "Putting the Disabled Veteran Back to Work," a high-point of the Foundation's last annual meeting, is being published separately from the meeting Proceedings and will be sent to member companies in a few days. This will speed up distribution of practical data which becomes more important daily with the increasing demobilization of service men. One source says veterans are being mustered out at the rate of 70,000 per month. The forthcoming report should be of specific assistance to companies in dealing with this grave problem. Those who have questions regarding the rehabilitation of service men may send them to the Foundation.

Results of Women in Industry Study Released

Copies of the Foundation's plant-to-plant investigation of "Health Problems of Women in Industry," were sent to members recently. The report presents factual data collected by Dr. C.O. Sappington in visits to 54 war plants throughout the East and Mid West. The study if receiving national publicity in the press and radio.

Annual Index of Digest; List of Publications

THE ANNUAL INDEX covering the monthly INDUSTRIAL HYGIENE DIGEST for 1943 is now being mimeographed and will be sent to members in the near future. Exactly 1163 separate items were reported during the year, exclusive of the November issue which is devoted to abstracts of most of the papers presented at the annual meeting. The list of the publications, and addresses, covered by the DIGEST, is being revised. This will also be sent to members in the near future so that they may order the text of articles abstracted in the DIGEST, when desired. Unless otherwise noted, the Foundation has no copies of original publications or reprints for distribution.

More New Members

Latest addition to the Foundation's membership is Allis-Chalmers Manufacturing Company. Other new members, not previously reported, are Ball Brothers Company and Firth Sterling Steel Company. Thirty-three new members joined in 1943.

Annual Meeting Comment: "The better the working conditions the better the point of view and the better the production!"

-- Charles F. Kettering.

Company Publications Welcome

A number of member companies send the Foundation their "house organs" or employee publications. The staff is glad to receive these journals since they are helpful in keeping us informed of a member's industrial operations. "The Hawley Reporter," publication of the Hawley Products Company, carries the following slogan:

"More Days of Work Mean Fewer Days of War."

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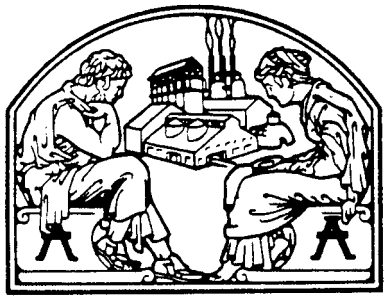

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Foundation Facts is a monthly news-letter issued to industrial concerns holding membership in Industrial Hygiene Foundation. The Foundation is a non-profit association of industries for the advancement of healthful working conditions.

Vol. 6. March, 1944 No. 3.

Annual Meeting Proceedings Published

The Proceedings for the Foundation's Eighth Annual Meeting, containing much practical data on manpower maintenance in industry, was mailed to members recently. The subjects covered in the publication fall into four main groups:

1. Medical
2. Engineering
3. Industrial Relations
4. Legal

The panel, "Putting the Disabled Veteran Back to Work," a highpoint of the annual meeting of members, was published separately from the Proceedings to expedite circulation. Additional copies of this panel discussion are available upon request. The annual meeting of members is one of the most valuable services of Foundation membership. Accordingly, the Proceedings should be examined carefully and routed to all interested persons within each member's organization.

New Members and Subscribers

Latest additions to the Foundation's membership list are: American Optical Company, Van Cleef Bros., and Vanadium Corporation of America. New subscribers are: Fairfield Air Service Command, Ohio; Medical Supply Officer, Ft. Mason, Cal.; Ministere Sante & B.E. Social Hygiene, Quebec, Canada; Netherland Government Commission for Scientific Documentation, and the Pennsylvania Department of Labor and Industry.

Seen in the News

DETROIT, March 11 (UP) -- R.J. Thomas, President, United Automobile Workers (CIO) today declared that his union "was no longer satisfied" to bargain for wages and hours only and announced the union would negotiate clauses containing health standards for workers.... He said, "The health of our workers in the shop is an immediate problem and it must be met and solved through collective bargaining."

Sacramento, Calif. -- Women workers who repair bullet-proof airplane gasoline tanks at Mather Field are equipped with oxygen masks and officials say this innovation cuts repair time at least in half. The patching is done by small women who crawl through a narrow opening in the tank. Formerly they had to come out every four or five minutes or risk suffocation from fumes.

Practical Procedures

A plant manager, studying jobs in his shop that disabled veterans might perform, observed: "When I see a man running a machine with one hand in his pocket I make a mental note that he could probably operate another machine and a one-armed veteran could do that job."

V.P. Ahearn, Executive Secretary, National Industrial Sand Association and Secretary of the Foundation's Board of Trustees, has been appointed an Industry Member of the National War Labor Board.

183 Chlorohydrocarbon Solvents. E.A. McGovern. Ind. Eng. Chem., 35, 1230-1239 (December, 1943).
Included in a comprehensive paper on the properties of chlorohydrocarbon solvents is a section on toxicity. The toxicities of a number of the solvents in themselves are of the same order of magnitude, but carbon tetrachloride and ethylene dichloride are practically more toxic than other liquids of somewhat higher molecular weight on account of their higher vapor pressures. Methyl and ethyl chlorides have low toxicities, but, being gases at ordinary temperatures, the effect of leakage is a high concentration of the vapors with increased fire and health hazards. Chloroform, beta-trichlorethane, and especially tetrachlorethane, possess high toxicities, and must be used with precautions although their vapor pressures are low. In general, human beings should not be exposed to atmospheres in which the odors of chlorohydrocarbons are detectable. However, they may be all rendered safe by the use of properly designed equipment. Danger in skin contact and decomposition at higher temperatures with formation of more toxic substances are discussed briefly, as are also methods of detection.

4 Bagasse Disease of the Lung. W.A. Sodeman and R.L. Pullen. New Orleans Med. & Surg. J., 95, 558-560 (June, 1943).
A case of bagasse disease of the lung is reported together with the findings at biopsy in an involved area of the lung. The picture appears to be that of an organic pneumoconiosis. It is evident that particles of bagasse may enter the alveolar regions and produce this reaction. The mechanism of the changes, and the nature of the stimulus set up by the bagasse dust to produce the cellular reaction, remain obscure.

185 Pneumoconiosis and Working Conditions in Coal Mines. Brit. Med. J. No. 4316, 395-396 (September 25, 1943).
The Committee on Industrial Pulmonary Disease has been unable to draw final conclusions on causation or differences in incidence of pneumoconiosis in the South Wales coalfield. Anthracite dust is more dangerous than that of bituminous mines. The most important measure in prevention is the reduction of dust breathed by the miners. To this end, the committee advocates a series of procedures which are discussed in this article: (1) maintenance of adequate ventilation, (2) use of water to prevent dust dispersion, (3) allaying of dust in roadways and at loading points, (4) reduction of shot-firing to a minimum, with fewest possible men exposed, (5) regulation of ripping processes, and (6) prevention of chill during spake journeys.

186 Liquefaction Necrosis in Bilateral Symmetrical Conglomerate Lesions of Anthracosilicosis of Lung: Report of Case. B.J. McCloskey. Am. J. Roentgenol., 50, 42-45 (July, 1943).
It is the intention of the author to show that the correct interpretation of the roentgen appearance of necrosis and cavitation in the conglomerate lesions of anthracosilicosis may be very difficult. A case is reported, showing these lesions, uncomplicated by tuberculosis. The only known exposure to silica was when the man worked as a pick miner in a soft coal mine for a period of 12 years and there was no exposure for a period of 44 years before his death. The roentgenologic appearance of the necrotic areas was that of consolidation or pleural thickening. At sutopsy each cavity was found to contain thick, black, viscid fluid, which showed no free silica on examination. Examination of the cavity wall and surrounding lung tissue showed a content of 0.25 per cent silica.

187 A New Radiologic-Social Classification of Pulmonary Silicosis. R.Lorca and others. Bol. de la oficina sanitaria panamericana. 22, 976-981 (November, 1943).(Spanish).
The authors review the principal systems of classification of silicosis, including that of Irvine and that adopted at the International Conference in 1930. They

then propose the following classification, reducing the eight groups to five: (1) exposed but showing no silicosis; (2) suspicious; (3) confirmed phase No. 1, initial nodular fibrosis; (4) confirmed phase No. 2, marked nodular fibrosis; (5) confirmed phase No. 3, confluent nodular fibrosis.

Asbestosis and Pulmonary Tuberculosis. R. Desmeules and others. Laval med., 8, 217 (March, 1943). (French).
Asbestosis is an occupational disease caused by the inhalation of asbestos dust. It is diagnosed by the presence of asbestos bodies in the sputum, and is characterized by the transformation of normal lung tissue into fibrous tissue. Symptoms appear usually five to seven years after the beginning of exposure. Both asbestosis and tuberculosis were seen in 5 workers exposed to asbestos dust for 20 years. In three of these cases asbestosis was masked by tuberculosis.

Asbestosis and Pulmonary Tuberculosis. R. Desmeules and M. Giroux. Laval Med., 8, 227 (March, 1943). (French).
The case history of a 44 year old man is given who had worked for 20 years in an asbestos mill. After 10 years he had developed productive cough which increased gradually. Shortly before he was admitted to the hospital he started to run fever and had pains in the chest. The clinical diagnosis of ulcero-fibrous tuberculosis and asbestosis was confirmed by the autopsy. Diffuse peribronchial and perialveolar sclerosis was also seen. It is believed that the first symptoms of asbestosis appeared ten years before the symptoms of tuberculosis, but the matter could not be decided radiologically and pathologically.

Asbestosis Bodies. M. Giroux. Laval Med., 8, 239 (March, 1943). (French).
The "curious bodies" found in the sputum of patients suffering from pulmonary asbestosis usually measure 24 to 50 mu by 12 to 24 mu but can be as large as 250 mu. They consist of a central fiber of asbestos which is covered by a golden-yellow substance containing iron. Rabbits, guinea pigs and one dog were exposed to inhalation of asbestos dust. Asbestosis did not develop in the rabbits nor in the dog. The guinea pigs showed, after several weeks, macrophages with asbestos fibers in their alveoli. Erythrocytes appeared in the alveoli, and hemoglobin derivatives containing iron could be found on asbestos fibers two to three months after the beginning of the inhalation of the asbestos dust. When a suspension of asbestos in olive oil was injected subcutaneously or into the testicles of guinea pigs no asbestos bodies were formed. However, if first one cc. of blood was injected and then the asbestos dust through the same needle, asbestos bodies could be found one month later. The presence of asbestos bodies in the sputum is believed to be a definite sign of pulmonary asbestosis.

Coincidence of Primary Carcinoma of the Lungs and Pulmonary Asbestosis. F. Homburger. Am. J. Path., 19, 797-807 (September, 1943).
In the medical literature there are now at least 19 known cases of asbestosis associated with primary pulmonary carcinoma. In 4137 autopsies at the pathology laboratory at Yale University School of Medicine, there were 45 cases of pulmonary carcinoma in the years from 1918 to 1938. Asbestosis was diagnosed 8 times, silicosis 17 times. Pulmonary carcinoma was found in 4 of the 8 cases of asbestosis and twice in the 17 silicotic cases. Despite the high correlation of the foreign body asbestosis in the lungs with primary pulmonary carcinoma, this is a small series of cases and the value of these data is limited. Three cases are given in detail. The diagnosis of pulmonary asbestosis was diagnosed according to the following criteria: (1) fibrosis of the lung and (2) presence of asbestosis bodies.

192 Pulmonary Asbestosis. L. Rousseau. Laval Med., 8, 233 (March, 1943). (French).
The radiological picture of pulmonary asbestosis is not characteristic; it is usually similar to that of tuberculous fibrosis. The diagnosis is, therefore, often made only after asbestos bodies have been found in the sputum. Asbestos fibers may be seen in the sputa of individuals who do not suffer from asbestosis; asbestos bodies are due to a pathologic tissue reaction. Microscopical examination of the lungs of patients who have died from an intercurrent disease may show asbestosis, which had not been found on X-ray examination. The case history of a 42 year old man with asbestosis without tuberculosis is given. The patient had been working in the asbestos industry for 18 years. For 2 years the patient had been suffering from increasing cough, expectoration and dyspnea. Roentgenological examination showed mottling of both lungs. Sputa and gastric examinations were negative for tubercle bacilli. Asbestos bodies were found in the sputum.

Methods of Detection and Determination

193 The Quantitative Determination of Cyanide in Air. D. Lester. J. Ind. Hyg. & Tox., 26, 61-63 (February, 1944).
The author describes a method for cyanide determination based upon the colorimetric measurement of cyanide derivative formed from methemoglobin exposed to air containing cyanide. An air sample of 1 liter is sufficient for determining a concentration as low as 1 part per million, with an error of 0.1 parts per million, higher concentrations to 2% accuracy. The colorimetric measurement depends upon the change in light absorption of methemoglobin at wave length 635 milli-microns, which decreases with the conversion in accordance with the Beers-Lambert law. Full details of collection and determination procedures are given.

194 Sampling and Analysis of Air Contaminants. F.H. Goldman. Ind.Med., 13, 100-103 (January, 1944).
The analysis of air for various contaminants especially substances produced for military use, is described briefly. The standard impinger and midget impinger may be used for the collection of ammonium picrate, dinitrotoluene, tetryl, TNT, nitroglycerine, mercury fulminate, tracer bullet mixtures, fluorides, metal fumes, chlorinated hydrocarbons and war gases. The tests after collection are indicated very briefly. The Shepherd bottle is used for collecting substances such as nitrogen oxides or benzene, as one type of a grab sampler. The electrostatic precipitator and the benzol indicator are discussed briefly, with mention of other special methods.

195 Analysis of Atmospheric Contaminants Containing Nitrate Groupings. H. Yagoda and F.H. Goldman. J. Ind. Hyg. & Tox., 25, 440-444 (December, 1943).
Methods are described for the estimation of nitroglycerine, PETN (pentaerythritol tetranitrate), nitrous fumes, and ammonium nitrate in atmospheres arising from manufacturing processes. The analyses are based on the nitration of m-xylenol in 82.5% sulfuric acid and the colorimetric determination of the nitro-xylenol isolated by a simple steam distillation. -- Authors' summary.

196 Dust Measurement. W.Grundmann. Arch.tech.Messen Lfg. 126, T.152,2 (1941).(German)
Dust measurement is possible with the Tyndallometer by determination of the intensity of the scattered light of the dusty atmosphere. Calibration curves for the various sorts of dust must be made because the effects of size, form and optical surface effects of the dust particles must be eliminated to secure an accurate measurement of the dust concentration.