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INDUSTRIAL HYGIENE DIGEST

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Literature Abstracts

- MEDICAL
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Industrial Health News



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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 non-profit association of industries for the advancement of healthful working conditions.

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Five "Foundation Facts"

1. There are approximately 300 companies affiliated with the Foundation.
2. Over half of the industrial (operating) members employ less than 500 workers. In fact, one-third of the operating group employ 100 men or less.
3. Thirty members employ more than 5,000 workers. Ten companies in this group include the largest corporations in America from the standpoint of employment.
4. Approximately 80 per cent of all operating units of companies affiliated with the Foundation are located in the East, and are North of Virginia and Tennessee.
5. One-half of them are within easy reach of Pittsburgh where the Foundation's headquarters are maintained at Mellon Institute.

"Human Relations" in Industry

Industrial Hygiene Foundation is concerned with the conservation and development of human resources. Hence, the work of the Foundation, and the activities of other public and private agencies in industrial health, comprise the flesh and bone of human relations for industry. In this connection, A.G. Hewitt, Production Manager, The Visking Corporation, writing in "What's New in Industrial Hygiene", a publication of the Illinois Health Department, says in part:

"Industrial hygiene sometimes is defined as the control of the working environment for the protection of the worker. But this definition is too negative, too apologetic. It is not sufficiently efficient merely to protect the worker — to see that his work does not make him sick. Rather, we desire to improve his health, to safeguard and maintain his physical condition at a high level, and to provide working conditions which will insure that his best efforts can be put forth effectively and continuously. A better definition perhaps would be that industrial hygiene is the science of maintaining industrial health and physical efficiency at their highest."

Meanwhile, Alfred Schindler, Under Secretary of Commerce, told the National Confectioners' Association on June 25 that "Conditions of employment must be such that the worker will willingly give forth his best efforts. It is Management's responsibility to develop the incentives which will accomplish this end. Let it not be forgotten that the laborer does not work for cash alone — that the laborer's pay goes beyond the actual money enclosed in his envelope, and that it includes all the conditions under which he earns his livelihood."

ARMY MEDICAL Course in Occupational Health

Dr. Raymond Huxley, member of the Foundation's Medical Committee and Dean of the School of Occupational Health, Wayne University, Detroit, is directing a course in Occupational Health and Medicine which will start at the University on September 9. See announcement in the Foundation's current INDUSTRIAL HYGIENE DIGEST.

.....I-H-F Takes Health to Work.....

Industrial Health Hazards and Their Effects

- 734 Research in Rand Mining. J.T. McIntyre. J. Chem. Met. & Min. Soc. S. Africa, 46, 3-45 (Jul.-Aug., 1945)

A discussion of the economic value of research to mining and industry, first in its general implications, and then with respect to special fields of research. These include the problem of dust from the stand-points of fire hazard and silicosis; also ventilation of deep mines and air conditioning.

- 735 Attempts to Prevent Silicosis with Aluminum. E.J. King, Nancy Rogers and Margaret Gilchrist. J. Path. & Bact., 57, 281 (1945)

Results of experiments in which a mixture of 98% quartz and 2% aluminum were introduced into the tracheas of 12 rabbits, with six control rabbits receiving quartz alone, showed that silicosis was not prevented with quartz plus aluminum, although the lesions produced were less advanced than in the animals exposed to quartz alone. Those receiving quartz alone showed the characteristic experimental silicotic lesion. The lesions in the experimental animals were similar, but showed some slight differences, including a greater tendency to confluence, a lesser tendency to hyaline change with reticulin fibrosis, and less collagen formation. The scarcity of the aurine-staining material in all the sections indicates the preferential absorption of the aluminum, since large patches of crystalline quartz remained. A higher content of aluminum in the mixture, or the repeated renewal of the aluminum in the lungs appears to be necessary if experimental silicosis in animals treated with intratracheal introduction of powdered quartz is to be prevented. -- J.I.H.&T.

- 736 Employment of Silicotics and Pneumoconiotic Persons. G. Kenfell. Report Cmd. 6719, H.M. Stationery Office. Price 1d. Abstracted in Colliery Guardian, 172, 69-70 (Jan. 11, 1946)

The report deals with the problem of providing work in South Wales for persons suspended from the mining industry on account of silicosis or its variations. The majority are capable of work in any light industry which does not involve working in dust or fumes and does not require heavy lifting. It is planned, first, to induce new industries to locate in the area, and second, to induce industry to employ the workers affected. A limited number of the silicotics require "sheltered" employment under special conditions. They are the concern of the Disabled Persons Employment Corporation, Ltd.

- 737 Influence of Age on Silicosis. E. Martin and L. Roche. Presse med., 54, 3 (Jan. 5, 1946) (French)

A study of 163 fatal cases of silicosis diagnosed by roentgenographic examinations. Autopsy was performed in 51 cases, and the diagnosis was established on microscopic examination. The authors recorded the time elapsed between making the roentgenogram and the death of the patient. The cases were classified according to the generally accepted three stages of silicosis, and also according to the age of the patient when examined: 31-40, 41-50, 51-60 and 61-70 years. In each stage of silicosis

the average time from examination to death increased progressively through the first three age groups, becoming irregular in the last. The survival time for the 51-60 group was between 50 and 100% longer than that for the 31-40 group, in all three stages. The author concludes that although a definite prognosis made on these results may be erroneous, the data warrant the conclusion that much more caution must be used in the prognosis for young persons than for aged workers when the roentgenographic pictures are the same. Consequently young patients require more strict prevention of future exposure to silica dust than do older patients. This is all the more important as the incidence of acute tuberculosis is much greater among the young patients with silicosis than among those of advanced age. -- From Occ. Med.

- 738 On the Subject of Silicosis. M. Duvoir and G. Poumeau-Delille. Arch. d. mal. prof., 6, 222 (1944-1945) (French)

The authors present a study of two cases of silicosis uncomplicated by tuberculosis in miners, in whom the disease did not become apparent until many years after the cessation of exposure to silicon dust. The two patients, aged 49 and 50, each of whom had mined silicon-bearing ore for a period of at least 20 years, experienced no definite symptoms, dyspnea, cyanosis -- until 4-6 years after they had ceased their mining activities. On roentgenographic examination, both patients showed a widespread nodular opacity in the upper regions of both lungs. There were, moreover, no bacteriological indications of tuberculosis. One of the patients, brought to autopsy 13 years after a diagnosis of silicosis had been made, showed multiple sclerotic areas of both lungs, and extensive areas of alveolar silicotic necrosis, but no indications of tubercular lesions. The authors emphasized the fact that silicosis may exist in a subclinical form for many years without detection. -- J.I.H.&T.

- 739 Chest Conditions Simulating Silicosis. L.E. Hamlin. Ind. Med., 15, 376-381 (June, 1946)

In recent years the recognition of true occupational fibrosis has become more difficult because of an ever increasing number of conditions which produce patterns in the roentgenogram resembling silicosis. These are caused not only by inhalation of dust but range all the way from certain heart afflictions to vascular changes associated with advancing age. Those chest conditions whose x-rays simulate silicosis are outlined and discussed. (A) Industrial: (I) Organic: (a) Byssinosis, from cotton dust, prevalent in England but not known to exist in this country; (b) Bagassosis, from sugar cane, very few cases; (c) Tabacosis, from tobacco dust, common in South America but rare here; (II) Inorganic: (a) Anthracosis, from carbon dust and other inert materials; (b) Radio-paque deposits from barium (Baritosis), tin, and iron (Siderosis) upon which experimental work on laboratory animals is being done; (c) Beryllium poisoning, a comparatively new disease, the effects of which on the body tissues have not yet been completely determined, but are known to produce nasal irritation, skin ulcers and pneumonitis; (d) Asbestosis, in which the alveoli are mechanically plugged by asbestos fibres. (B) Non-Industrial: (I) Mycotic: (a) Aspergillosis, (b) Monilliasis, (c) Wood-dust spores, (d) Coccidioidomycosis, (e) Blastomycosis, and (f) Actinomycosis, all from fungi, including yeasts and molds, producing acute asthmatic symptoms with dyspnea, cough, expectoration, and loss of weight, all of which usually respond to iodine therapy;

(II) Miscellaneous: (a) military tuberculosis, (b) Sarcoidosis, (c) Mitral Stenosis, (d) Cancer (Metastases), (e) Vascular changes, (f) Military calcinosis (Wheatena), and (g) Polycythaemia Vera. While the roentgenogram still provides the best grounds on which to express an opinion on silicosis, it is obvious that an adequate employment history, substantiated by dependable estimations of exposure to hazardous dust, is essential for accurate differentiation of occupational fibroses.

- 740 Dust Concentrations in Stone Crushing Operations. A.C. Stern, J. Baliff, A.E. Perina and R. Schmidt. *Ind. Med.*, 15, 165-168 (Feb., 1946)

The silicosis hazard in the stone crushing industry is significant. The New York state stone crushing code limits the allowable dust concentration to 10 m.p.p.c.f. in dust from stone containing over 10% free silica, and to 100 m.p.p.c.f. when the free silica content is less than 10%. Among the quarries and mines for which dust counts are reported in this paper, 64% have rock with free silica content of less than 10%. In order to get average dust samples for analysis, samples were collected for 10 minute periods at three different times. The average figure for the three samples was taken as the true concentration. At sand and gravel pits, stone re-crushers, operated dry, gave man exposures in excess of 10 m.p.p.c.f. In stone crushing plants, both the crusher building and the screen house gave in about half the counts over 300 m.p.p.c.f. In the talc industry, half of the counts associated with milling and bagging were above 200 m.p.p.c.f. — J.I.H.&T.

- 741 Graphite Pneumoconiosis Complicated by Cavitation Due to Necrosis. L. Dunner and J.T. Bagnall. *Brit. J. Radiol.*, 19, 165-168 (Apr., 1946)

Dunner and Bagnall describe the first case of a lung cavity due to necrosis in a worker aged 64 who had been working with graphite for 17 years. In 1939 he was pronounced tuberculous and sent to a sanatorium. His sputum was always free from tubercle bacilli. After discharge he did not return to work with graphite but was able to do light work for six years. In 1944, when first seen by the authors, radiologic aspects of his chest were unchanged, when compared with those of films taken in and since 1939, and showed massive opacity in the right upper zone, similar, but fainter opacity in the left upper zone; and a rounded opacity the size of a golf ball, superimposed on the lower part of the left root shadow. In April, 1945 he suddenly brought up large amounts of black material. Samples of the undried sputum contained about 0.07 per cent of carbon, the size of the majority of the particles being 5 microns or less, with only a few over 10 microns. No silica was detected. — J.A.M.A.

- 742 Pulmonary Acariasis: A Possible Cause of Asthma. E. Soysa and M.D.S. Jayawardena. *Brit. Med. J.*, 1, 1 (Jan. 6, 1945)

During a two-year period the authors discovered that bronchial asthma was responsible for 21% of all cases invalided out of the Army from their medical division. A search was made for mites in the sputum and in 11 of 21 cases examined mites of either tyroglyphus or tarsonemus were found. The treatment consisted in arsenicals of the pentavalent variety and resulted in remarkable success. The lungs showed a clear parenchyma, where there had been a diffuse mottling, giving a ground glass appearance before treatment. The majority of the patients had been exposed to dust emanating from rice, cereals, flour, sugar, etc. A few had worked in linen and leather depots. Tyroglyphid and tarsonemid mites