

RECEIVED
AUG 12 1966
DIVISION OF
HEALTH AFFAIRS LIBRARY

Stacks—Allis Conrad Library

# Industrial Hygiene Digest

## INDUSTRIAL HEALTH NEWS

## LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL

JULY, 1966
(Vol. 30, No. 7)

INDUSTRIAL HYGIENE FOUNDATION
MELLON INSTITUTE
4400 FIFTH AVENUE -:- PITTSBURGH, PA. 15213

PLAINTIFF'S EXHIBIT
IHF-568

Millworkers' Asthma: Allergic Responses to the Grain Weevil (Sitophilus granarius). J.A. Lunn. Brit. J. Ind. Med. 23, 149-152 (April, 1966).

Two laboratory workers, who spent a considerable time each day handling grain infesting by the grain weevil (Sitophilus granarius), developed allergic responses to this insect varying from rhinitis and pruritus to marked asthma. These findings suggested that weevil protein present in mill dust could result in sensitization in those exposed continuously. A pilot study was therefore undertaken on 75 volunteer millworkers to determine whether such sensitivity existed. A millworker was defined as anyone who worked in a flour mill or mill producing animal feed from mixed cereals, or who worked in grain-storing silos. Skin testing with weevil, mixed flour extracts, and a control was carried out on all 75 volunteers; 57% had a positive response to the weevil extract and 68% a positive response to the mixed flour extract. In a control group of 100 workers from two engineering firms matched for age and sex, 34% were positive to the weevil extract and 17% to mixed flour. From the initial 75 millworkers, 15 were selected for further study based on a positive skin response to the weevil and a history of a productive cough and chest tightness and wheezing when exposed to mill dust. The forced expiratory volume in one second ($FEV_{1.0}$) was measured after control inhalations and after weevil and mixed flour inhalations. Significant reductions of 20% and 15.4% were found in two subjects after inhalation of weevil extract. In one case wheezing and cough developed. The changes in $FEV_{1.0}$ were reversed after inhalation of a bronchodilator aerosol. Twenty-five of the control subjects with positive skin responses to the grain weevil were given similar provocation inhalations but none showed any significant change in $FEV_{1.0}$. This pilot study suggests that grain weevil sensitivity is an additional factor in millworkers' asthma.
-- Author's abst.

Farmer's Lung. P. Marland. Poumon Coeur 21 (2) 209-223 (1965). French.

Farmer's lung may exhibit three pictures: acute dyspneic attack, relapsing subacute respiratory manifestations, chronic respiratory failure. Hay and musty grains are responsible for these disorders. The proof of a candidosis has not been established in a formal manner. The irritating action of dusts on the bronchi of a sensitized subject would rather include the disease within the sphere of allergoconiosis. -- APCA Absts.

Antigens From Moldy Hay Involved in Farmer's Lung. D.E. LaBerge and M.A. Stahmann. Proc. Soc. Exptl. Biol. Med. 121, 458-462 (Feb. 1966).

Trichloroacetic acid (TCA) extracts of moldy hay contained three antigens that produce precipitins with a typical farmer's lung serum. These antigens were fractionally precipitated with ethanol; antigens were present in the fractions precipitated between the limits of 50 to 60%, 60 to 70%, and 70 to 90% alcohol. Each of these alcohol fractions were further purified on diethylaminoethyl (DEAE-) cellulose and analyzed for sugars and amino acids. It is concluded that these TCA-soluble antigens involved in farmer's lung disease are composed of peptides and carbohydrates that were not separated by TCA extraction, alcohol fractionation, or by chromatography on DEAE- cellulose ion exchange columns. There are 13 references. -- Public Health Eng. Absts.

Asbestos and the Urban Dweller. J.G. Thomson. Ann. N.Y. Acad. Sci. 132, 196-214 (Dec. 31, 1965).

Investigations were made in Cape Town, South Africa, to determine the extent to which the ordinary urban dweller is exposed by occupation or environment to the inhalation of asbestos. Investigations were made by counting asbestos bodies in smears from the lung bases from 500 consecutive autopsies in subjects over 15 years of age in Cape Town and 500 in Miami, Florida. The results were similar in the two cities. Approximately 30% of the males and 20% of the females showed asbestos bodies. The finding of abundant asbestos bodies in the lung bases of one in 17 of the male hospital population suggests that the occupational hazard from asbestos is greater and more diversified than realized at present. As a limited basal asbestosis may be associated with malignant mesothelioma of pleura and peritoneum an increase in this tumor is forecast as the main ground for regarding asbestos as a potential urban hazard. -- APCA Absts.

The Inhalation of Fibrous Dusts. V. Timbrell. Ann. N.Y. Acad. Sci. 132, 255-273 (Dec. 31, 1965).

The largest compact particles normally found in lungs are about 10 microns in diameter. Asbestos fibers 50 microns and even 200 microns long can be explained by the fact that the parameter of the two main deposition mechanisms is particle free-falling speed, determined by the diameter and not the length. If the diameter of an asbestos fiber is less than 3.5 microns, the fiber has a chance of escaping deposition by these two mechanisms and of penetrating deeply into the lung. The more symmetrical a fiber is, the greater its chance of penetrating. The limitation on the lengths of the fibers which reach the pulmonary air spaces is imposed by the nasal hairs and by the small diameters of the respiratory bronchioles. Asbestos and glass fibers are discussed.

697 Occupational and Non-Occupational Exposures to Asbestos. W. C. Hueper. Ann. N.Y. Acad. Sci. 132, 184-195 (Dec. 31, 1965).

The sources and types of occupational and non-occupational exposures to asbestos and various occupational and non-occupational population groups having such contacts are presented. The biologic functional and anatomic effects associated with and produced by the inhalation of asbestos dust are discussed. Asbestosis and asbestos cancer hazards related to an inhalatory exposure exist not only for asbestos workers engaged in direct and regular production, processing, handling and use of asbestos containing materials, but also for the large number of individuals who may have contacts on an incidental basis. The rise in the production and industrial use of asbestos has resulted in a widened exposure to asbestos dust for an increased number of workers. The principal worker groups exposed to respiratory contact with asbestos are employed in the mining and milling industries, the production and commercial use of asbestos cement and plaster, and secondary products. There are 91 references. -- APCA Absts.

## PHYSICAL ASPECTS OF THE ENVIRONMENT

698 The Hazards of Scuba Diving. D.W. Parker. Can. J. Public Health 56, 292-296 (July, 1965).

The following hazards of scuba diving are discussed: drowning, air embolism, eye squeeze, mask squeeze, ear squeeze, sinus squeeze, nitrogen narcosis, air starvation, seasickness, shallow breathing, decompression sickness, over-expansion of gas, air squeeze, and carbon dioxide poisoning. Features of safe equipment are listed. -- Public Health Eng. Absts.

699 Water Consumption by Man in a Warm Environment: A Statistical Analysis. J.E. Greenleaf, E.G. Averkin, and F. Sargent II. J. Appl. Physiol. 21, 93-98 (Jan. 1966).

Twenty-two metabolic variables were examined using stepwise linear regression analysis for their possible relationship to voluntary water consumption in 87 young men. Six variables: (1) mean daily urinary volume, (2) serum osmolarity, (3) lying pulse rate, (4) mean daily urinary Cl, (5) mean daily urinary K, and (6) rate of sweating, accounted for 62% of the variation in water intake. The addition of the remaining 16 variables accounted for only 71% of the variation. An equation was constructed that estimated water intake from these six variables. The anions, particularly Cl, might be of greater importance in influencing drinking than has been previously realized. The data suggest that some combination of body osmolarity and body fluid volume is associated with water intake in man. There are 28 references. -- Aerospace Med. Absts.

700 Modifications of Serum Protein Iodine in Man Exposed to Polar Climate. M. Staquet. J. Physiol. (Paris) 57, 499-502 (July-Aug. 1965). French.

The stress produced by exposure to cold causes a fall in serum protein-bound iodine during the early days. In some subjects this initial fall is followed, in succeeding days, by a return to normal or even raised, levels. These changes can be explained by an increased peripheral thyroxine consumption provoking pituitary-thyroid hyperfunction. There are 14 references.
-- Aerospace Med. Absts

701 Spread of Masking in Ears Showing Abnormal Adaptation and Conductive Deafness. F. Harbert and I. M. Young. Acta Oto-Laryngol. 60, 49-58 (July-Aug. 1965).

Thresholds in the presence of various intensities of noise re 0.0002 dynes/sq.cm. were compared for normal and pathologic ears. For all sensorineural loss without abnormal adaptation, wide band noise produced a masked threshold 15-20 db. below the level of the noise. The masked threshold at the center of the narrow band was approximately at the same intensity as noise. These findings are essentially the same as in normal ears. Conductively deafened ears showed the same masked thresholds as normal ears for white noise and for the center of the narrow band and for frequencies below. However, there was less spread of masking than normal for frequencies above the center of the narrow band. Cases with progressively increasing sensorineural hearing loss for frequencies above the narrow band showed most increased spread above the narrow band. Those with flat losses or more sensorineural loss for frequencies below the narrow band showed a near symmetrical spread on each side of the narrow band. The clinical and audiological findings in the latter group indicated that the lesion was in the cochlea. For abnormally adapting ears, white noise caused greater masking than for normal ears. In severely adapting ears, the lateral spread of masking approached the effect of white noise with narrow band masking. There are 24 references.
-- Aerospace Med. Absts