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LITERATURE ABSTRACTS

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INDUSTRIAL HYGIENE FOUNDATION

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PLAINTIFF'S EXHIBIT

CHR-311

- 775 Byssinosis in Hemp Workers. A. Bouhuys, et al.
Arch. Environmental Health 14, 533-544 (April, 1967).

Severe byssinosis, chronic cough, and other chronic respiratory symptoms are highly prevalent among workers exposed to dust of raw, biologically retted, soft hemp (*Cannabis sativa*). Within this group nonreactors and reactors could be distinguished by the absence or presence of a decrease of forced expiratory volume (FEV_1) during dust exposure on Mondays. The questionnaire interview underestimated the extent of the workers' symptoms. Urinary excretion of a major histamine metabolite (1, 4-methylimidazolacetic acid; MeIAA) was higher on Monday than on Wednesday in those reactors whose FEV_1 decreased on Monday but not on Wednesday. This finding agrees with the hypothesis that the bronchoconstrictive response to hemp dust exposure on Monday is a result of the release of histamine in the lungs. A deleterious effect of long-term hemp dust exposure upon pulmonary function is highly probable: (1) FEV_1 (before dust exposure; adjusted for age and height) was significantly lower among the hemp workers than among a control group (farm workers), although the latter smoked more, and significantly lower among those with byssinosis grades 1 and 2 than among those without or with mild symptoms of disease; (2) 9 out of 20 retired hemp workers had an FEV_1 of half the expected value or less. Among the active workers, abnormally low values of FEV_1 (before dust exposure) were only found in reactors. This supports the assumption that irreversible pulmonary function changes develop primarily in those individuals who are sensitive to the acute bronchoconstrictive effect of hemp dust. There are 25 references.

-- Authors' summary

- 776 Lycoperdonosis. R.D. Strand, E.B.D. Neuhauser, and C.F. Sornberger.
New Engl. J. Med. 277, 89-91 (July 13, 1967).

Lycoperdonosis is the respiratory disease caused by inhalation of large quantities of spores from the mature mushroom, commonly termed puffball. Lycoperdon is the genus of fungi to which most puffballs belong. The two most common species, *Lycoperdon pyriforme* and *L. gemmatum*, have worldwide distribution. They may be found July to October, often growing on decaying logs, stumps and woody refuse, generally in dense clusters, and may occasionally be scattered through open fields. The spore fruits of lycoperdon are pear or top shaped, with large, sterile bases. Within the wall, or peridium, of the puffball, vast numbers of club-shaped spores form. At maturity, any external agitation or compression of the peridium cause the spores to be discharged through the apical ostia. A single lycoperdon produces approximately 1.6×10^{14} spores. It is well known to many nonherbalists that some practitioners of folk medicine use the hemostatic effect of the "dust" that can be extruded from puffballs. The concept has been applied to surface wounds and nosebleeds. For the treatment of epistaxis, the usual technic is to hold the puffball under the nose and inhale gently as the spores are puffed, so that the spores adhere to the inside of the nostril. With a massive inhalation of the spores, symptoms become rapidly progressive. Nasopharyngitis occurs within a few hours of exposure, and a form of pneumonitis, appears, accompanied by nausea, a rapid pulse, crepitant rales and dyspnea. The course may be protracted for many weeks, with gradual subsidence of symptoms to complete recovery. Two cases are described in detail. There are 7 references.

- 777 Mesothelioma and Asbestos Exposure. J. Lieben and H. Pistawka.
Arch. Environmental Health 14, 559-563 (April, 1967).

Forty-two cases of mesotheliomas reported from 152 hospitals over a five-year period, were studied with regard to exposure to asbestos. Survivors or employers, or both, were questioned regarding the possibility of asbestos exposure. Ten patients actually worked in asbestos plants; eight lived or worked close to an asbestos industry; three patients were family members of asbestos workers. In ten patients a history of assumed exposure to asbestos was obtained after prolonged questioning. In 11 other patients no history of asbestos exposure could be obtained.

-- Authors' summary

- 778 Asbestos Bodies in the Lungs of Inhabitants of Milan. I. Ghezzi, G. Molteni, and U. Puccetti.
Med. Lavoro 58, 223-227 (March, 1967). (In English).

The incidence of asbestos bodies in the lung of adult inhabitants of Milan was studied by lung smears obtained at autopsy, following the same technique used by Thomson and by Cauna et al. None of the individuals studied had been occupationally exposed to asbestos. Asbestos bodies were found in 51 out of 100 subjects studied. The incidences observed were 34% for men and 44% for women. Positive cases were more frequent in the oldest group of subjects and in those

showing evidence of pulmonary edema. In one case, positive for asbestos bodies, a slight pulmonary fibrosis was histologically demonstrated but no case of clear-cut asbestosis was found. No parietal pleura plaques or thickening were found in any of the 55 subjects accurately studied from this point of view, 35 of whom were positive for asbestos bodies. -- Authors' summary

- 779 Settling Velocity and Density of Monodisperse Aerosols. J. W. Thomas and R. H. Knuth. *Am. Ind. Hyg. Assn. J.* 28, 229-237 (May-June, 1967).

The theory of particles settling in streamline flow in a horizontal tube has been applied to determine the settling velocity and density of a monodisperse aerosol. The aerosol is collected on a filter paper placed in a tube cross section downstream of the inlet. Microscopic examination of the characteristic pattern of the deposited particles on the paper permits a calculation of particle settling velocity and density. Tests of the theory, using monodisperse particles 0.796, 1.305, 1.90, and 2.68 microns in diameter, showed agreement to within 8% or better with settling velocity values calculated from the known size and density of the particles. The theory applies to spheres, cubes, and particles having symmetrical shapes. There are 12 references. -- Authors' abst.

- 780 Evaluation of Filters for High-Volume Sampling of Atmospheric Particulates. D. N. Kramer and P. W. Mitchel. *Am. Ind. Hyg. Assn. J.* 28, 224-228 (May-June, 1967).

A practical evaluation was carried out on commercially available glass fiber filter materials for use in the high-volume sampling of atmospheric suspended particulates. Studies were carried out on the collection efficiency of the various filter materials under equilibration and nonequilibration conditions. Values were obtained of the ratio of decreased airflow through the filter at constant pressure drop as a function of particulate loading. It was concluded that improvements need to be made in the physical uniformity of the sampling matrices. A variation in suspended particulate values was observed employing standard techniques, but generally the filters were self-consistent. It was further concluded that the high-volume sampling method is only a semiquantitative measurement and that simpler and more accurate methods are required. There are 5 references. -- Authors' abst.

- 781 Estimation of Airstream Concentrations of Particulates From Subisokinetically Obtained Filter Samples. G. A. Sehmel. *Am. Ind. Hyg. Assn. J.* 28, 243-253 (May-June, 1967).

Experimental estimates of errors in the measurement of concentrations of particulates in air from subisokinetically obtained samples were determined for a 1.65-inch-diameter filter holder geometry. Sampling velocities were from 0.008 of isokinetic to isokinetic for air velocities from 2.7 to 30 mph. Impaction efficiencies with no flow through the filter were determined for the lower limit of the model used to correlate the data. The model was used to calculate curves for comparison with the experimental data for finite subisokinetic sampling rates and to calculate concentration corrections as a function of particle size, sampling rate, and air velocity. There are 13 references. -- Author's abst.

- 782 Light-Field Microscope Versus Microprojector in Determining Coal Dust Concentrations. P. Zullo and E. Digon. *Am. Ind. Hyg. Assn. J.* 28, 238-242 (May-June, 1967).

A study was undertaken to statistically compare equivalent area field counts and dust concentrations obtained by using a microprojector and a light-field microscope. This was to test the opinion that the two methods, although allowed by the standard dust counting technique, are not comparable. The precision between observers and within one method was also examined. The study shows that the two counting methods do not produce comparable results and that, on the average, higher dust concentrations can be expected with the microprojector. There are 10 references. -- Authors' abst.

PHYSICAL ASPECTS OF THE ENVIRONMENT

- 733 Cold Stress and Muscular Exercise With Special Reference to Accidental Hypothermia. L. G. C. E. Pugh. *Brit. Med. J.* 2, 333-336 (May 6, 1967).

Observation of O_2 intake and body temperature on clothed subjects during ergometer exercise in a simulated wet-cold situation showed that at work rates up to 300 kg/min, O_2 intake increased by 0.4 to 0.5 liter/min, compared with control observations in warm situations. At work rates of 300 kg/min and over there was no metabolic increase in response to cold. The metabolic response was inhibited at a rectal temperature of 37.3°C, mean skin temperature being