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Selective and critical abstracts and reviews of world
literature on all aspects of public health including

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- 1337 GRUBB, G. W. & LACHANCE, M. Dust-fiber relationships in the Quebec chrysotile industry. *Arch. Envir. Hlth*, 1974, v. 28, No. 2, 69-71.

"Epidemiological studies of Quebec chrysotile miners and millers have related various indices of health to dust exposure, as measured with the midjet impinger. The interpretation of these relationships in terms of fiber necessitates the conversion of midjet impinger (particle + fiber) counts to membrane filter (fiber) equivalents. An investigation in which 87 side-by-side midjet impinger-membrane filter samples were taken at five mines and mills showed that the correlation was poor and no single conversion factor was justified. Until more detailed information on the relationships between midjet impinger and membrane filter counts can be obtained, it is recommended that safety standards, at least in this industry, should continue to be based on dust counts, for which there is considerable epidemiological support, rather than on fiber counts, for which there is no direct evidence."

- 1338 BECKETT, S. T. The evaluation of airborne asbestos fibres using a scanning electron microscope. *Ann. Occup. Hyg.*, 1973, v. 16, No. 4, 405-8.

"Asbestos fibres sampled on Nuclepore filters can be directly examined by scanning electron microscope in much greater detail than is possible using the conventional optical microscope/membrane filter technique. Results obtained by the two methods for fibres $> 5 \mu\text{m}$ in length were in good agreement. The new technique could facilitate the development of automatic counting methods for asbestos fibres."

- 1339 RÜTTNER, J. R., EIDENBENZ, H. & WÜST, W. Pleuramesotheliome in Zürich. [Pleural mesothelioma in Zürich.] *Schweiz. Med. Wochschr.*, 1974, v. 104, No. 10, 340-45. English summary.

Epidemiological studies on the frequency of mesothelioma usually cover areas in the neighbourhood of the asbestos industry. Thus, the frequency of mesothelioma in regions without asbestos industry like Zürich seems interesting, as in this case contamination of the environment by asbestos as a causative agent of mesotheliomas found in the general population can be excluded. Between 1960 and 1972 the Institute of Pathology of the University of Zürich diagnosed mesothelioma in 0.13% of all autopsies on adults. Of the 29 cases of mesothelioma 27 were pleural and 2 peritoneal and in only 1 was there occupational contact with asbestos.

In the other 28 cases, both the lack of asbestos exposure and the absence of asbestos in the lung or tumour indicated that exposure to asbestos is not a necessary prerequisite for the development of mesothelioma. The frequency of mesothelioma was 50% more in males than in females. No mesothelioma was found in persons under the age of 40 years and 80% of the cases occurred in people over the age of 60 years.

Ladislav Mares

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- 1340 ROSEN, P., SAVINO, A. & MELAMED, M. Ferruginous (asbestos) bodies and primary carcinoma of the colon. *Am. J. Clin. Pathol.*, 1974, v. 61, No. 1, 135-8.

"There is considerable evidence that asbestos may contribute to the development of mesothelioma and pulmonary carcinoma. It has also been suggested that asbestos could participate in the genesis of colonic carcinoma. In this study we sought to isolate ferruginous (asbestos) bodies from 21 specimens of bowel. The majority were from patients with primary carcinoma of the colon. No true ferruginous (asbestos) bodies were recovered. The significance of these results is discussed."

["Atypical ferruginous bodies" (ROSEN *et al.*, *Am. J. Clin. Pathol.*, 1973, v. 60, 608) were found in 11 specimens from 8 patients.]

K-80712

- 1341 MALTEVA, L. M. & TATANOV, YU. A. [Occupational diseases of respiratory organs at a modern cement plant.] *Gig. Truda Prof. Zabol.*, 1974, No. 3, 14-17. [In Russian.]

The English summary appended to the paper is as follows:—

"Data derived from the study into the prevalence of various forms of occupational pathology involving respiratory organs at the plants of the Moscow region producing portland-cement containing up to 5 per cent of free silica are reported. Medical examinations (721 persons) and roentgenological investigations (1247 persons) of workers in occupational groups exposed to dust hazard revealed in 9.5 per cent of cases chronic dust-induced bronchitis, in 0.62 per cent of instances—pneumoconiosis of the 1st stage and in 0.3 per cent of cases occupational bronchial asthma. Cement-induced pneumoconiosis developed after 20 years of work at the cement plant and was characterized by a benign course. In chronic dust-produced bronchitis an asthmoid component was seen to occur in 30 and intercurrent pneumonia—in 22.5 per cent of cases."

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are reprints of original documents and contain the original illustrations. Included are his thesis on microbial transmission by water, plus papers on water sanitation, immunology, taxonomy, toxicology and entomology.--J. W. S.

3268 K-28126 BOGOVSKI, P. et al. [Ed.]. IARC (International Agency for Research on Cancer) Scientific Publication, No. 8. Biological effects of asbestos. Proceedings of a Working Conference. Lyon, France, Oct. 2-6, 1972. xxi+346p. Illus. Map. International Agency for Research on Cancer: Lyon, France. [Dist. by World Health Organization, Geneva, Switzerland.] 1973[recd.1974]. Pr. Sw. Fr.80.--International studies on the asbestos problem are reported and evaluated. The epidemiology and pathology of asbestos-associated disease and progress in the related physical and chemical fields are discussed. The methods employed in the studies of the biological effects of asbestos and the clinical, pathologic, experimental pathologic and environmental aspects are described. Chest radiography for detecting and monitoring asbestos effects; evaluation of effect of asbestos on lung function; counting of asbestos bodies in tissue; assessment of asbestos fiber content of tissues; classification of asbestosis; diagnosis of diffuse mesotheliomas; electron microscopic study of normal, hyperplastic and neoplastic mesothelium; experimental methods for studying effects of asbestos; sampling and analysis of fibrous dusts; chemical characteristics of asbestos; instruments useful for identification of single asbestos fibers in human tissues; and asbestos sources in the environment are discussed. Environmental data in industry and mining, asbestosis and cancer in relation to fiber type, dose, occupation and exposure duration, significance of asbestos burden in lungs and pleura and a review of clinical data on mesotheliomas are presented. Asbestosis and cancer were investigated in textile manufacturing, insulating materials manufacture, asbestos cement workers and amosite, anthophyllite, chrysotile and crocidolite mines and mills. Etiological mechanisms and other factors, e.g. chemical and physical factors and cigarette smoking, were also considered. The industrial uses of

asbestos and the 1969 United Kingdom Asbestos Regulations were discussed and reviewed. Areas needing further research were explored. Individual papers are indexed in BIORESEARCH INDEX.--M. M.

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a new steady state higher than that found with nonstimulated connective tissue cells. Possibly the implanted plastic is a stimulus causing this new elevated steady state. When the regulation mechanisms of the total organism fail (e.g., in old age) and with an increased cell proliferation in the steady state, uncontrolled tumor growth may occur.

--E. S.

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K-28126

3461 REEVES, ANDREW L., HENRY E. PURO* and RALPH G. SMITH. (Dep. Occup. and Environ. Health, Sch. Med., Wayne State Univ., Detroit, Mich. 48201, USA.) Inhalation carcinogenesis from various forms of asbestos. ENVIRON RES 8(2): 178-202. Illus. 1974. [In Engl. with Engl. summ.]--Rats, rabbits, guinea pigs, gerbils and mice were exposed to the inhalation of chrysotile, crocidolite or amosite for 2 yr. Mean atmospheric concentrations were 47.9-50.2 mg/m², but only 0.08-1.82% of the dusts retained fibrous morphology during the dissemination procedure which involved hammer milling. Trace contamination especially by Cr and Ni was increased. Light microscopic fiber counts/ml chamber air were 54 (chrysotile), 1105 (crocidolite) and 864 (amosite). A fibrogenic response to these dusts was observed in all 3 animal species, the severity corresponding to the extent of exposure (with reaction to chrysotile frequently very slight). Gerbils developed frequent alveolar proteinosis. Mice developed spontaneous papillary carcinomas in the lungs. Disregarding the latter species, carcinogenic response to asbestos inhalation was restricted to rats and occurred in all 3 exposure groups. There were 2 lung cancers and 1 pleural mesothelioma after chrysotile inhalation; 4 lung cancers after crocidolite inhalation and 1 lung cancer and 2 pleural mesotheliomas after amosite inhalation. These cases constituted 7-9% incidence of malignancy among rats with an adequate survival record. Hypotheses of asbestos carcinogenesis are reviewed. Different etiologic principles may be involved in the causation of lung cancer and pleural mesothelioma.--E. S.

3462 YOSHIOKA, YOSHIO. (Cancer Cent. Inst., Nara Med. Univ., Kashihara City, Nara 634, Jpn.) The production of interstitial nephritis in rats induced by NDPS and its effect on the development of kidney tumors by dimethylnitrosamine. J NARA MED ASSOC 25(1/2): 16-26. Illus. 1974. [In Jpn. with Engl. summ.]--Clinicopathological and histological changes of kidneys in rats treated with the nephrotoxic substance, N-(3,5-dichlorophenyl) succinimide (NDPS) were analyzed in various stages and the influence of NDPS on the histological pattern or incidence of kidney tumors in rats induced by dimethylnitrosamine (DNM) was also studied.

At each CO exposure level, the percentage declines in brain and muscle tissue PO_2 were approximately the same. No change in heart rate occurred at either level of CO exposure. At the conclusion of the experiment, the percentage of carboxyHb had risen to an average of 3.3%.

K-7209

369. THOMSEN, HENRIK KLEM* and KNUD KJELDSEN. (Dep Clin. Chem. A, Rigshosp., Blegdamsvej 9, DK-2100 Copenhagen O, Den.) Threshold limit for carbon monoxide-induced myocardial damage. An electron microscopic study in rabbits. ARCH ENVIRON HEALTH 29(2): 73-78. illus. 1974. [In Engl. with Engl. summ.]--Rabbits (4 were exposed to CO and the myocardial ultrastructure was studied. The concentration of CO and the exposure time were varied in order to estimate the threshold limit for myocardial damage. Degenerative changes such as contraction bands, myofibrillar disintegration, myofibril body formation, and dehiscence of the intercalated disks were seen in rabbits exposed for more than 4 h to CO concentrations higher than 100 ppm. This high sensitivity of myocardium to CO exposure is explained by the binding of CO to Hb and especially to myoglobin in connection with the prevailing low oxygen tension in normal myocardium. This study, as well as recent reports on the effect of low-level CO exposure in patients with ischemic heart disease, suggest that the CO content in tobacco smoke and in heavily polluted atmospheric air may be deleterious to such patients. A reevaluation of the recommended threshold limit for industrial CO exposure is proposed.

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K-28126

370. GROSS, PAUL. (Dep. Pathol., Med. Univ. S. C., 80 Barre St., Charleston, S. C. 29401, USA.) Is short-fibered asbestos dust a biological hazard? ARCH ENVIRON HEALTH 29(2): 115-117. 1974. [In Engl. with Engl. summ.]--Contrary to the determination that the finer the quartz dust, the greater its pathogenicity, the pathogenicity of the finest asbestos dust was shown to be negligible. Research laboratories in Germany, England, South Africa and the USA have found that short-fibered asbestos dust, i.e., less than 5μ in length, is incapable of causing fibrosis or cancer. This finding, in conjunction with the failure of different laboratories in the

United Kingdom and in the USA to discern abnormalities following prolonged asbestos feeding to rats, should lead to the abandonment of the present concept that maintains that mesotheliomas and gastrointestinal cancers arise from the ingestion of asbestos dust cleared from the lungs. These negative results should also allay the alarm that has been raised as a result of the finding of ultramicroscopic mineral fibers in certain beverages and drinking water.

Pharmakol. Inst., Univ. Bonn, Bonn, Ger.).
Pflanzenkr. Pflanzenschutz 1975, 82(5), 303-15 (Ger).
The presence of herbicide residues in drinking water and in foods of animal origin, and the toxicity of these residues are reviewed with 41 refs. The establishment of tolerance and application limits to control the residue concns. is suggested, but the limiting of use of *amitrole* [61-82-5] and 2,4,5-*T* [93-76-5] in the Federal Republic of Germany was not deemed necessary.

158580n Arsenic. Contents and effects in soils and plants. Schoenhard, G.; Koenig, W. (Biol. Bundesanst. Land-Forstwirtschaft, Inst. Nichtparasit. Pflanzenkr., Berlin-Dahlem, Ger.). *Z. Pflanzenkr. Pflanzenschutz* 1975, 82(5), 329-36 (Ger). A review with 48 refs.

158581p Nitrosamines and their precursors. Dobbertin, S. (Umweltbundesamt Berlin, Berlin, Ger.). *Dtsch. Tieraerztl. Wochenschr.* 1975, 82(8), 324-6 (Ger). The occurrence and toxicity of nitrosamines and their precursors, *nitrate* [14797-55-8], *nitrite* [14797-65-0], and secondary amines, in drinking water and certain vegetables used as food and animal feed are reviewed with 13 refs.

158582q Asbestosis. Reassessment of the overall problem. Haley, Thomas J. (Natl. Cent. Toxicol. Res., Food Drug Adm., Jefferson, Ark.). *J. Pharm. Sci.* 1975, 64(9), 1435-49 (Eng). A review with 246 refs. on chem., industrial hygiene, animal and human toxicol., and carcinogenicity of asbestos.

158583r Chemicals, viruses, and cancer. Seemayer, N.; Manojlovic, N. (Med. Inst. Lufthyg. Silikoseforsch., Dusseldorf, Ger.). *Lufthyg. Silikoseforsch.* 1974, 7, 129-40 (Ger). Viral carcinogenesis and in vitro chem. carcinogenesis, interaction between chem. carcinogens and oncogenic and nononcogenic viruses in in vivo carcinogenesis, and chem. simulation of viral carcinogenesis in vitro are reviewed with 48 refs.

158584s Function of plasma membrane proteins and their significance in air hygiene questions. Stark, Marlies; Bruch, J. (Med. Inst. Lufthyg. Silikoseforsch., Dusseldorf, Ger.). *Lufthyg. Silikoseforsch.* 1974, 7, 150-6 (Ger). The function of plasma membrane proteins, and their response to inhaled air pollutants are reviewed with 17 refs.

158585t Significance of metabolism in the production of tumors by carcinogenic polyaromatics. Dehnen, W. (Med. Inst. Lufthyg. Silikoseforsch., Dusseldorf, Ger.). *Lufthyg.* 1974, 7, 150-6 (Ger). A review with 97 refs.

ST0095218

K-28126

CA VOL 83

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158581p Nitrosamines and their precursors. Dobbertin, S. (Umweltbundesamt Berlin, Berlin, Ger.). *Dtsch. Tieraerztl. Wochenschr.* 1975, 82(8), 324-6 (Ger). The occurrence and toxicity of nitrosamines and their precursors, *nitrate* [14797-55-8], *nitrite* [14797-65-0], and secondary amines, in drinking water and certain vegetables used as food and animal feed are reviewed with 13 refs.

K-28126

CA VOL 83

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158586u Neural and behavioral toxic aspects of lead action. Winneke, G.; Kastka, J. (Med. Inst. Lufthyg. Silikoseforsch., Duesseldorf, Ger.). *Lufthyg. Silikoseforsch.*

ST0095219