

FILE NAME: Industrial Hygiene Foundation (IHF)

DATE: 1954

DOC#: IHF067

DOCUMENT DESCRIPTION: Industrial Hygiene Digest Abstracts Feb - Nov with
Decennial Index 1945-1954

1954 ANNUAL INDEX

Volume 18



Industrial Hygiene Digest

INDUSTRIAL HEALTH NEWS

LITERATURE ABSTRACTS

MEDICAL

ENGINEERING

CHEMICAL

TOXICOLOGICAL

LEGAL ... decisions and trends

Decennial Index - 1945-54

INDUSTRIAL HYGIENE FOUNDATION

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months than after one month. With the middle grades then were two types of reaction, possibly due to agglomerations and discrete particles respectively. The decrease in proliferation from the finest may be due either to elimination after solution or removal by microphages. Experiments are being continued.

- 71 Occupational Lung Damage in Ships' Repairers. L. Dunger, M. Sanger, & D. T. J. Bagnall. *Brit. J. Radiol.* 26, 590-594 (Nov. 1953).

Occupational lung damage in ships' repairers ("boiler-makers"), due to inhaled dust and/or fumes has been described for the first time. Analysis of the materials and the dusts to which these men are exposed while at work revealed the presence of free silica and iron compounds. Two broad groups are described, namely those with definite radiological changes and those without. Each group may be subdivided into those with severe symptoms, especially dyspnea resulting in incapacity, and those without symptoms. Post-mortem findings of severe emphysema with slight pneumoconiosis are reported in two men belonging to the group, with extreme incapacity in the absence of radiological lesions.

-- Authors' summary

- 72 Asthma and Silicosis. Queries and Minor Notes, J. Am. Med. Assn. 153, 1327 (Dec. 5, 1953).

Asthma occurring for the first time in a 52-year-old person can be aggravated by silicosis. The type of dyspnea caused primarily by silicosis is due to damage of the lung parenchyma and to emphysema. In some persons with silicosis, bronchospasm is induced secondarily. It should also be remembered that a 52-year-old man may have allergic infections or cardiac asthma for the first time. If the patient in question has true asthmatic episodes (relieved by epinephrine or aminophylline), a search for other causative factors should be made by a series of observations such as examination of the sputum for eosinophils and neutrophils, skin tests, and examination for hypertensive, coronary, or syphilitic heart disease.

- 73 Asbestosis Bodies and Pseudo-Asbestosis Bodies. J. Ruttner. *Schweiz. Z. Allgem. Pathol. u. Bakteriologie* 15, 628-631 (1952). German.

The literature on asbestosis bodies is reviewed. Similar products were found by the author in a lung which only contained carborundum and graphite; the bodies were formed around plates and needles of carborundum. The protein and iron which form the bulk of the "bodies" must come from the lung tissues and not from the mineral matter of the dust. Similar bodies could also be produced in vitro but they have not so far been found in animal experiments.

-- Bull. Hyg.

of the eruption, especially whether it coincides with the work period; and (4) character of the eruption, with consideration of possible occupational aggravation of a non-occupational dermatitis. The limitations of the significance of patch tests are discussed. The problem of fungous infections in relation to occupational dermatitis is considered. Some cases of dermatitis require study, even by an experienced dermatologist, before an etiological diagnosis can be made.

- 261 Occupational Skin Disease. Public Health Service Publ. No. 306. U. S. Dept. of Health, Education, and Welfare, and Controlling Chemical Hazards, Series No. 10. U. S. Dept. Labor, Bureau of Labor Standards. 15 pp. (1953). For sale by Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. 10 cents.

This brief pamphlet presents the essentials about occupational skin disease--direct and indirect causes, and prevention and treatment on the part of the employer and the worker.

- 262 Asbestos Warts and Other Dermatoses in Workers with Lagging Materials. G. Farris. *Rass. med. ind.* 22, 1-17 (Jan.-Feb. 1953). Italian.

The author has investigated cases of warts on the hands of 29 workers with lagging materials, including asbestos cord which is wound around pipes, various asbestos-containing slabs, and mixtures of asbestos and cement to be molded to the shape of the tank or other object to be insulated. One to four warts were found in every case. They are due to asbestos fibers which penetrate into the epidermis and become lodged in the corium or true skin. The epidermis shows acanthosis (thickening of the prickle-cell layer) and hyperkeratosis (increased horny tissue) and the corium shows a granulomatous type of reaction with the appearance of giant cells in some cases. Exudative dermatitis may also be present. This condition is attributed to the combined action of the hygroscopic and alkaline cement and the irritating asbestos fibers. The gross and microscopic appearances of the lesions are illustrated.

-- Cond. from Bull. Hyg.

- 263 Dermatitis Due to Pancreas. S. Tara, G. Bouwens, A. Cavigneaux, and Y. Delplace. *Arch. maladies profess.* 14, 44-46 (1953). French.

Two cases are reported of workers employed in a pharmacological laboratory who experienced skin trouble when they manipulated pancreas preparations. Erosion of the skin with bleeding is a feature of this form of dermatitis. Similarly to papaya latex and pineapple juice, enzymes from the pancreas exert a solvent action on the skin.

-- Cond. from Bull. Hyg.

- 549 Further Thoughts on Silicosis. P. Heffernan.
Tubercle 34, 246-249 (Sept. 1953).

The author rejects the solubility theory of silicosis and propounds instead a surface valency theory. The structure of freshly fractured silica is held to possess chemical surface activity with ability to coagulate and fix large masses of organic material. The freshly fractured ends of asbestos are postulated to possess the same activity; hence asbestosis. Freshly powdered aluminum forms a protective coating over the silica particles to render them harmless. Further details are given, but the discussion is entirely theoretical.

-- Cond. from Bull. Hyg.

- 550 The Nature of Lesions Caused by Asbestos and Mica in Experimental Pneumoconiosis in Guinea Pigs. A. S. Ramaswamy, D. S. Venkatesh, and R. Rama Rao. J. Indian Inst. Sci. 35, Sect. A, 319-331 (Oct. 1953).

Guinea pigs were subjected to intratracheal injections of mica and asbestos dusts. Stress is laid on the development, after long periods, of lesions in other organs besides the lungs, especially in the adrenal glands. Mica dust was found to lead to some degree of nodular formation in the lungs, but the asbestos dust set up diffuse fibrosis only. These differences are portrayed in a series of photomicrographs. Mica induced hypertrophy of the adrenal cortex with extensive foamy disintegration of the cortical cells; asbestos induced lesser changes, but small areas of necrosis were occasionally found in the zona fasciculata and zona reticulata. In a theoretical discussion, the authors attempt to draw a relation between the atomic structure of mica and asbestos and the pathological lesions in the lungs and other organs. Their theory, however, leaves many points unexplained. -- Cond. from Bull. Hyg.

- 551 Action of Testosterone in Guinea Pigs Infected with Koch's Bacillus with Reference to Therapy of Silico-Tuberculosis. A. Raule, L. Pecchiai, and R. Grisler. Med. lavoro 44, 475-484 (1953). Italian with English summary.

Of 20 guinea pigs infected with 1 mg. of tubercle bacilli suspended in water 10 received daily 0.5 mg. testosterone propionate. The treated animals showed less reaction in the lymph glands at the site of injection than in other parts and the granulomata were less developed. The sclerotic scar tissue which replaces granulomata appeared in the controls to be hyperplastic, but not in the treated animals.

-- Chem. Absts.

Of all U.S. business firms--slightly over two million--only 5% have 20 or more employees, and only 25% have four or more employees.

-- Supervisor's Personnel Newsletter
Bureau of Business Practice, Dec. 7, 1953

Foremost in disabling silicosis, emphysema stands out as the cause. Emphysema alone with its shortness of breath may lead to a condition simulating asthma and has no specific association with silicosis. In a silicotic patient with emphysema, a coexisting bronchitis may exaggerate the emphysema and thus further the total disturbances. On an organic basis, exposure to silica will not be more harmful to an asthmatic person than to any other worker. On a psychogenic basis, the asthmatic person is prone to react unfavorably to any dust and therefore on an emotional basis may not get along well in the presence of silica dust. The correspondent is referred to the report of the Third Symposium on Silicosis at Saranac Lake, 1937 for a fuller discussion.

- 21 Distribution of Mineral Particles and Fibers in the Lung after Exposure to Asbestos Dust. J. F. Knox and J. Beattie. Arch. Ind. Hyg. & Occ. Med. 10, 30-36 (July 1954).

The particle-size distributions in the incombustible and acid-insoluble residues from the lungs of 27 persons who had been exposed to asbestos dust were determined. The number of particles with greatest lengths in excess of 26 microns was considerable up to the eighth year after the last exposure to asbestos dust and then sharply fell. The number of particles within the size ranges of five microns and less and between five and 15 microns remained constant over a very long period in those cases which showed no sign of asbestosis or minimal fibrotic change. The cases of severe asbestosis showed a significant rise in the numbers of such particles.

It is considered that the mechanism which is concerned with the production of human asbestosis is not the same as that which is responsible for the production of asbestotic changes in experimental animals exposed to high concentrations of asbestos dust. The appearance of such changes seems to be related to the breakdown of asbestosis bodies which may liberate some fibrogenic agent.

-- Authors' summary

- 22 Mineral Content of the Lungs after Exposure to Asbestos Dust. J. F. Knox and J. Beattie. Arch. Ind. Hyg. & Occ. Med. 10, 23-29 (July 1954).

The mineral content of the lung parenchyma; the lung hilar region, and the tissues of the pleural and subpleural regions of the lung has been determined in lungs from 27 workers in the asbestos-textile industry. The exposure time varied from five to 33 years, and the time interval between the last exposure to dust and death (survival time) was from less than one year to 21 years. There was an indication that the mineral material found in the lungs increased in amount as the exposure time lengthened. The amount so accumulated varied considerably from person to person. As the survival time increased, the mineral content of the lung tended to decline but again at a very variable rate. The severity of the asbestotic lesions in the lungs found at death was related not to the mineral content but to the sum of the exposure and survival times.

-- Authors' summary

ions on the surface irregularities produced by removal of alumina and other impurities. The presence of these ions enables the silica surface to attract a greater number of hydroxyl ions from the solvent medium, with the subsequent formation of highly soluble silicic acid. -- Cond. from authors' conclusions

- 297 Physicochemical Studies on Dusts. 8. Some Sorption Properties of Siliceous Dusts. J. G. Gibb and P. D. Ritchie. *J. Appl. Chem.* 4, 483-487 (Sept. 1954).

Rock crystal, Lochaline sand, and vitreous silica (Vitreosil) dusts all show reduced affinity for a dyestuff cation on removal of the disturbed outer layer from the particle surfaces. This layer of amorphous silica is therefore more reactive than the underlying core in sorption processes, just as in solution processes. In the case of vitreous silica, there is probably a physical difference between the outer amorphous layer and the nominally amorphous core, such as a more open structure. Heat treatment and repeated acid extraction have the same effect in both sorption and solution experiments. Alteration of the surface is probably responsible in both cases. -- Cond. from authors' conclusions

- 298 The Effect of Quartz Dust and Aluminum Phosphate on Certain Enzymes. B. Helferich and Erika Schmitz. *Beitr. Silikose-Forsch.* No. 24, 1-20 (1953). German.

This paper describes initial results on the inhibition of enzyme reactions by quartz dusts. It was found that potato phosphatase was adsorbed on quartz dust to an extent depending on the specific surface of the quartz, but that in the adsorbed state the enzyme was still nearly 100% active. Aluminum phosphate and aluminum silicate also adsorbed the enzyme. A search for phosphatase in a fresh sample of silicotic lung tissue gave negative results. The work will be continued with other enzymes. -- Cond. from Bull. Hyg.

- 299 Early Diagnosis of Asbestosis by Enlarged Radiographs. J. Krausler and R. Seyss. *Z. Unfallmed. u. Berufskrankh.* 47, 59-64 (Mar. 15, 1954). German.

After a brief description of asbestosis and the changes in the lung tissue in the early stages, the authors describe a radiographic technique with a fine focus. Of 16 asbestos workers, with 1 to 18 year's exposure, eight showed changes in the lung tissue with the enlargement technique; two of these showed no change by normal technique, and in the other six cases the degree of change shown was minimal. -- Cond. from Bull. Hyg.

- 300 Pneumoconiosis in a Feldspar Worker. W. Rotter and H. Gartner. *Zentralbl. Arbeitsmed. u. Arbeitsschutz* 4, 35-40 (Mar. 1954). German.

The authors describe a fatal case of lung disease in a feldspar worker, which they regard as modified silicosis. The dust contained 27.1% potassium

Anthracosis in smoky city	299	Atomic bomb attack	
Anthrax		burns	319
bacteria, air-sampling	1074	psychological aspects	83, 1047
prevention in tanneries	828	first aid	1159
Anticholinesterases		radiologist's role	87
action	887	(see also Civil defense)	
of phosphorus compounds	888	Atomic power	
poisoning	63	project, health center	918
and respiratory failure	642	public health aspects	435
symposium	886	Autoradiography	
(see also Insecticides, Cholinesterase)		in radium detection	803
Antimony trioxide toxicity	511	Bacteriological safety	28
Antiseptics, disinfectants, fungicides, and sterilization (bk. rev.)	356	BAL therapy	
Arsenic		cobalt poisoning	874
hazard in mines	613	lead poisoning	617, 1252, 1257
poisoning	755	Baritosis	304
BAL treatment	1252	Barium chloride, poisoning	512
and heart disease	271	Benzene	
Arthritis, rheumatoid		data sheet	768
x-ray appearances	180, 181	determination in air	561
Artificial respiration (see Resuscitation)		metabolism	769
Asbestos		poisoning	
dust in lungs	1021, 1022	blood coagulation	1271, 1272
and mica pneumoconiosis	550	lymphoid lesions in	1008
in urine	905	serum lipase in	767
warts	262	Benzene hexachloride	
Asbestosis		detection in vegetables	674
early diagnosis	1299	determination in air	1165
and pseudo-asbestosis		determination in foods	1133
bodies	73	hazard in paint	1014
Atmospheric turbulence		poisoning, chronic	166
studies	934	sensitivity to	536
		toxicity	537
		Benzidine	
		and derivatives, determination	564
		test for hazard	1275
		naphthylamines and tumors	772

Arsenic (cont.)

in town air (1952) 1134
trioxide
detoxication by fluorides
(1945) 905
effect on rat tissue (1946) 417
exposure in industry (1953) 809
tolerance (rats) (1946) 416

Arsine

in industry (1948) 977
mechanism of action (1947) 1173
poisoning (1947) 224, 858;
(1948) 841; (1950) 573, 574;
(1952) 33, 35
from algae (1953) 1041
and BAL (1950) 1039
from boiler cleaning (1951) 844,
984
case(s) (1946) 637; (1950) 459,
824, 825, 1282; (1951) 262
electrocardiographic changes
(1951) 985
fatal case (1952) 34; (1953) 39
prevention (1953) 1042
from scaling (1950) 458
smelting industry (1950) 1157,
1158
toxicity (1947) 1114

Arterial oxygen saturation
determination (1952) 502Arthritis

and compensation (1950) 1036
criteria for compensation claims
(1946) 1267
in industry (1952) 1176
Marie Stumpel's (1950) 1037
osteo, from pressure (1949) 790,
791
rheumatoid, and pneumoconiosis
(1954) 180, 181
sequel of trauma wrist (1950) 40

Artificial circulation (1947) 1367
(see also Resuscitation)Artificial kidney

development of (1949) 143

Artificial respiration (see also
Resuscitation)
devices for (1945) 147Asbestos

clinical study (1953) 284
corns (1945) 68
dust control (1947) 327
dust in lungs (1954) 1021, 1022
effect on tissue cultures (1948) 77
lung cancer from (1953) 605
and mica pneumoconiosis
(1954) 550

Asbestos (cont.)

possible substitute (1945) 1239
and skin granuloma (1950) 1146
in urine (1954) 905
warts (1954) 262

Asbestosis (1948) 278; (1950) 357,
1053; (1952) 674
aluminum prophylaxis (animals)
(1947) 234
bodies, electron microscopy
(1951) 1142
and cancer (1945) 69; (1949) 867;
(1952) 1009
cases (1953) 79
necropsied (1950) 36
control (1952) 83
diagnosis (1947) 1046; (1954) 1299
experimental (1945) 436; (1951) 192;
(1952) 219, 436
in fibro-cement industry (1952) 84
in Finland (1947) 1045
French report (1948) 148
pathology (1953) 78, 604
in pipe-covering operations
(1946) 353
pseudo-bodies (1952) 438; (1954) 73
and sarcoidosis (1947) 407
in Slovakia (1951) 88
study of (1951) 598
miniature films (1953) 496
and tuberculosis (1948) 888

Aspergillosis (1946) 142Asphyxia (see also Resuscitation)
treatment of (1946) 1259Asphyxiation

in a diving bell (1951) 580

Asthma in industry (1952) 625
bronchial (1952) 958Atabrine

dermatitis (1947) 713
workers, "blue hales" in
(1947) 1324

Athlete's foot (see also Dermato-
phytoses and Fungus diseases)

cotton hose as vehicle (1945) 762
prevention (1949) 1007
treatment (1946) 324, 505, 1036

Atmospheric conditions

conducive to efficiency (1945) 621

Atmospheric contamination
pollution (see Air pollution)
symposium (1950) 391Atmospheric diffusion
measurement (1952) 1244Atmospheric pollution (see Air
pollution)Atmospheric turbulence (bk. rev.)
(1951) 14

measurement (1953) 643
studies (1954) 934

Atomic energy (1946) 1091, 1092;
(see also Radiation)

biological applications (1946) 570
chemical problems in (1951) 292
Commission medical program
(1949) 127
constructive use (bk. rev.)
(1950) 1027
economics (1948) 88
employee orientation (1952) 376
hazards (1946) 36, 988; (1947) 534,
995, 997; (1950) 612
control, automatic (1951) 750
control of (bk. rev.) (1950) 1027,
1028
radiation (see Radiation)
in industry (1947) 298, 883;
(1949) 128
insurance (1947) 1260; (1950) 1207,
1208
international control (bk. rev.)
(1947) 142
medical aspects (1946) 301;
(1947) 996, 1119
neutron health monitoring (1949) 341
(1950) 225
physiologic effects (1947) 297
project, health center (1954) 918
protection from radiation (1946) 607
public health aspects (1954) 435
safeguards (1947) 326
slow tissue activation by neutrons
(1946) 231
utilization of (1947) 1349
ventilation (1952) 227

Atomic research

alleged injury to workers (1947) 999

Atomic warfare

atomic bomb (bk. rev.) (1949) 809
biological aspects (1946) 1042,
1223
burns (1950) 968; (1951) 615;
(1952) 790; (1954) 319
casualties care (1951) 384, 898;
(1953) 747
damage and protection (1950) 500
defense, civil (1951) 94
role of doctor (1950) 1065
disaster plan (1948) 689
effects (1947) 174, 994, 995, 1119,
1120; (1948) 1101; (1949) 213,
339, 492, 494; (1951) 98
on blood (1950) 216, 217, 218,
219; (1953) 619