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# VOLUME 23. INDEX TO TEXT AND BOOK REVIEWS

(Asterisk denotes book review)

- Acetic acids, chloracetic, dichloroacetic and trichloroacetic, acute oral toxicity of (Woodard et al.)..... 78
- Acne, occupational, etiology of acne (Jones)..... 290
- Adams, E. M., *see* Irish, D. D.
- Alpers, B. J., *see* Lewey, F. H.
- \*Amor, A. J.: An x-ray atlas of silicosis. 455
- Anthracene and chrysene, carcinogenic effect of, effect of subcutaneous injection in rats (Pollia)..... 449
- \*Asbestosis in manufacture of asbestos, study of (Vigliani)..... 90
- Barnes, E. C., and Speicher, H. W.: The dropping mercury electrode for lead analysis..... 397
- Belknap, E. L.: Reply to Dr. Kehoe's criticism..... 161
- Bellet, S., *see* Lewey, F. H.
- Benzene, absorption, distribution and elimination of by body tissues and fluids of exposed dogs (Schrenk et al.)..... 20
- and homologs, facts and reflections on problem of poisoning by (Schwarz, Teleky)..... 1
- recovery following exposure to (Goldwater, Tewksbury)..... 217
- vapor, effects of inhalation of on red blood cells of rabbits (Robinson, Climenko)..... 232
- Berkelhamer, L. H.: X-ray diffraction, an important tool in pneumoconiosis research and a new method of tissue analysis..... 163
- Boyd, L. J., *see* McGavack, T. H.
- \*Boyd, M. F.: Preventive medicine.... 53
- \*Brahdy, L., and Kahn, S.: Trauma and disease..... 454
- Brieger, H.: The effects of carbon disulfide on the blood corpuscles.... 388
- Calvert, W. R., *see* White, B. E.
- Calvery, H. O., *see* Woodard, G.
- \*Cancer and occupation in Denmark, 1935-1939 (Clemmesen)..... 457
- carcinogenic effect of anthracene and chrysene, effect of subcutaneous injection in rats (Pollia)..... 449
- Carbon arc fumes, filtered, and oxides of nitrogen, inhalation of (Tollman, MacQuiddy, Schonberger).... 269
- Carbon disulfide, effects of on blood corpuscles (Brieger)..... 388
- Carbon disulfide, poisoning in dogs, clinical, biochemical and pathological study (Lewey and others)..... 415
- quantitative microchemical-colorimetric determination of, in air, water, biological fluids (McKee).... 151
- recorder, automatic (White, Calvert). 196
- vapors, solubility of in body fluids and tissues (McKee)..... 23: 484, 1941.
- Carbon tetrachloride as industrial hazard, two cases (Hammes, Jr.).... 112
- \*Chambers, E. G.: Statistical calculation for beginners..... 90
- Chapman, E. M.: Observations on the effect of paint on the kidneys with particular reference to the role of turpentine..... 277
- Clarke, B. G., and Moffet, C. E.: Silicosis in soft coal miners..... 176
- Chloroacetic acid, acute oral toxicity of (Woodard et al.)..... 78
- Chrysene, carcinogenic effect of anthracene and, effect of subcutaneous injection in rats (Pollia)..... 449
- \*Clemmesen, J.: Cancer and occupation in Denmark, 1935-1939..... 457
- Climenko, D. R., *see* Robinson, E. J.
- \*Collier, H. E.: Outlines of industrial medical practice..... 127
- \*Compensation, workmen's, accidental injuries and medico-legal aspects of (Kessler)..... 412
- workmen's, of occupational diseases (Teleky)..... 353
- Creskoff, A. J., *see* Lewey, F. H.
- Delchmann, W.: Toxicity of methyl, ethyl and n-butyl methacrylate... 343
- Dichloroacetic acid, acute oral toxicity of (Woodard et al.)..... 78
- \*Diseases, occupational, industrial hygiene and, course outline and digest of lectures..... 457
- \*of workers (Ramazzini)..... 52
- \*trauma and (Brahdy, Kahn)..... 454
- Drabkin, D. L., *see* Lewey, F. H.
- Drinker, P., *see* Tebbens, D. B.
- Dudley, H. C., and Miller, J. W.: Toxicology of selenium. VI. Effects of subacute exposure to hydrogen selenide..... 470
- Dust counting, microprojection screen (Williams, Silverman)..... 452
- counting, modified eyepiece micrometer for (Harris)..... 148
- sampling, portable unit (Silverman, Thomas)..... 252

## BOOK REVIEWS

✓ **STUDIO SULL' ASBESTOSI NELLE MANIFATTURE DI AMIANTO. (STUDY OF ASBESTOSIS IN THE MANUFACTURE OF ASBESTOS.)** By *Enrico C. Vigliani*. Paper. Pp. 74. Ente naz. di Propaganda per la Prev. deg. Infortuni, Turin, 1940 (40 l.)

The author surveys briefly the literature and gives a good description of processes in asbestos textile work, especially in 4 factories. After some chemical examination of different kinds of asbestos, the results of dust counts made by thermal precipitator and konimeter are quoted. 40% of the particles are under 1  $\mu$ ; dust counts ranged from 110-5300 per cc., being highest in the early stages of the work; in the carding room the count was 360-3300, in the spinning room 80-420, and in the weaving room, 100-2600.

In three plants each worker was examined and in the fourth, only those who had worked more than 6 yrs.; altogether 439 persons were included. 350 were x-rayed, 200 of them twice. Most of the workers were women. Among the 150 persons working more than 6 yrs., 60% had coughs, 35% were dyspneic, 27% had slight dulness at the bases of the lungs, and 39% had crepitant rales. The corresponding figures for the 72 persons suffering asbestosis were 82%, 65%, 51% and 70%. Of all the workers, 9.6% had asbestosis warts, 66% of those who worked more than 6 yrs. had fibrosis, and in the preparation process, 10 of 11. The frequency of asbestosis increases with the average concentration of inhaled dust. It is remarkable that there was no case of tuberculosis among the workers and no case of pulmonary cancer, although there was one case of malignant lympho-granuloma of the mediastinum.

This carefully prepared publication is accompanied by a large number of valuable illustrations, first of the manufacturing processes, then of the dust, and finally of the roentgenograms of 49 cases of asbestosis in different stages.—*L. Teleky*.

**PUBLIC HEALTH ADMINISTRATION IN THE UNITED STATES.** By *Wilson G. Smillie*. 2d edition. Cloth. Pp. xiv + 553. Macmillan Co., New York, 1940 (\$3.75).

This is a second edition of a book originally reviewed 4 years ago in this Journal (Vol. 18, p. 89). The original edition has been enlarged by about 100 pages, brought up to date and materially strengthened. It gives a thoughtful and well balanced view of the field and should be valuable to the industrial hygienist who desires to understand the general public health background of the community in which he works.—*C.-E. A. Winslow*.

**STATISTICAL CALCULATION FOR BEGINNERS.** By *E. G. Chambers*. Cloth. Pp. viii + 110. Cambridge University Press, London, 1940. (7 s. 6 d.)

The non-mathematical student or research worker often experiences difficulty with the calculations involved in even the commoner statistical methods, and he will welcome the appearance of this little book. It is not in any way intended as a textbook on the theory of statistics, and only contains enough theory to enable the reader to understand and apply the methods described. Its one purpose is to explain as simply as possible how the calculations should be performed. Mathematical ability on the part of the reader is not assumed; all the calculations described involve the use of arithmetic only. A worked example of each method given is provided, and exercises with answers are a useful feature.

The author has addressed the book chiefly to students of psychology and the other biological sciences, but it should be of great use to any who have to employ elementary statistical methods and many research workers will find it a useful desk book.—*T. Bedford*.

Feb. 1941]

**SCIENCE AND EVERYDAY LIFE.** By *J. Haldane*. Cloth. Pp. 284. Macmillan Company, New York, 1940 (\$2.00). This book is full of interesting facts concerning our daily life. With a gifted ability to simplify complex problems, the author writes on some seventy and provocative subjects such as evolution, weather, air hygiene, "synthetic" nutrition, mysterious gifts of Orientals, etc.

|                                                                                                                                    | PAGE |                                                                                    | PAGE |
|------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------|------|
| Aluminum, copper, silver, manganese, lead and tin in normal biological materials (Kehoe, Cholak, Story)...                         | 59   | Aromatics, detection of, in air (Gilbert, Tannich).....                            | 15   |
| magnesium, zinc powder, dust explosion hazard in handling (Brown).....                                                             | 126  | Arsenic and goitre (Sharpless, Metzger).....                                       | 148  |
| metallic, prevention of silicosis (Jötten).....                                                                                    | 76   | effect of sodium thiosulfate on excretion of (Ceder, Zon, Klinger).....            | 149  |
| Ammonia, anhydrous (Quinn, Carr).....                                                                                              | 202  | How technic for microestimation of (Wilkinson, Greenham).....                      | 77   |
| chlorine, hydrogen cyanide, hydrogen sulfide, sulfur dioxide gases, toxicity of (Pts. 1-5) (McCallan, Setterstrom and others)..... | 52   | hyperkeratosis, Reichenstein disease (Gotttron).....                               | 61   |
| Amyl nitrite, quantitative determination and decomposition (Horswell, Silverman).....                                              | 206  | in hair and nails (Szep).....                                                      | 121  |
| Andrews, J. B.: Progress of state insurance funds under workmen's compensation. A quarter century of American experience.....      | 43   | ingestion and excretion in man, lead and (Webster).....                            | 201  |
| Anemia, carbon monoxide (Killick).....                                                                                             | 10   | injury to skin with trophic ulcerations (Musger).....                              | 61   |
| in chronic poisoning, study of (Scaglioni).....                                                                                    | 54   | melanosis: demonstration of patients (Fleischmann).....                            | 10   |
| Angina repeated, without neutropenia, atypical hemopathy caused by benzene (Aubertin, Durhovsky).....                              | 34   | Arsenic poisoning, acute, in combatting potato bug (Symanski).....                 | 50   |
| Aniline bladder tumors, experimental studies (Morigami, Nisimura).....                                                             | 147  | chronic, in vineyard workers, research (v. Pein).....                              | 149  |
| poisoning, hematological changes in (Seghini).....                                                                                 | 202  | chronic, of vineyard workers (Straube).....                                        | 35   |
| Anoxia, acute progressive, cardiac adaptations in (Wiggers).....                                                                   | 80   | chronic, peripheral circulatory disturbances in (Butzengeiger).....                | 202  |
| altitude and (Roger).....                                                                                                          | 65   | diagnosis and treatment (Rodenacker).....                                          | 118  |
| repeated, effects on brain (Thorner, Lewy).....                                                                                    | 39   | in vineyard workers (Matras).....                                                  | 94   |
| Anthony, A. W., Jr., see Kleinschmidt, R. V.                                                                                       |      | occupational, of vineyard workers (Frohn).....                                     | 50   |
| Anthrax dust, adsorption of early products of bovine tubercle bacilli in rabbits by (Cummins).....                                 | 204  | Arsenic polyneuritis, Mees nail band in (Wigand).....                              | 35   |
| Anthrax bacilli, virulence of (v. Baza).....                                                                                       | 174  | rapid method for determining, by distillation (Frankel).....                       | 59   |
| bacteremia, malignant pustule with (Bonnenfaut, Remond, Ternois).....                                                              | 30   | trioxide, effect of yellow phosphorus and, on bones and teeth (Adams, Sarnat)..... | 181  |
| malignant pustule (Matras).....                                                                                                    | 79   | Arsenite and caustic soda spray, protection against dermatitis caused by.....      | 189  |
| of kidney, clinical study (Ercole, Fort).....                                                                                      | 199  | Asbestos dust and asbestotic lungs, ultramicroscopic examination of (Kühn).....    | 205  |
| protection of workers at a tannery (Begrich).....                                                                                  | 72   | dust, pulmonary cancer produced experimentally by (Nordmann, Sorge).....           | 184  |
| treatment of (Lucchesi, Gildersleeve).....                                                                                         | 111  | plants, methods of avoiding dust danger.....                                       | 78   |
| Antimony, toxicity of, animal studies (Bradley, Frederick).....                                                                    | 116  | Asbestosis (Bohne).....                                                            | 57   |
| Appendicitis, bronchitis, pneumonia, occurrence of, 1931-1940, disabling morbidity among workers (Gafafer).....                    | 25   | dust retaining ability of nose in (Ehrhardt).....                                  | 120  |
| Apprentice boys and girls in Vienna, body dimensions and growth (Brezina).....                                                     | 65   | in grinders and drillers of brake bands (Brachmann).....                           | 76   |
| Archer-Hall, H. W.: Industrial injuries of the eye.....                                                                            | 188  | protection against (Prockat, Windel).....                                          | 14   |
| Argentina, osteopetrosis in.....                                                                                                   | 32   | pulmonary (Ellman).....                                                            | 205  |
| Arndt, W. D.: Partial onycholysis of mechanical etiology with simultaneous trophic disturbances.....                               | 158  | pulmonary, with tuberculosis, case (Hannesson).....                                | 185  |
| Arnett, J. H.: Vital capacity of the lungs in middle age. Results of periodical examinations of men of sedentary occupation.....   | 190  | reduction of bodily efficiency in (Roemheld).....                                  | 57   |
|                                                                                                                                    |      | struggle against (Ehrhardt).....                                                   | 77   |
|                                                                                                                                    |      | Asmussen, E.: The cardiac output in rest and work in humid heat.....               | 42   |
|                                                                                                                                    |      | and Chiodi, H.: The effect of hypoxemia on ventilation and circulation in man..... | 128  |

|                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Asmussen, E. and Consolazi: The circulation in rest and Mount Evans (43,000 m). Wilson, J. W., and Dill, D. monal influences on carb metabolism during work.           |
| Asphalt as antigen (Hasche-Kl)                                                                                                                                         |
| Asthma, bronchial, as occ disease (Holtzman).....                                                                                                                      |
| bronchial, asphalt as (Hasche-Klunder).....                                                                                                                            |
| Atmospheric pollution, report ended 31st March 1939, 25th                                                                                                              |
| Aubertin, C., and Durhovs: Atypical hemopathy caused by benzene: Repeated angina neutropenia.....                                                                      |
| Australia, invalid and old age pensions of coal miners in New Wales (Badham, Taylor).....                                                                              |
| report of Director-General of Health, New South Wales industrial hygiene section) 1 (Badham).....                                                                      |
| Auten, H. L., see Walter, S., )                                                                                                                                        |
| Aviation deafness, acute and (Campbell, Hargreaves).....                                                                                                               |
| medicine, aspects of (Ryan, nature of pain in high flights sov).....                                                                                                   |
| psychological factors in (H Erickson).....                                                                                                                             |
| Aviators, influence of aircraft on selection and (Poppen).....                                                                                                         |
| physiology of (Roger).....                                                                                                                                             |
| Babudieri, B., and Bianchi, search on an epidemic of le in the rice fields of Pavia.....                                                                               |
| Bacteria, enteric, leaflet on carriage                                                                                                                                 |
| Badham, C.: Report of the D General of Public Health South Wales, for the year 1 Report of the Director-General Public Health, New South Wales, for the year 1938..... |
| and Taylor, H. B.: The lungs miners in New South Wales, cal analysis and pathology.                                                                                    |
| Bakers eczema, follow-up examination in cases of (Jentsch).....                                                                                                        |
| Balacz, J.: Fatal occupational ing by trinitrotoluene.....                                                                                                             |
| Bambach, K., and Cholak, J. trolytic deposition of lead biological material.....                                                                                       |
| Bareggi, B., see Massione, R.                                                                                                                                          |
| Barite pneumoconiosis (S Valdin).....                                                                                                                                  |
| Barnes, M. E., see Rooks, R.                                                                                                                                           |
| Barton, L. V.: Toxicity of ammonia, hydrogen cyanide, gen sulfide, and sulfur dioxide IV. Seeds.....                                                                   |
| Barzin, J.: New research on the p cology and toxicology of ind organic solvents.....                                                                                   |

OF THE EARLY PRODUCTS OF TUBERCLE BACILLI IN RABBITS BY DUST. S. L. Cummins. *Brit. J. Hyg.*, p. 623 (Nov. 9, 1940).

Experiments on rabbits were an attempt to show whether living tubercle bacilli were anthracite dust. In the first group of rabbits was intratracheally with a living emulsion ofulent bovine tubercle bacilli. The second group was given anthracite dust and virulent bacilli. The second group died considerably longer than the first group. All rabbits died of generalized tuberculosis and postmortem examination showed collars of tuberculosis in the trachea. Therefore, in the first group the material was introduced through a catheter which was directed into the larynx. Again, 2 groups

All 3 rabbits in the first group had received only the virulent tubercle bacilli. The acute generalized tuberculous period of 75 days. Of the second group received the bacilli plus the dust, 2 died in an average period of 10 days. In both the tuberculosis was more severe than the first group. 1 rabbit in the second group remained well and gained weight. This rabbit was killed after infection and no trace of dust was found in the organs or microscopically, columns of leucocytes crowded together, within lymphatics, were obtained from areas of lung substance. It was also seen in lung section of bronchial lymph nodes. It is drawn that the addition of a quantity of anthracite dust to living tubercle bacilli led to the death of the rabbits for considerably longer than the 5 control rabbits killed alone, and, in one, to survive up to 6 mos. This is due to the adsorption by dust of a proportion of the toxic living tubercle bacilli in the lungs. H. Cohen. (*Am. Rev. Tb.*)

SILICIC ACID ON PHAGOCYTOSIS. E. Zanetti and L. Piccioli. *Med. del Lavoro*, vol. 32, pp. 19-28 (1941).

Experiments in vitro. The admixture of fine  $\text{SiO}_2$  dust in tiny doses to blood (0.25 mg./cc. blood) slowly diminishes phagocytosis. 0.75 mg. increases it by 130-140% but higher doses have only a slight effect.  $\text{SiO}_2$  dissolved in the blood increases phagocytosis up to 130%.—L. Teleky.

EFFECT OF SILICIC ACID ON PHAGOCYTOSIS. E. Zanetti and L. Piccioli. *Med. del Lavoro*, vol. 32, pp. 39-45 (1941).

The authors performed experiments in vitro and concluded that  $\text{SiO}_2$  in a suspension of 1.5/1000 and in a filtrate increases phagocytosis. This increase is brought about by stimulation of the leucocytes which increases either the number of phagocytosed bacilli or the number of phagocytosing leucocytes.—L. Teleky.

ULTRAMICROSCOPIC EXAMINATION OF ASBESTOS DUST AND ASBESTOTIC LUNGS. J. Kühn. *Arch. f. Gewerbepath.*, vol. 10, pp. 473-485 (1941).

With the ultramicroscope the author examined different kinds of asbestos and asbestos dust from lung tissue, and presents many interesting pictures magnified from 10,800 to 29,000 times. Very small needle-shaped particles up to 6  $\mu$  in diameter and 400  $\mu$  in length have been found in the lungs. By use of the ordinary microscope

in determination of the refractive index, the author found that the particles in the lungs are hornblende; serpentine particles could not be found. But this does not apply to the smallest ultramicroscopic needles, as ultramicroscopic methods and the method of determining refractive index cannot be combined. The author concludes that these tiny particles are also hornblende, and that, since serpentine could not be found in the lungs, it must be dissolved. The hornblende shows no signs of decomposition. Kühn believes, therefore, that hornblende is harmless and that only serpentine produces asbestosis [the opposite conclusion would be tenable also. L. T.]. As the filters of respirators do not exclude particles less than 0.2  $\mu$  they cannot prevent the finest particles from reaching the lungs.—L. Teleky.

PULMONARY ASBESTOSIS. P. Ellman. *Proc. Roy. Soc. Med.*, vol. 34, p. 557 (July 1941).

Ellman presents very briefly the history of a woman, now 45 yrs. of age, who worked for a year in 1910 sewing asbestos mattresses. Her sputum contains asbestosis bodies even now. In 1933 she noticed dyspnea, lassitude, cough and loss of weight. There was impairment at the base of both lungs, crackling râles and diffuse basal fibrosis, with some mid-zone involvement.—Helen Lawson.

#### DUST, SMOKE, FUMES AND VAPORS: THEIR DETERMINATION AND ELIMINATION

DETERMINATION OF LEAD IN BIOLOGICAL MATERIAL. A MIXED COLOR DITHIZONE METHOD. F. L. Kozelka and E. F. Kluchesky. *Ind. Eng. Chem. (Anal. Ed.)*, vol. 13, pp. 492-494 (July 15, 1941).

The authors describe a simplified mixed-color dithizone method for the determination of lead in urine, blood, the soft tissues and bone. The material is acid ashed and treated with sulfurous acid, the purpose of which is to reduce the iron and to oxidize the tin which would otherwise cause interference in the procedure. The method eliminates the necessity of removing the excess dithizone or preparing standard dithizone solutions. Consistent recoveries of  $\pm 1\mu$  gm. of lead are obtainable.—L. T. Fairhall.

ELECTROLYTIC DEPOSITION OF LEAD FROM BIOLOGICAL MATERIAL. K. Bambach and J. Cholak. *Ind. Eng. Chem. (Anal. Ed.)*, vol. 13, pp. 504-505 (July 15, 1941).

In a new method for the electrolytic deposition of traces of lead from biological material, the solution of the ashed sample is electrolysed directly, without previous separation of the lead. The electrodes can be washed and other metals can be complexed, so that the lead deposit on the cathode is often almost entirely free from other substances. The lead can then be determined by the use of dithizone, the polarograph, or by other methods.—Authors' summary.

METHODS OF AVOIDING THE DUST DANGER IN ASBESTOS PLANTS, VALID FROM AUGUST 1, 1940. *Arbeitsschutz*, pp. 283-285 (1940).

The methods were worked out by the association of insurance corporations, together with the corporation most interested

and the German factory inspectors. They contain prescriptions regarding exhaust systems, the efficiency of which must be tested by the insurance corporations and the office for controlling dust, founded by their association.—*L. Teleky*.

#### OCCUPATIONAL DISEASES OF THE SKIN AND SPECIAL SENSES

A NEW INDUSTRIAL CHEMICAL DERMATITIS. *K. O. Stingily. South. Med. J.*, vol. 33, pp. 1268-1271 (Dec. 1941).

A fungicide, sodium tetrachlorophenoxide, is employed to rid lumber of a fungus that causes injury and discoloration. This chemical has been observed to cause a fairly characteristic dermatitis. Those afflicted come in direct contact with the material in solution and the exposed parts of the body show the lesions.

First knowledge of the contact is a sensation of burning which soon subsides, leaving an erythematous patch. In a few hours this vesiculates, and after 24-48 hrs. it ruptures, leaving an ulcer. Conjunctivitis is frequent, and burning on urination has been noted. The ulcers may persist for months or years. The material from the ulcer apparently is capable of local auto-inoculation.

Histologically there is epithelial hyperplasia on the edges and a central exudative reaction characterized by collections of polynuclear leucocytes, lymphocytes and endothelial leucocytes.

Because of the property of auto-inoculation of the ulcerative lesion, it is suggested that a second degree fungus infection may be present. No pathogenic organisms have been grown from the wood.

The treatment is not highly satisfactory; the author believes that curettage and acetic acid wash has beneficial effects.—*Louis G. Welt*.

DERRIS ROOT DERMATITIS. *M. Dorne and T. B. Friedman. J. A. M. A.*, vol. 115, pp. 1268-1270 (Oct. 12, 1940).

A case of dermatitis in a florist's helper was traced to derris root with which he had worked. Derris root rarely causes dermatitis and it is not a contact irritant. The disease was probably caused either by inhalation or by absorption through lacer-

ated skin. The substance produces dermatitis by a true antigen-antibody reaction, as indicated by positive intracutaneous tests and by positive passive transfer reaction. Avoidance of exposure is recommended to sensitive individuals.—*F. F. Rupert*.

OCCUPATIONAL DERMATITIS FROM HANDLING RESIN-LINED TIN CANS. *L. Schwartz and J. P. Russell. J. A. M. A.*, vol. 115, pp. 448-449 (Aug. 10, 1940).

Workers unloading and storing new tin cans complained of a dermatitis principally in the cubital spaces and axillas. Dust from the cans was said to be the irritant. Cans were lined with a vinylite resin and the manufacturer would not divulge what plasticizers and driers were used. Ten men complaining of the dermatitis had all worked for some time before they were affected. Patch tests were performed and 2 of the 3 tests were positive. One affected worker did not suffer after the cans were removed from exposure.

The plasticizer is considered to be the cause of the trouble but this could not be determined with certainty.—*Helen Lane*.

OCCUPATIONAL DERMATITIS (OIL). *C. G. Lane. Arch. Dermatol. & Syphil. (Suppl. trans.)*, vol. 43, p. 184 (Jan. 1941).

Dr. Lane describes the case of a 68 yr. old machinist who for 3 yrs. had a dermatitis of the face, arms, axillas and lower abdomen. There were scattered areas of tan-brown hyperkeratotic follicles and follicular plugs. Keratoses were present on the scrotum and there were keratotic areas on the arms. Autopsy revealed carcinoma of the esophagus. Dr. Lane believes the skin changes to be due to oil to which the man was exposed in his 40 yrs. as a machinist, and that the condition is that described by White among machin-

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CONSTITUTIONAL ECZEMA  
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OPINION. *A. Wchnschr.*, v.

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## DUST HAZARDS AND THEIR EFFECTS

CLINICAL EVALUATION OF DISABILITY IN PULMONARY DISEASES OF INDUSTRY. E. Mayer. *J. A. M. A.*, vol. 116, pp. 97-100 (Jan. 11, 1941).

The author gives his experiences as a member of the New York State Department of Labor board of impartial consultants, which reviews controversial claims for compensation due to disability acquired in industry. Apparently two types of problems present themselves: where pulmonary disease is obviously related to a definite industrial hazard and disability is claimed—it must be decided whether the disease which is present is disabling; the other type of problem is that in which the patient is obviously disabled, but the difficulty is to determine whether or not the disability is related directly to his occupation.

The author attacks these problems under the headings of etiology; the production of lung injury and the anatomic results of such injury; the recognition of pulmonary illnesses; and how such illnesses produce pulmonary incapacity, particularly with respect to reliable clinical and laboratory procedures for determining such disability.

Two case reports are given as illustrative of the procedures used.

Three different types of tests of pulmonary function are cited and discussed in detail: ventilation, or the ability of the lung to inflate and deflate with air; gas exchange tests which measure the oxygen debt, the oxygen deficit, and the oxygen unsaturation of the hemoglobin of the arterial blood; finally, by measurement of the efficiency of the pulmonary circulation.

In conclusion, the author submits a classification of disability grading for the consideration of specific application to pulmonary diseases of industry: in the so-called "phase of compensation," pulmonary fibrosis and emphysema are present to a considerable degree (however in this stage the emphysema is still compensatory in character and does not restrict the functional capacity for moderate exercise); in "latent decompensation," fibrosis and emphysema are of extensive degree and there is marked

restriction of exercise capacity with dyspnea occurring readily on moderate exercise; in so-called "manifest decompensation," the fibrosis and emphysema are of such marked degree as to be associated with more or less constant dyspnea even while patient is at rest.—C. O. Sappington.

SILICOSIS FROM PORPHYRY. CONTRIBUTION TO THE KNOWLEDGE OF SUBACUTE SILICOSIS. E. Gaubatz. *Fortschr. a.d. Geb. der Röntgenstr.*, vol. 62, pp. 395-404 (1940).

In the district mentioned by the author, the quartz porphyry contains quartz and orthoclase in equal parts. 10 yrs. ago a 220 m. tunnel was built in a period of 9 mos. The drilling was done dry. Of the 6 drillers employed, 3 died of silicosis and two are suffering from medium to serious silicosis. 2 workers employed to carry the material away are still free of symptoms. Drilling and crushing results in silicosis over a period of 1-3 yrs. The author presents case histories and pictures. In the introduction he discusses at length observations on the dangerous effects of granites, porphyries, basalts, etc. but without realizing the difference between quartz and silicates.—L. Teleky.

THE DUST RETAINING ABILITY OF THE NOSE IN ASBESTOSIS. W. Ehrhardt. *Arch. f. Gewerbepath.*, vol. 10, pp. 309-325 (1940).

The author examined the dust-retaining ability of the nose in 238 asbestos workers following Lehmann's directions carefully. No constant relation between this ability and disposition to asbestosis could be discovered. There was a decreased dust-retention capacity (below 40%) in several men who showed asbestotic lung changes, but many workers remained healthy in spite of a low capacity. Both men with really severe asbestosis had a good dust retaining capacity (more than 40%). The author concludes that this test has no essential value and may be abandoned in the pre-employment examination of asbestos workers.—L. Teleky.

## DUST, SMOKE, FUMES AND

INDUSTRIAL AIR ANALYSIS: A DESCRIPTION OF SOME OF THE CHEMICAL METHODS EMPLOYED IN THE LABORATORY. Burke, S. Moskowitz, J. Siegel, Dolin and C. B. Ford. *N. Y. State Lab., Div. Ind. Hyg.* (mimeographed).

Various instruments and chemical physical procedures for laboratory analyses of air are presented. Among instruments described are the CO in combustible gas indicator, interferometer, H<sub>2</sub>S indicator, the Nordlander apparatus for mercury, the Woodland mercury detector, various types of absorption bottles and the Tebbens combustion apparatus for chlorinated hydrocarbons. The chemical procedures which are described consist of methods for determining Pb, Zn, and Cu both when present in combination, the determination of benzene vapor, mercury in dust, and H<sub>2</sub> and formaldehyde and methanol. The physical methods, outside of those incorporated in the instruments listed, consist of the adsorption of organic vapors on charcoal, silica gel, etc., and the determination of vapors and gases in liquid media.

In general specific methods are presented for determining the following compounds: CO, Pb, Zn, Cu, C<sub>6</sub>H<sub>6</sub>, Hg, H<sub>2</sub>S, CS<sub>2</sub>, formaldehyde and halogenated hydrocarbons. Also, methods are given for determining the combustible limits of various vapors and the gravimetric estimation of vapors when present singly or in proportions.

The methods given are supported by references and experimental data, and should be of inestimable aid to the industrial hygienist. In this connection it might be pointed out that more recent work shows the diethylamine reaction to be as convenient and several times more sensitive than the copper xanthate one.

In the lead and zinc determination, not made clear by the authors, the basic principle of the preferential determination of lead in the presence of zinc. This apparently is based on the fact that the zinc-dithizone complex is more readily extracted with 0.5% KCN. Also the

shops are some of the typical results. To avoid such hazardous conditions, the Division of Industrial Hygiene writes letters to all plants in the State receiving defense contracts. Medical, engineering and

chemical aid is offered, and enclosed with the letter is a list of articles from the Division dealing with industrial hazards. Plants are visited to discover possible dangerous conditions.—*Helen Lawson.*

### DUST HAZARDS AND THEIR EFFECTS

**THE SILICOTIC NODULE IN HUMAN AND EXPERIMENTAL SILICOSIS: A COMPARATIVE STUDY.** T. H. Belt, A. A. Ferris and E. J. King. *J. Path. and Bacteriol.*, vol. 51, pp. 263-267 (Sept. 1940).

The authors report on a comparative study of silicotic lesions in man and those produced in rats after a single intra-tracheal injection of silicon dioxide, ranging from 0.8 to 5  $\mu$ . They stress the zone of fibrous tissue with practically no silica particles ("redundant fibrous encapsulation") as an important difference between silicosis as seen in man and that in experimental animals, where they found such was lacking. They also point out some differences in the character of the fibers and their pattern. They speculate as to the possibility that in man the lesion may be complicated by infection. Evidence as to the development of the "redundant capsule" with an outer halo of dust is not submitted in this report. A subsequent report is promised, and this point may then be clarified.—*R. Z. Schulz.*

**INVESTIGATIONS COMPARING THE DANGER TO THE LUNGS FROM NATURAL AND ARTIFICIAL GRINDSTONES IN GRINDING SHOPS.** Gärtner. *Arbeitsschutz*, pp. 245-248 (1940).

There is a short report of investigations made by Jötten in order to give an expert opinion, by order of the German ministry of labor. The complete report will appear as number 15 of "Arbeitsmedizin," published by I. A. Barth, Leipzig. Experiments were made in which rabbits inhaled dust produced by crushing two natural grindstones and two artificial ones. Of the latter, one was compounded of minerals, the other of ceramic compounds, containing 25% insoluble silicic acid. The dust of natural grindstones, containing 93.2 and 74.2% quartz, produced in the rabbits typical silicotic nodules. With the artificial

grindstone dust no silicotic changes were produced, only slight connective tissue and capillary proliferation.—*L. Teleky.*

**PREVENTION OF SILICOSIS BY METALLIC ALUMINUM.** Jötten. *Arbeitsschutz*, pp. 252-254 (1940).

The author reports results of his experiments on animals in which he used quartz with 0.75% aluminum. (The Canadian workers now employ greater amounts of aluminum.) Dust was inhaled by rabbits for 6 hrs. daily and more or less typical silicotic changes were found in animals surviving for a year. The positive findings occurred earlier than in the control animals, although the daily period of exposure was shorter [?]. The author mentions briefly that he experimented with 25 and 50% mixtures of aluminum silicate and found this material to diminish remarkably the effect of the quartz.—*L. Teleky.*

**SILICOSIS FROM PORPHYRY WITH A NOTE ON "ACUTE SILICOSIS."** Symanski. *Arbeitsschutz*, pp. 272-274 (1940).

Porphyry contains from 30 to 50% free silica. The author saw a man who had worked for 7 years as a quarryman but was endangered only during his 9 months' experience as a driller. He acquired a serious silicosis; 20 additional cases of silicosis from porphyry were seen, most of slight or medium degree.—*L. Teleky.*

**ASBESTOSIS IN GRINDERS AND DRILLERS OF BRAKE BANDS.** Brachmann. *Arbeitsschutz*, pp. 172-174 (1940).

Since 1937 workers in all asbestos manufacturing plants must be examined annually by the medical factory inspector in Saxony. The brakebands are made of sheets of asbestos, or are pressed out of asbestos

Apr. 1941]

waste products and a filler, impregnated artificial resin. Afterwards the brake plates are ground and drilled, and roentgen examination of the and drillers and men who file in pieces showed a few light cases of asbestosis after they had worked 2 yrs. Such asbestosis are found in nearly all after 5 yrs. employment.—*L. Teleky.*

### DUST, SMOKE, FUMES AND VAPORS

**NOTES ON THE HOW TECHNIQUE FOR MICROESTIMATION OF ARSENIC.** Wilkinson and C. G. Greenhalgh. *Australian J. Exp. Biol. and Med. Sci.*, pp. 341-342 (Dec. 1940).

The authors suggest slight modification in preparing reagents and in using technic (Ind. & Eng. Chem., Anal. Ed., 226, 1938), to eliminate difficulties encountered. The How technic modification of Gutzeit's method were able to reproduce observed amounts of arsenic as low as 0.01 mg.—*B. D. Tebbens.*

**ESTIMATION OF HALOGENATED HYDROCARBON VAPORS IN AIR.** S. Moskowitz and N. Y. Dept. Labor, Inc. *Anal. Chem.*, vol. 19, p. 232 (Dec. 1940).

The authors have modified the method described by Tebbens (THIS JOURNAL, 1937). The 9  $\frac{1}{2}$  x 11  $\frac{1}{2}$  x 19" box contains a rheostat, absorber, drying tube, meter, with space for a combustion chamber. It is operated at 0.75 l.p.m. and claims that they obtain approximate efficiency for chlorinated aliphatic hydrocarbons but only 80-85% for aromatic hydrocarbons such as naphthalene. Sampling time to 1 hr., depending upon the concentration expected.—*Helen Lawson.*

**DETERMINATION OF CARBON MONOXIDE IN THE BLOOD BY THE PHOTOELECTRIC COLOR METHOD.** Havemann. *Klin. Wchnschr.*, pp. 1183-1185 (1940).

A method is described which can be done in a short time. The photoelectric colorimeter used was constructed by the author and is made by W. Kauhaus, Berlin. 1 cc. of blood, or e

where there are signs and symptoms they are due to superimposed infection.

"Chronicity of infection and slow progression of uncomplicated silicosis are the

rule in iron ore workers." In his experience simple silicosis is not inevitably fatal.

The paper is ably discussed by Dr. L. U. Gardner.—*W. I. Clark.*

#### DUST, SMOKE, FUMES AND VAPORS: THEIR DETERMINATION AND ELIMINATION

PROTECTION AGAINST ASBESTOSIS. *F. Prockal and T. Windel. Staub. no. 10, pp. 264-283 (Nov. 1939).*

Brief reference is made to a previously published paper in which it is pointed out that the asbestosis hazard depends not only on the chemical nature of the asbestos but also on the fineness of the individual fibers. H. T. Barnes showed that in American and Russian asbestos fibers of 0.75  $\mu$  diameter were demonstrable. Roentgenographic investigations of asbestosis lungs using the Debye-Scherrer technic showed particles with diameters between 0.017  $\mu$  and 0.081  $\mu$  in large numbers. Recent investigation of finely ground Cape asbestos with a microscope magnification of 27,000 showed that the fibrous structure of the asbestos is maintained down to the finest particles of only 0.02  $\mu$  to 0.12  $\mu$  thickness. From these findings the authors take the view that chemical and colloidal reactions must play a greater part in the genesis of asbestosis than some investigators hold to be the case. Investigations of the industrial problem in Germany have led to the conclusion that almost every operation with danger from asbestos dust can be rendered dustfree. Recommendations have been submitted to the relevant Ministry and the authors proceed in the present paper to present and amplify them. [Nineteen of the chief recommendations are listed in *Bulletin of Hygiene* abstract. They cover exhaust ventilation, care of apparatus, good house-keeping, dust counts, etc.]—*M. W. Goldblatt, Bull. Hyg., (p. 348, June, 1940).*

#### DUST CONTROL IN THE GRANITE INDUSTRY.

*W. C. L. Hemeon. Heating and Ventilating, vol. 37, pp. 41-45 (Aug. 1940).*

Cloth filter dust collectors are employed almost exclusively in the granite cutting sheds. It has been common practice to specify a filter of such size that the filtration velocity (air flow in c.f.m. divided by

the cloth area in square feet) will be about 3 ft. per min. The author presents the results of a study of the operating characteristics of commercial size filters handling granite dust. He concludes that if certain precautions of design are observed, together with the elementary ones of shaking bags at least twice a day and emptying hoppers before they are full, there appears to be no good mechanical reason why filters of the cloth tube type should always be limited to the size commonly fixed by the 3 f.p.m. rule. These principles are applicable to the filtration of all kinds of dust from air.—*F. S. Mallette.*

SILICA DUST CONTROL AT HIWASSEE DAM. *L. P. Hatch and D. F. Shaw. Civil Eng., vol. 10, pp. 582-585 (Sept. 1940).*

Crushed stone aggregate was produced on the job for the concrete employed at the Hiwassee Dam. Since the rock contained 60-80% free silica, adequate control methods were required in the crushing operation. A wet method, using 9 gals. of water per ton of rock, and an exhaust method used at strategic points were both necessary, although the wet method was more effective.

An interesting table shows dust concentrations at various points in the operation with and without control.—*George M. Reece.*

FLOW PATTERN AND PRESSURE DROP IN CYCLONE DUST COLLECTORS—CYCLONE WITHOUT INLET VANE. *C. B. Shepherd and C. E. Lapple. Ind. & Eng. Chem., vol. 32, pp. 1246-1248 (Sept., 1940).*

The authors in this second paper show experimentally that the friction loss is doubled when the inlet vane is omitted. Spiral velocities also increase. The mechanism by which the pressure drop is increased is, in their opinion, one of velocity distribution and not entrance impact. The corrections to be used for a typical example are shown.—*Leslie Silverman.*

Jan. 1941]

#### VAPORS AND THEIR ROUTINE MEASUREMENTS

*P. Drinker. Am. J. Pub. H., vol. 30, pp. 1063-1067 (Sept. 1940).*

With most vapors and gases the hazards arise from continuous or exposures to relatively low concentrations. The hygienic importance of this makes routine air sampling a necessity in many industries. Continuous recording instruments offer a number of obvious advantages over the usual small grab sampling method. The author discusses the physical and chemical properties of several toxic gases and vapors which have been or might be utilized as a basis to construct continuous recording instruments. Among such properties are thermal measurements of oxidation, tension, reactions producing color, conductivity and absorption energy. Recording instruments for  $N_2O_4$ ,  $H_2S$ ,  $CS_2$  and smoke are mentioned and the use of the Thomas method for  $SO_2$  is suggested.—*S. W. Gurney.*

ASPIRATING UNIT FOR COLLECTING VAPORS. *L. Silverman and W. Drinker. Ind. Eng. Chem., Anal. Ed., vol. 12, pp. 682-683 (Nov. 15, 1940).*

Two 5-gal. gasoline cans are arranged in a rotatable arrangement one above the other so that the upper one, filled with vapor, can be emptied into the lower one at a desired rate. The arrangement can be used for drawing air through bubbler gas sampling devices. It is applicable in factories where driven suction devices cannot be used. It can be mounted on casting about and can be carried in an automobile without dismounting.—*P. Drinker.*

A METHOD OF PRODUCING AIR FLOW MEASUREMENTS IN GAS OR FUME COLLECTORS. *L. Silverman. Rev. Sci. Instr., vol. 11, p. 346 (Oct., 1940).*

Describes a simple syringe method for measuring air flow by means of which concentrations can be easily produced and increased.—*L. Silverman.*

not less than 100 f.p.m. at the face should be provided. In general, good housekeeping and removal of the dust at its source are essentials.—*F. F. Rupert.*

POSSIBLE RESPIRATORY IRRITANT FROM COTTON DUST OR COTTON DYES. *J. A. M. A. (Queries and minor notes), vol. 116, p. 2449 (May 24, 1941).*

The inquirer asks what dyes or other substance might be present in khaki-colored cotton now being made up into coveralls, etc. for army personnel. Women cutting and handling this material complain of sore throats and nasal irritation, and one girl has a severe epistaxis.

Ordinarily dyes cause a dermatitis but respiratory irritation might possibly develop from them. In this case sulfur brown might be the offender. Chromates (usually used only on tent and tarpaulin material) would irritate the nose, and catechu (from acacia catechu) is another possible source of trouble.

It may be that the cotton dust itself is to blame and in this connection reference is made to the English work on the subject. Histamine, if present in the cotton, must also be considered.—*Helen Lawson.*

THE QUESTION OF SERIAL EXAMINATIONS OF WORKERS EXPOSED TO DUST, BY MEANS OF MINIATURE ROENTGENOGRAMS. *E. Saupe. Arch. f. Gewerbepath., vol. 10, pp. 93-96 (1940).*

Miniature pictures make it possible at low cost and in a short time to examine many men, and the method has been used in making serial examinations of different groups. The size most frequently used is 24 sq. mm. (0.95 sq. in.). Silicosis of the second stage is easily seen with certainty and the first stage can as a rule be recognized, but only if the technic is faultless. The miniature method must be improved, as it is only in its infancy, and must be followed by reports and by taking normal films in all suspicious cases.—*L. Teleky.*

SILICIUM, SILICATES, SILICOSIS. *W. Giese. Klin. Wchnschr., vol. 19, pp. 558-560 (1940).*

Very interesting experiments are described on animals in ages up to 3 yr., 7

mos. or 4 yrs. Rabbits were injected intravenously with finely ground silicate dusts: clay, feldspar, sericite. Deposits of the dust were found in the spleen, liver and lymph glands but nowhere was there found an increase of fibrous tissue—this kind of dust does not produce fibrosis. Opal (amorphous silicic acid) was also injected. It was then found that large deposits of dust were present with many giant cells, but no new formation of fibrous tissue. Opal is more soluble than quartz; therefore, the conclusion must be made that the dissolved silicic acid is not the fibrous-producing substance alone. Quartz is the only substance producing silicosis. The author also injected dust taken from markedly silicotic lung tissue, and this dust again produced silicosis. A diminution of the quantity of injected dust could not be found.

The author was able to show the formation of a covering, characteristic of asbestosis bodies, by feldspar, sericite and also opal, but in the smallest particles only, in the cellules. He concludes that dissolved silicic acid but not the quartz may produce this covering. He concludes: The quartz shows no morphologically demonstrable appearance of dissolution; in the tissue the dust deposited in callosities retains its fibrous producing effect. Although the silicates and opal deliver dissolved silicic acid, no fibrosis is produced, therefore dissolved silicic acid cannot be the cause of callosities. It was not possible to produce fibrosis or silicosis by some silicates, and it may be impossible to do so by other silicates also.—*L. Teleky.*

PULMONARY CANCER PRODUCED BY ASBESTOS DUST IN EXPERIMENTAL ANIMALS. *M. Nordmann and A. Sorge. Ztschr. f. Krebsforsch., vol. 51, pp. 168-182 (1941).*

The authors first quote the interesting research on pulmonary cancer in asbestos workers by the senior author (see THIS J., abstracts, p. 184, 1938). They caused 150 mice to inhale asbestos dust, but the last 50 of them died in an epidemic. The first 50 inhaled asbestos dust for 47-54 days, 3½ to 5 hrs. a day; the second 50 inhaled it for 79-90 days. A small number of asbestosis bodies were found after the 20th experimental week, as well as pronounced degrees

Oct. 1941]

of diffuse fibrosis. Prolifera bronchial epithelium was found weeks, such hyperplasias encroaching neighboring alveoli. That was a metaplasia to pavement epithelium, which later seen transition to malignant neoplasia. It was very difficult to draw a line between the two.

The first well-developed cancer was found after 240 days. By this time 10 of the mice had survived and 10 were found among them. In the next 33 of 50 mice lived longer than 240 days, showed abnormal growth of the lungs, 5 metaplasias and cancer. In the next series, 28 lived more than 6 weeks, showed abnormal growth, 5 metaplasias and cancer.—*L. Teleky.*

A CASE OF PULMONARY ASBESTOSIS COMPLICATED BY TUBERCULOSIS. *H. J. Helmers. Tubercle, vol. 22, pp. 40-44 (Feb. 1941).*

From 1933-1939 inclusive, there were 10 known deaths from asbestosis in Great Britain, of which 32 were associated with tuberculosis. The case described is that of a 44 yr. old man who was an asbestos blower, in which case

DUST, SMOKE, FUMES

MINERALOGICAL EXAMINATION OF THE SILICOSIS QUESTION (DETERMINATION OF THE SOLUTION OF QUARTZ IN THE BODY). *H. J. Helmers and A. Sorge. Jahrbuch d. Preuss. Geol. Landesanstalt, vol. 59, pp. 727-754 (1940).*

Parts of the lungs of a silicotic animal were examined. Sericite, kaolin and quartz were the most important substances found. There was no quartz. But upon the wash liquor, an important colloidal silicic acid was found. Silicic acid must have been dissolved in the lung. The authors think that the pH is most important in the procedure, and that corresponds to the course of the disease. The distances correspond to the physical reaction of the dust particles

s. Rabbits were injected intrathoracically with finely ground silicate dusts: barium silicate, sericite. Deposits of the dust were found in the spleen, liver and lungs but nowhere was there found a marked increase of fibrous tissue—this kind of dust does not produce fibrosis. Opal (silicic acid) was also injected. It was found that large deposits of dust were found with many giant cells, but no increase of fibrous tissue. Opal is less soluble than quartz; therefore, the dust must be made that the dissolved silicic acid is not the fibrous-producing substance. Quartz is the only substance which produces silicosis. The author also injected dusts taken from markedly silicotic lungs and this dust again produced silicosis. The diminution of the quantity of dust could not be found.

The author was able to show the formation of a covering, characteristic of asbestos, by feldspar, sericite and quartz in the smallest particles only. He concludes that dissolved silicic acid is not the quartz may produce silicosis. He concludes: The quartz dust is morphologically demonstrable as a product of dissolution; in the tissue the dust in callosities retains its dissolving effect. Although the dusts of opal deliver dissolved silicic acid, silicosis is produced, therefore dissolved silicic acid cannot be the cause of silicosis. It was not possible to produce silicosis by some silicates, and it is not possible to do so by other silicates.—L. Teleky.

CANCER PRODUCED BY ASBESTOS IN EXPERIMENTAL ANIMALS. M. and A. Sorge. *Ztschr. f. Krebsk.* 51, pp. 188-189 (1941).

The authors first quote the interesting results of the senior author (see THIS J., 184, 1938). They caused 150 mice to breathe asbestos dust, but the last 50 died in an epidemic. The first 50 breathed asbestos dust for 47-54 days, 3½ to 4 hours; the second 50 inhaled it for 14 days. A small number of asbestosis was found after the 20th experiment, as well as pronounced degrees

of diffuse fibrosis. Proliferation of the bronchial epithelium was found after some weeks, such hyperplasias encroaching on neighboring alveoli. That was followed by a metaplasia to pavement epithelium with cornification, which later seemed to be a transition to malignant neoplasm. It is very difficult to draw a line between the two.

The first well-developed carcinoma was found after 240 days. By this time only 10 of the mice had survived and 2 carcinomas were found among them. In the first series, 33 of 50 mice lived longer than 6 wks.; 14 showed abnormal growth of the epithelium, 5 metaplasias and cancer. In the second series, 28 lived more than 6 wks., 16 showed abnormal growth, 5 metaplasias and cornifying cancer.—L. Teleky.

A CASE OF PULMONARY ASBESTOSIS ACCOMPANIED BY TUBERCULOSIS. H. Hannesson. *Tubercle*, vol. 22, pp. 40-44 (Feb. 1941).

From 1933-1939 inclusive, there were 90 known deaths from asbestosis in Great Britain, of which 32 were associated with tuberculosis. The case described here is that of a 44 yr. old man who had been an asbestos blower, in which occupation he

supplied asbestosis to a cleaning machine. Although he had been given a respirator, and the dust was heavy, he never wore it.

On admission he was very thin, had a high temperature, an emphysematous chest and bilateral crepitations over wide areas. Clubbing of the fingers was marked and the sputum contained both asbestosis bodies and tubercle bacilli. The roentgenogram showed "widespread progressive nodular tuberculous infiltration with cavitation in all zones of the right lung fields and in the upper and mid zones of the left lung fields. . . . The right dome of the diaphragm was elevated. There was no radiographic evidence of pneumoconiosis." A diagnosis of asbestosis and tuberculosis was made. The patient died within a month of spontaneous pneumothorax. Pulmonary findings of the lungs showed both to have extensive fibro-caseous tuberculosis with cavitation; macroscopically they were like those of pure tuberculosis. The microscopic examination, performed by Dr. Gloyne, disclosed caseous tuberculosis with many tubercle bacilli and typical reticular fibrosis of asbestosis with thickened pleura.

Diagnosis of the pure and complicated disease is discussed.—Helen Lawson.

#### DUST, SMOKE, FUMES AND VAPORS: THEIR DETERMINATION AND ELIMINATION

MINERALOGICAL EXAMINATION OF THE SILICOSIS QUESTION (DETERMINATION OF THE SOLUTION OF QUARTZ IN THE HUMAN BODY). H. J. Helmers and H. Udluft. *Jahrbuch d. Preuss. Geol. Landesanstalt, Berlin.*, vol. 59, pp. 727-754 (1939); *Abst. in Zbl. f. d. ges. Hyg.*, vol. 47, p. 698 (1941).

Parts of the lungs of a silicotic miner were examined. Sericite, kaolin and feldspar were the most important substances found; there was no quartz. But upon examining the wash liquor, an important quantity of colloidal silicic acid was found. This silicic acid must have been derived from silica dissolved in the lung. The authors think that the pH is most important in this procedure, and that correspondingly, it plays an important part in determining the course of the disease. The dissolved substances correspond to the physico-chemical reaction of the dust particles and the fluids

of the body, either eliminated without harm or producing callosities by precipitating out from silicic acid.—L. Teleky.

STRUCTURAL EXAMINATION BY ROENTGEN RAYS OF PNEUMOCONIOTIC LUNGS OF PORCELAIN WORKERS. Pt. 4. H. Gärtner. *Arch. f. Gewerbepath.*, vol. 10, pp. 151-163 (1940).

The author describes dust seen in the lungs of 10 porcelain workers and 1 fluorite worker. Both roentgen and chemical findings are presented. Those on the porcelain workers are very interesting: In the first 2 lungs he could find no quartz lines in the roentgen picture, although by chemical analysis of the first, he found "18 mg. as crystalline silicic acid quartz," and in the second "similar values." However, he writes in his discussion of these lungs: "Silicic acid has been found neither in the

HAZARD IN FOUNDRIES. L. M. Ohio Ind. Comm. Monitor, vol. 102 (1940).

% of the silicosis claims allowed to Industrial Commission from payment of compensability for the April 30, 1940 have originated in Iron foundries were responsible and non-ferrous foundries each. The author lists the important dust in the foundry and gives a review of dust control methods.—*Teleky*.

AND SILICO-TUBERCULOSIS. E. Dtsch. Tuberk.-Blatt, vol. 14, 110 (1940).

Author discusses German regulations regarding silicosis and silico-tuberculosis. Only "serious silicosis" must be treated and the combination of silico-tuberculosis "if the entire serious and the silicotic changes have been caused a progressive course of tuberculosis". He follows this with histories and roentgenograms of cases, slight and serious silicosis and tuberculosis.—*L. Teleky*.

HEALTH HAZARDS IN THE MANUFACTURE OF LINOLEUM. Pa. State Dept. Indust., Safe Practice Bull. no. 10.

Driers, such as lead, manganese, etc., are used to speed up the drying process. Careful control precautions are necessary in the handling of these materials. Heavily dusting powders very high in lead content are used to prevent linseed oil from sticking. The preparation of linoleum exposes workers to a highly dust from stones used in the grinding. Beginning in 1934, the Armco Company embarked on an intensive and systematic health hazard control program. One method of dust control was to replace cotton or burlap with paper. Manufacture and use of linoleum present other health hazard problems which the author describes the methods by which they are controlled.—*F. S. Mallette*.

WORKING ENVIRONMENT AND THE HEALTH OF WORKERS IN BITUMINOUS COAL AND NON-FERROUS METAL MINES, AND

NON-FERROUS METAL SMELTERS IN UTAH. Div. Indust. Hyg., Nat. Inst. Health, U. S. Pub. Health Service, and the Utah State Board of Health, November, 1940. Pp. 310. (Available from Div. Indust. Hyg., Utah State Board of Health, Salt Lake City.)

In three representative soft coal mines 545 men were given full examinations and a study was made of their jobs. The highest free silica content of the dust breathed was 11% and the highest dust count was 38 million, with the exception of car loading, where it ran over 100 million. Perhaps these facts account for a very low silicosis incidence—15 men or 3% with first stage, 1 man with second stage and none with third stage silicosis.

In three metal mines the dust exposures of 830 persons were studied. Less than 1% had dust exposures over 30 million particles and 86% were exposed to 6 to 30 million. Quartz concentrations averaged  $30 \pm 10\%$ , varying actually from quartz-free rock to pure quartzite.

Physical examinations with detailed analysis were made of 727 mine workers. The silicosis problem was most severe among men at the working face where dust counts were highest. Silicosis was found in 9.1% and 5.8% were considered as borderline cases.

As in other studies, men with long exposures were those most affected. There was considerable tuberculosis and some lead poisoning among the silicotics.

In the smelting industry, 1511 men were examined from 1 lead and 1 copper smelter, of which 120 men were ruled out for statistical analysis because of previous exposures. Of the 1391 left, 2.7% showed evidence of silicosis and 4.5% had borderline cases.

#### DUST, SMOKE, FUMES AND VAPORS: DETERMINATION AND ELIMINATION

PREDICTING DUST CONCENTRATION—FACTORS AFFECTING DUST CONCENTRATION LEVELS IN ENCLOSED SPACES. F. B. Rowley and R. C. Jordan. Heating, Piping and Air Conditioning, vol. 12, pp. 699-702 (Dec. 1940).

The dust concentration within a ventilated building, in relation to the dust level in the outside atmosphere is not dependent

There were only 3 cases of second stage and no third stage cases.

Pulmonary tuberculosis was higher than among the coal and metal miners, men over 30 being most affected. There were 41 cases or 2.9%, showing clinical manifestations of lead absorption, mostly men handling the raw ore and in the roasting process. There were 14 cases (1%) of acute disabling lead poisoning over the last 5 yrs. with an average disability of 1 month. Other possible hazards such as dermatitis, or other forms of arsenical poisoning are mentioned but were not important.

These data are tabulated and charted in detail, as well as in summary form. The conclusions and recommendations introduce nothing new but are, of course, important for administrative purposes.

All in all, if this is the sort of report Utah plans making in the future, with or without the help of the Public Health Service, their further efforts will be welcomed eagerly.—*Philip Drinker*.

ASBESTOSIS. A. Bohne. Dtsch. med. Wchnschr., vol. 66, pp. 1024-1025 (1940).

Short description of the clinical picture in the early diagnosis, evaluation of the extent of illness and disability produced by it.—*L. Teleky*.

REDUCTION OF BODILY EFFICIENCY IN ASBESTOSIS. L. Roemheld. Dtsch. med. Wchnschr., vol. 66, pp. 688-689 (1940).

Together with Kempf and Wedler, the author has published earlier papers on this subject (these abstracts, p. 149, 1940); here he presents a condensation of the material, in table form, and adds a twentieth case. Reduction of efficiency is due directly to lung changes, not to the heart.—*L. Teleky*.

alone upon the efficiency of air cleaning provided in the ventilating system. To a greater degree it depends upon the rate of air change in the enclosed space, amount of leakage of untreated air into the building, rate of dust generation in the enclosed space, size of the dust particles in the air before and after cleaning, settling velocities of particles of different size, amount of air

offered, and enclosed with list of articles from the with industrial hazards. ed to discover possible ions.—*Helen Lawson.*

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no silicotic changes were light connective tissue and ration.—*L. Teleky.*

SILICOSIS BY METALLIC Otten. *Arbeitsschutz*, pp.

ports results of his experi- s in which he used quartz aminum. (The Canadian ploy greater amounts of st was inhaled by rabbits and more or less typical were found in animals ar. The positive findings han in the control animals, ly period of exposure was e author mentions briefly ented with 25 and 50% inum silicate and found diminish remarkably the tz.—*L. Teleky.*

OPHRY WITH A NOTE ON IS." Symanski. *Arbeits-* 274 (1940).

ains from 30 to 50% free or saw a man who had ars as a quarryman but only during his 9 months' driller. He acquired a 20 additional cases of phyry were seen, most of degree.—*L. Teleky.*

GRINDERS AND DRILLERS OF Brachmann. *Arbeits-* 174 (1940).

ers in all asbestos manu- must be examined annually ctory inspector in Saxony. are made of sheets of pressed out of asbestos

waste products and a filler, impregnated by artificial resin. Afterwards the bands and plates are ground and drilled. Clinical and roentgen examination of the grinders and drillers and men who file individual pieces showed a few light cases of asbestosis after they had worked 2 yrs. Such cases of asbestosis are found in nearly all workers after 5 yrs. employment.—*L. Teleky.*

## DUST, SMOKE, FUMES AND VAPORS: DETERMINATION AND ELIMINATION

NOTES ON THE HOW TECHNIQUE FOR THE MICROESTIMATION OF ARSENIC. T. Wilkinson and C. G. Greenham. *Australian J. Exp. Biol. and Med. Sci.*, vol. 18, pp. 341-342 (Dec. 1940).

The authors suggest slight modifications in preparing reagents and in using the How technic (*Ind. & Eng. Chem., Anal. Ed.*, 10: 226, 1938), to eliminate difficulties they have encountered. The How technic is a modification of Gutzeit's method. They were able to reproduce observations with amounts of arsenic as low as 0.1  $\mu$ gm.—*B. D. Tebbens.*

ESTIMATION OF HALOGENATED HYDROCARBON VAPORS IN AIR. S. Moskowitz and W. J. Burke. *N. Y. Dept. Labor, Indust. Bull.*, vol. 19, p. 232 (Dec. 1940).

The authors have modified the apparatus described by Tebbens (*THIS J.*, 19: 204, 1937). The 9½ x 11½ x 19" box contains a rheostat, absorber, drying tube and flowmeter, with space for a combustion tube. It is operated at 0.75 l.p.m. and the authors claim that they obtain approximately 100% efficiency for chlorinated aliphatic hydrocarbons but only 80-85% for alpha chlor-naphthalene. Sampling time is 10 min. to 1 hr., depending upon the concentration expected.—*Helen Lawson.*

DETERMINATION OF CARBON MONOXIDE HEMOGLOBIN IN THE BLOOD BY MEANS OF THE PHOTOELECTRIC COLORIMETER. R. Havemann. *Klin. Wchnschr.*, vol. 19, pp. 1183-1185 (1940).

A method is described which takes only a short time. The photoelectric colorimeter used was constructed by the author and is made by W. Kauhausen, Berlin-Dahlem. 1 cc. of blood, or even as little

THE STRUGGLE AGAINST ASBESTOSIS TODAY. Ehrhardt. *Arbeitsschutz*, pp. 191-193 (1940).

A short description of asbestosis, not the struggle to prevent it, which is a technical, not a medical problem. The only unusual statement in the paper is that no relationship between the nasal dust filtering ability and degree of asbestosis was found.—*L. Teleky.*

as 0.1 cc. is necessary. The error is said to be 0.5%.—*L. Teleky.*

DUST IN THE STONE AND EARTH INDUSTRY. *Arbeitsschutz*, pp. 226-229 (1940).

A short review of the importance of the dust problem in the ceramic industry is presented and is followed by a report by Hass on the technical aspect of the problem, especially regarding dust sampling and counting. He mentions only a gravimetric procedure, the konimeter and tyndallmeter. Use of portable vacuum cleaners is recommended for keeping workshops clean. H. Buckup in reporting on medical aspects of the problem, said that the Saxon ministry of labor had installed an x-ray car with which 13,428 examinations have been made in 9 months. This apparatus employs a "screen method" which is cheap, but gives only small pictures in which the first stage silicosis cannot always be positively diagnosed and beginning silicosis can not be detected. In this way it was found that in one factory 12.6% of the workers suffered from silicosis (1.6% serious, 4.2% medium). In a clay pit, 12.2% were found to be silicotic.—*L. Teleky.*

X-RAY EXAMINATION OF THE STRUCTURE OF INDUSTRIAL DUST AS A METHOD OF MEDICAL EXAMINATION. Gärtner. *Arbeitsschutz*, pp. 193-195 (1940).

The author presents a short description of the method as employed in examining airborne dust and dust in the lung. It is remarkable that the author found no quartz in silicotic lungs of china-clay workers who used kaolin and sillimanite. He concludes that these substances are also able to produce silicosis, and he adds that we now know that other silicates, such as asbestos, produce silicosis. (See these abstracts, 21, 199, 1939.)—*L. Teleky.*