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INDUSTRIAL HYGIENE DIGEST

Literature Abstracts

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Industrial Health News

VOLUMES 1 - 2
1937--- 1938



Issued Monthly By

INDUSTRIAL HYGIENE FOUNDATION

4400 FIFTH AVENUE
PITTSBURGH (13), PA.

EXHIBIT

380000 IHF

SC-API-0900

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11 PNEUMOCONIOSES OF THE WORKER. K. Wider. Ztschr. f. Gewerbehyg. u. Unfall, 44, 131-5 (1937).

Silicosis became compensable in Austria on April 1, 1935. Since then, 206 cases have been reported in the Workmen's Compensation Office; of these, 171 are miners ~~some from lignite mines.~~ In the metal industry, most cases are among sandstone grinders and sandblasters.

12 PULMONARY ASBESTOSIS. IV. THE ASBESTOS BODY AND SIMILAR OBJECTS IN THE LUNG.

Kenneth M. Lynch, M.D., Dept. of Pathology, Medical College of the State of South Carolina, Charleston, S. Carolina. J.A.M.A. 109, 674-8 (Dec. 11, 1937). Reprints probably obtainable from author.

The typical asbestos body (also called asbestosis body) is an object 10 to over 100 microns ^{long} and 1 to 12 microns thick and is composed of a central translucent fiber or needle crystal of asbestos with an enveloping shiny golden or brownish gelatinous substance constructing various architectural figures. Sometimes it is beaded or clubbed and sometimes spherical. A Prussian blue reaction for iron is given. These bodies may be found at various places in the lung, especially in the bronchioles, the alveoli and in the tissues along the lymphatic route; usually shorter at a distance from the alveoli, but often surprisingly long, considering the distance they have traveled. They sometimes cause fibrosis around them, but not necessarily. They are also found in the sputum of those exposed to asbestos dust, but their presence or absence in the sputum does not indicate the presence or absence of asbestosis; their presence only shows that exposure to the dust has occurred. Similar bodies have been found in persons exposed to coal dust, and in others who have died of heart failure, rheumatism and arteriosclerosis, without known heavy dust exposure. Exposure to asbestos dust does not always produce asbestos bodies; bare fibers have been found in the lungs of animal. The author has seen silica particles similarly enveloped, in cases of silicosis, not always so highly colored. It is suggested that other fibrous or crystalline dusts not yet studied may form similar bodies.

13 BLOOD EXAMINATIONS IN PULMONARY FIBROSIS OF HEMATITE IRON ORE MINERS. J. Craw. Tubercle, 19, 8-18 (October 1937).

In radiographic examinations of hematite miners in West Cumberland (England), the hematite accumulations show a definite and dense shadow, apart from any accompanying fibrosis, and there is a tendency to diagnose silicosis when a miner complains of unfitness and his pulmonary symptoms and the x-ray of the test show generalised nodulation. The silica content of inhaled dust, however, is low, and in spite of 20 to 30 years' work and general nodulation in all lung fields, the miners are perfectly fit for work and are not short of breath. For these reasons hematological work was instituted as an essential in diagnosis. Routine procedure included the following determinations: (1) sedimentation rate of the red cells; (2) total white cell count; (3) differential white cell count, and (4) the polymorphonuclear count of von Bonsdorff. The findings in 6 cases are given, with case histories. Of the 50 hematite miners studied, 20 normal miners had no complaint of breathlessness and no x-ray or physical signs of pulmonary fibrosis, while 30 complained of pulmonary disability in varying degrees, with positive x-ray findings. Many miners develop a pure pulmonary siderosis without accompanying fibrosis, and their blood picture is normal. Sidero-silicosis of uncomplicated type shows a definite increase in percentage of lymphocytes, and the ratio of polymorphonuclear cells to lymphocytes becomes 1 or less. The sedimentation rate and nuclear count are normal. When infection is present, the sedimentation rate increases, the nuclear count increases and there is a leucocytosis which may approach a septic count. Although the results are preliminary, the method is recommended for aiding the differential diagnosis of siderosis without fibrosis and sidero-silicosis, and for detecting tuberculosis or other infective agents at an early stage.

it began to decrease. Silicates introduced similarly produced only a moderate increase in phospholipid content of the lung and no fibrosis. Some of the phospholipid recovered from these animals was filtered to remove silica and then injected into other rabbits. In 4 weeks nodules very much like the silicotic nodules in the early stages were formed. They also simulated the lesions as demonstrated by Sabin, who similarly injected phospholipid from the tubercle bacillus. In the author's experiments the possibility remains that some silica in soluble form remained in the phospholipids injected. However, the theory is most attractive, and it fully substantiated answers one of the perplexing questions of the histogenesis and tuberculosis. (Reprints are probably obtainable from the author, at Banting Institute, University of Toronto, Toronto, Ontario.)

251 ETIOLOGY OF SILICOSIS. V. Reichmann. Med. Klin., 33, 226-229 (1937). The author disagrees with other German investigators who claim to have observed silicotic changes resulting from inhalation of graphite and rust, on the ground that no roentgenological, pathological or histological proof has been presented. Of the 20,000 cases of silicotic lung changes he has seen, he found none that were not caused by several years' exposure to quartz dust. A check of a number of cases of silicosis, allegedly due to other causes, disclosed that there had been sufficient exposure to silica dust to produce the result. Arguments against the Jones silicite theory are also presented.

252 SILICOSIS IN SPAIN. A. Oller. Arch. J. Gewerbepathol., 7, 383-387 (1936). The author gives statistics on silicosis in the Spanish Rodalquilar gold mine in which the gold is found in layers of quartz, but no sericite is present. Mines are dry drilled and have been in operation for 6 years. Ten workers died from silicosis in 1935, and 32 cases of silicosis were found in the 110 employees. In a ceramic factory 16 cases of silicosis were found among 350 workers. Hygienic improvements have been made in both industries.

253 ASBESTOSIS AND ITS PREVENTION. Windel. Arbeitsschutz, 9-16 (1937). A survey of 11 German asbestos plants employing 385 workers disclosed 22 cases of asbestosis and 13 deaths. A short description of the clinical and x-ray pictures is followed by a careful description of the exhaust systems needed in certain processes with illustrations.

254 THE CARBON CONTENT OF ANTHRACOTIC LUNGS. E. Muller. Arch. f. Gewerbepathol., 7, 316-318 (1936). A method for determining the carbon content of anthracotic lungs is presented. It consists primarily of pulverizing the tissue, extracting the fat with ether and alcohol, and then treating it repeatedly with concentrated hydrochloric acid. The method can be used also on other tissues.

255 A GRAPHICAL METHOD FOR THE DESIGN OF EXHAUST SYSTEMS. A. Nutting. Heat., Power and Air Cond., 9, 21-24 (January, 1937). A series of charts has been prepared on which are plotted curves indicating basic relationships between airflow and resistance in exhaust systems. They are arranged in such a way as to solve any simple design problem directly and quickly. In any problem the static suction at the hood, the entrance loss into the hood, and the diameter of the exhaust pipes must be known. (The above issue of the publication may be obtained from Keeney Publishing Co., 6 W. Michigan Ave., Chicago, price 50 cents or possibly 25 cents.)

256 INSURANCE COMPANY RELATIONSHIPS AND RESPONSIBILITIES IN COMPENSATION INSURANCE. A.D. Lazenby. Surg. Gynecol. and Obstet., 64, 393-396 (February 15, 1937). Insurance companies must undertake a definite program of accident and disease prevention. They must see that the disabled workman is restored to usefulness.

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- 83 THE SIGNIFICANCE OF NASAL DUST FILTRATION IN ASBESTOSIS. G. Lehmann, *Arbeitsphysiol.* 9, 572-8 (1937) (German)

The author determined the nasal filtering efficiency of 73 workers in an asbestos plant. Most of the employees had not worked long, and only 1 medium to severe case of asbestosis was found, with 17 light and 24 incipient cases. He concludes that nasal filtering efficiency is as significant in asbestosis as it is in silicosis.

- 84 PATHOLOGICAL AND ANATOMICAL QUESTIONS IN CASES OF PNEUMOCONIOSIS: SEVERE ASBESTOSIS. W. di Biasi. *Med. Welt.* 11, 1234-7 (1937) (German)

The author gives a clear discussion of pathological and anatomical changes in the development of pneumoconiosis (silicosis) and emphasizes the fact that no real pneumoconiotic changes have been seen without exposure to quartz. In hundreds of cases in the Ruhr district, he has never seen connective tissue growth in lungs completely blackened by coal dust unless rock dust was also present. Claims to the contrary have not been confirmed by autopsy findings. In asbestosis, the growth of diffuse connective tissue is greater in the lower part of the lung than in the upper. The author attributes this growth to the mechanical action of asbestos.

- 85 DUST CONTENT OF AN ASBESTOSIS LUNG AND THE NATURE OF ASBESTOSIS BODIES. N. Sundius and A. Bygden. *Arch. f. Gewerbepathol. u. Gewerbehyg.* 8, 26-70 (1937) (German)

This long paper reports careful chemical experiments on the asbestos in the lung and asbestosis bodies. Although much more serpentine asbestos than hornblende is used in industry, the latter was found exclusively in the lungs examined. The asbestosis body sheaths are formed not only around asbestos but also around similar crystals of other substances. No support has been found for the belief that asbestos causes a chemical decomposition in the lung. The gel substance of the sheath consists of iron oxide, phosphoric acid and a protein. This gel substance originates entirely from the body fluids and since the iron content is high (40% as oxide), the most plausible suggestion is the blood. The cause of the sheath formation is not related to the chemical nature but to the rigid and sharp needle form. The authors believe that the fibrosis can also be attributed to this.

- 86 THE RAILROAD SURGEON'S RELATION TO OCCUPATIONAL DISEASE. O. G. Browne, General Claims Agent, New York Central Railroad System, New York. *Ind. Med.* 6, 544-7 (Oct. 1937) Reprints obtainable from author.

There are 2 conceptions of the term "occupational disease". One includes any disease or ailment that may have its inception in the course of the occupation and may be said to have had a contribution to its cause by some exposure of the employment, however slight. The other view is that a disease to be classed as occupational must be one that is "peculiar to and characteristic of" the occupation. Only under the second viewpoint can we determine what constitutes a disease disability that is fairly chargeable to industry. However, the first view has been advocated in addresses on occupational diseases and in the courts and is the basis of "blanket coverage" in the laws of several states. If this view is accepted, the employer can be saddled with a form of health compensation which he cannot prevent even by an extreme of precaution, and which is far worse in its possibilities than any reasonable scheme of health insurance so far proposed. In the railroad industry, admittedly there are true cases of occupational disease, but several claims are cited in which it was shown on investigation that the injury was not a result of the occupation. Each case must be scientifically determined on the facts developed, so that employment may not be charged with every man's physical breakdown. In the field of silicosis, the work of Dr. McCann on

- 2 211 117 PATHOLOGICAL ANATOMY OF ASBESTOSIS. W. di Bisci. Arch. f. Gewerbepathol. u. Gewerbehyg. (German) 8, 139-55 (1937).
- The author presents an exhaustive description of a fatal case of asbestosis, macroscopic and microscopic findings. A diffuse fibrosis was seen spreading the top toward the bottom. In asbestosis the x-ray indications are slight, very noticeable lung symptoms, while the reverse conditions are true in silicosis and the anatomical and histological findings in the two diseases differ throughout. The conditions in asbestosis may be explained by the mechanical action of the asbestos needles. Asbestosis cannot be used as a support for the existence of a silicosis.
- 118 SEVERE PNEUMOCONIOSIS AND ITS RECOGNITION. V. Reichmann. Mod. Welt (German) 1518-22 (1937).
- The author considers simple silicosis to be "severe" only when the x-ray shows flaky and tumor-like shadows. Honeycomb patterns are signs of an earlier stage which is followed by the nodule stage and finally the one first mentioned. Details of the x-ray and clinical pictures are discussed, and the diagnostic value of spirometry, electrocardiograms and sphygmograms is emphasized.
- 119 SILICOSIS AMONG METAL MINERS IN WESTERN AUSTRALIA. K.R. Moore. Med. J. Aust 2, 764-5 (Oct. 30, 1937).
- Since 1925 pre-employment and annual radiographic examinations of metal mine workers have been compulsory in Western Australia, and new employees must be free of tuberculosis, industrial pulmonary disease and certain other conditions. At present 93.7% of the employees are normal, compared with 80% in 1925-6, and silicosis has fallen from 16.1% to 6%. The annual incidence of silicosis with tuberculosis has fallen from 3.5 to 0.2% and from 0.3 to 0.1% respectively. Two forms of the ante-primary stage of silicosis have been found, characterized by fine and coarse mottling, respectively, with a ratio of 4:1. In advanced stages the frequency becomes about even, and in cases with tuberculosis the ratio of fine to coarse is 2:1. These findings led the author to believe that pure silicosis presents the fine mottling. Of a group of new employees studied over years, 25% of all workers and 40% of those employed underground showed progression to at least the primary stage of silicosis, and 1.3% of the total developed tuberculosis. Of miners suffering ante-primary silicosis in 1925-6, over 25% developed silicosis within 10 years, and 4.2% silicosis with tuberculosis. The results show that although silicosis is still being contracted, a pronounced reduction has been brought about by the law.
- 120 EXHAUST REQUIREMENTS FOR FOUNDRY DUST CONTROL. John H. Kane, American Air Filter Co., Louisville, Ky. Foundry 66, 30-2, 74 (Jan. 1938). Reprints or general information obtainable from the author.
- This paper was prepared under the auspices of the Engineering committee of the Dust Control Equipment Association, and the data presented are intended to be used only as a guide for average requirements, to be modified as particular conditions require. The largest amount of exhaust air required for dust control will be applied to the operations incidental to the shaking out of the casting and the hooding or enclosing of that operation requires more careful study than any other dust-producing process. An overhead hood is advisable where possible. Another solution involves side hoods, but they require larger air volumes. An air curtain system confines the dust with moderate air volumes more effectively than side or downdraft hoods. Exhaust hoods should be provided at all transfer points, and sand screens should be enclosed where possible. Storage bins for sand also require exhaust connections. An enclosure should be provided at all mixers or mullers. All the suggested types of equipment for dust control are described briefly, with tabulated specifications, and illustrated by diagrams.

347 PULVERIZING SILICA SAND. D.M.Wilhelm. Rock Prod. 41, 47-8 (April 1938).
This is a brief illustrated description of the plant of the Milwood Sand Co. at Zanesville, Ohio. The dust hazard has been practically eliminated by the use of dust seals on all equipment in which dust is generated.

348 SOLVING THE DUST PROBLEM. F.W.Ortman, Jr. Safety Eng. 75, 13-6 (April 1938)
Information obtainable from the author, Personnel Manager, Koppers Company, Baltimore, Md.

The author briefly describes the dust control methods used in the grinding, milling and boring department of the Koppers Company at Baltimore. The original equipment, consisting of a number of installations was replaced by a central dust collection system, which has proved satisfactory for 13 years, with improvements that have been added more recently. The area of the screen has been increased one-third by the adoption of an improved type of screen, without increasing the size of the screen house. As an auxiliary measure, a large portable vacuum cleaner, with interchangeable nozzles, is used for cleaning walls and ceilings.

349 THE BEARING ON SILICOSIS QUESTIONS OF THE THIRD LAW FOR EXTENSION OF ACCIDENT INSURANCE TO INDUSTRIAL DISEASES. Lochtkemper. Zbl. f. Gewerbshyg. 15, 9-11 (1938). German.

The author discusses the present German law, which puts all forms of silicosis on a par with accidents, and, like many of our new State laws, paves the way for proper preventive measures. He also reports on some of his own experience including cases of silicosis in chamotte workers and in clay tube factories. One case was that of a man who, for a year, had shoveled grain mixed with sur and another was severe silicosis in a worker employed in a room near a sand-blast. The author cautions against exaggerating apparently alarming symptoms, such as old calcareous foci; on the other hand, a careful history is essential and special attention should be given to light forms of silicosis contracted in earlier work.

350 ASBESTOSIS AND ITS PREVENTION. T.Windel. Arbeitsschutz, 26-32 (1938) German.
In continuation of the author's earlier work (abstract 271, Hyg, 1937), he first presents more material on asbestosis in the textile industry. There are now about 1300 asbestos workers in Germany, and about 1000 are considered to be dangerously exposed, including weavers. Up to March 31, 1937, 27 cases of asbestosis, of which 16 were fatal, were reported. In 6 months of operation of the new compensation law, 10 cases have been indemnified. The earliest observed symptoms of the disease are seen after 3 or 4 years' work. An X-ray examination of each new employee should be made, and another after 3 years and at regular intervals. Above all, observers must prove whether or not a light case will inevitably progress in spite of removal from exposure. Obsolete and new protective measures are contrasted, with illustrations, and the necessary technical improvements are described.

351 A PHOTONREFLECTOMETER - AN INSTRUMENT FOR THE MEASUREMENT OF TURBID SYSTEMS. R. L. Libby. J. Immunol. 34, 71-73 (Jan. 1938).

An instrument for measuring the turbidity of liquids is described in this paper, which is included on account of the possibility of the application of the method to the estimation of the turbidities of impinger dust samples. Light from a constant source is condensed by lenses and transmitted in a parallel beam through the liquid under observation and falls on a blackened surface, on which a substance causing a current to be generated under the influence of light is placed, not in the direct beam but around it. The E.M.F. generated is registered by a galvanometer and is a measure of the scattered

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- 10 THE APPLICATION OF DUST-CONTROL PRINCIPLES TO FOUNDRY OPERATIONS. R. R. Weigs. Second N. E. Regional Foundry Conf., Mass. Inst. Tech., April 8, 1938. The paper presents a discussion of the principal sources of dust in each of the several operations of a foundry and outlines practical applications of control in each case. The subject is considered under 5 main headings: (1) molding, (2) coremaking, (3) shake-out, (4) sand conditioning and (5) castings cleaning. Many practical suggestions are made in regard to care, maintenance and methods of operation that will tend to improve existing conditions. The author has avoided consideration of the dust concentrations that may be encountered and the pathological effects of the dusts. A discussion by Manfred Bowditch and an additional paper by W. F. Terry combine to make the study an excellent and comprehensive treatment of the elements of dust control in foundries.
- 11 RECENT DUST EXHAUST APPARATUS. F. Prockat. Staub 5, 249-87 (1937). (German). First is a description, with examples and illustrations of the most important points of exhaust apparatus and the various kinds of dust removal: gravity systems, removal by utilizing the mass inertia, by centrifugal force, by filters, etc. The author then describes exhaust hoods, partly in agreement with those expressed in Drinker and Hatch's book, partly also on the basis of some of his own investigations of piping installations.
- 12 WORK OF THE DUST CONTROL OFFICE IN COOPERATION WITH GERMAN INDUSTRIAL COMPANIES. A. Lammert. Staub 7, 365-71 (1937). German insurance carriers, because of silicosis compensation have become more interested in dust control. To furnish lacking data and knowledge of the physics and technic of dusts a central office was set up to do what could not be done individually. The central office set up a laboratory, began consulting individual inspectors and industries and investigating all problems bearing on dust control. Most of the interested companies joined.
- 13 ASBESTOS. S. R. Gloyne and E. R. A. Merewether. Occupation and Health, Supplement, 15 pp. International Labor Office, Geneva (1938). Information obtainable from International Labor Office, 734 Jackson Place, Washington, D. C. This is one of several brochures recently issued as a supplement to the 2-volume Encyclopedia on Occupation and Health. It is a treatise on asbestos, including physical properties, chemical composition, uses, extraction, manufacturing process, and especially risks to health. The discussion of asbestosis includes its essential features, diagnosis, pathological features, distinction from tuberculosis, preventive measures and compensation. The references to difficulties in diagnosis and to formation of asbestosis bodies, illustrated by 41 drawings, are of special interest. The most important single clinical sign of asbestosis is that of diffuse bilateral impairment of the percussion note, slight in degree and associated with a slight sense of resistance. The other important feature is the radiographic examination of the chest. The distinguishing features between asbestosis and silicosis in x-ray pictures are listed. It is emphasized that neither method alone is conclusive, but that asbestosis can be diagnosed with certainty with the aid of both, even if symptoms and disablement are absent. In difficult cases where extensive tuberculosis is present, careful investigation of the subjects' exposure to asbestos dust will enable the correct decision to be reached. The preventive measures are based largely on the principles of the British Code of Regulations. The views expressed are authoritative and very instructive.
- 14 PREVENTION OF ASBESTOSIS IN INDUSTRY. F. Prockat. Staub 5, 133-62 (1937). The paper includes a description of asbestos, and of its various forms, its uses and methods of preparation for industrial purposes. It is shown by many illustrations how dust can be decreased in certain processes by installation of exhaust systems and practical planning.

References to Recent Literature - 5.

- 112 CHEMICAL DETERMINATION OF QUARTZ (FREE SILICA) IN DUSTS. E. Kaplan and W.T. Fales. Ind. & Eng. Chem. Anal. Ed., 10, 338 (July 5, 1938).

The writers propose the application of the compound interest law to determine the rate of loss of silica in the Knopf (hydrofluosilicic acid) and the Line or Aradino (fluoboric acid) methods for the determination of free silica. By applying Knopf's factor of 0.1% loss per day and Line and Aradino's factor of 0.34% loss per day to the mathematical formula derived from the compound interest law the writers calculate the total free silica loss for any number of days. The chief difficulty with this procedure is that the factor of rate of loss is not constant, but varies widely with different particle sizes as has been demonstrated by Moko and Harris.

- 113 CLINICAL CONSIDERATIONS ON THE QUESTION OF INDUSTRIAL CANCER OF ASBESTOS WORKERS. F. Hornig. Ztschr. f. Krebsforsch., 47, 231-7 (1938). (German).

A 35 year old woman who worked in an asbestos factory from 1919 to 1923 fell ill of asbestosis. In 1937 a sharply defined shadow was seen roentgenographically in the upper left lobe. This shadow was considered by the author to be a carcinoma and in the decision on the case, a causal relation between the presence of asbestosis and the development of carcinoma was accepted. The correct diagnosis of carcinoma was confirmed on autopsy.

- 114 THE INDUSTRIAL CANCER OF WORKERS IN ASBESTOS. M. Nordmann. Ztschr. Krebsforsch. 47, 288-302 (1938).

The author describes 6 cases of asbestosis with lung carcinoma, of which 5 were squamous carcinoma with hornification and the other an adenocarcinoma. Most of the cases were younger than the average case of lung cancer. The exposure to asbestos had lasted 7 to 21 years, and had begun 15 to 20 years before observation of the carcinoma, with the exception of an elderly woman who had only an exposure of 19 months, 17 years before observation, and who had a high degree of asbestosis. What property of asbestos is responsible for the cancer developing on the groundwork of asbestosis is not yet known, but there may be in asbestos so-called carcinogenic substances.

- 115 TESTS OF A BARRIER USING ROCK DUST IN PAPER BAGS. H.P. Greenwald and H.C. Howarth. U.S. Bur. Mines, Rept. Investigations No.3411, 16 pp., (August, 1938). Obtainable free from Div. of Information, U.S. Bureau of Mines, Washington, D.C. A recently developed method of explosion barrier is tested by the Bureau. The method consists in dusting with limestone placed in paper bags which are mounted on posts in trackless entries. The bags are mounted in such a way as to be automatically opened by the shock waves in advance of an explosion and complete description is given of the technique used. The ten tests made were successful in every case but one. They are described as cheaper than those methods recommended in their Bulletin No.353 but are not recommended for entries provided with track. The limestone used is especially treated to increase resistance to moisture.

- 116 SOME OBSERVATIONS ON COAL-MINE FANS AND COAL-MINE VENTILATION. D. Harrington and E.H. Denny. U.S. Bur. Mines Inf. Circ. No.7032, 20 pp. (August, 1938). Obtainable free from Div. of Information, U.S. Bureau of Mines, Washington, D.C. Ventilation is one of the most important single operations in mining for protecting lives and in promoting efficiency of operation. During 1932 and 1935 inclusive, the explosion record in coal-mines was very good but during 1937 and 1938 experience has been bad, and it is suggested that the cause may be due largely to the overlooking of the ventilation requirements. This bulletin presents a summary of important considerations in ventilation including a review

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- 803 TUBERCULOSIS OF INTESTINES IN TUBERCULOUS ANTHRACOSILICOSIS. R. Charr Cohen. Am. J. Med. Sci. 196, 83-7 (July 1938).

Complete autopsies were made on 42 cases of anthracosilicosis plus pul tuberculosis, and on 75 cases of pulmonary tuberculosis without anthracosis. Of the former, 19% had intestinal tuberculosis and 51% of the latter incidence of intestinal tuberculosis in each group was apparently higher in age groups below 30.

- 804 A STUDY OF ASBESTOSIS IN THE ASBESTOS TEXTILE INDUSTRY. W.C. Dreessen, DallaValle, T.I. Edwards, J.W. Miller, and R.R. Sayers. Pub. Health Bu No. 241, 126 pages (August 1938). Obtainable for 20 cents, cash, from Superintendent of Documents, Washington, D. C.

This is a report of a complete survey of the asbestos textile industry in North Carolina made in conjunction with the State Health Department. The report is comprehensive in its coverage of the subject and includes a good annotated bibliography of 65 references to asbestosis. It describes the industrial processes in the manufacture, numbers employed in each process, dust conditions made at various locations and incidences of asbestosis among the workers. The incidence of the disease among the workers increased rapidly with increased dust exposure, and it was found that one-fifth of the workers had exposure of 50 to 99 million particle-years and half the workers having exposure of over 100 million particle-years had asbestosis. The threshold for exposure has been set tentatively at 5 million particles per cubic foot. It was found possible by methods already at hand to obtain this concentration in all processes. The medical part of the report is complete with physiological data, laboratory findings, x-ray pictures and case histories.

- 805 INVESTIGATION ON CONTROLLING PNEUMONIA BY IMMUNIZATION OF WORKERS IN THE SLAGMILLS. M. Gundel & E. Homann. Dtsche. med. Wchnschr. 64, 917-21 (1938) (German).

In an earlier paper, our Abstract No. 8, 1937, the authors had shown that pneumonia in Thomas slag mill workers was caused exclusively by pneumococcus types I, II, III, but chiefly by type II. Since that time they have begun immunization in a plant where pneumonia had occurred. A Behring-Werke serum was used on 79 men in the mill, the remaining 49 refused it. No serious results followed its use. The serum was given in July and since then no pneumonia appeared in the plant. Though it has not proved itself conclusively, in January, 1938, pneumococci of the above types could be found but very seldom less frequently than in another mill. The authors conclude that the results call for further work with the serum.

- 806 MEDICAL AND LEGAL ASPECTS OF TUBERCULOSIS AS AN OCCUPATIONAL DISEASE AND ACCIDENTAL INJURY. Mary G. Mack. National Tuberculosis Assoc. Social Series No. 6 (June 1938). Obtainable from the Association, 50 West 50th Street, New York, for \$1.00 postpaid.

Generally speaking, tuberculosis is not recognized as an occupational disease but there is a growing experience in the courts with reference to suits for compensation because of tuberculosis contracted in ordinary course of industrial employment. The purpose of this bulletin is not to be an exhaustive summary of all cases, but rather to present representative decisions with discussions of various problems involved. Included is a review of opinions on the status of tuberculosis as an occupational disease and as an accidental injury; abstracts of court decisions on each of the two latter and a digest of the workmen's compensation laws, by states, as they affect occupational diseases.