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Of miners suffering ante-primary silicosis in 1925-26, over 25% developed silicosis within 10 years and 4.2% silicosis with tuberculosis. Although silicosis is still being contracted, legislation has caused a pronounced reduction.—*Helen Lawson.*

SEVERE PNEUMOCONIOSIS AND ITS RECOGNITION. *V. Reichmann. Med. Welt, vol. 11, pp. 1518-1522 (1937).*

The author describes silicosis without tuberculosis. He considers it severe only if the x-ray shows flaky and tumor-like shadows. Honey-comb patterns he considers to be an earlier stage, following which comes the nodule stage and finally the one he mentions. He describes its x-ray and clinical pictures and emphasizes the diagnostic value of spirometry, electrocardiograms and sphygmographs.—*L. Teleky.*

SILICOSIS IN THE UNITED STATES LITERATURE. *G. Hass. Zbl. f. Gewerbehyg. u. Unfall., vol. 14, pp. 201-203 (1937).*

Short review of some American literature on silicosis, especially its distribution and compensation.—*L. Teleky.*

PULMONARY ASBESTOSIS. IV. THE ASBESTOS BODY AND SIMILAR OBJECTS IN THE LUNG. *K. M. Lynch. J. A. M. A., vol. 109, pp. 1974-1978 (Dec. 11, 1937).*

The presence of asbestosis bodies in the sputum does not necessarily imply asbestosis and a person with advanced asbestosis may not show them in his sputum. After discussing their nature and transformation in the lung, Dr. Lynch describes similar brown bodies seen at autopsy in the lungs of persons having had no exposure to asbestos. One was a coal worker, one a housemaid and another had worked in a cotton compress. In some cases a diagnosis of asbestosis was made and stood until the history ruled out any such cause. Since there was congestive heart failure in some of these cases, it may be that congestion itself plays some part in the formation of these bodies. The non-asbestosis body, however, has a black centrum while the asbestosis one is translucent. The author has also seen silica particles similarly sheathed but these are more often round and again the centrum is black. "As to the nature of all of the objects it appears that they are formed on a silica base as is the asbestosis body. On that hypothesis the group would become silica bodies of which the asbestosis body is a member."—*Helen Lawson.*

PATHOLOGICAL ANATOMY OF ASBESTOSIS. *W. di Biasi. Arch. f. Gewerbepath. u. Gewerbehyg., vol. 8, pp. 139-155 (1937).*

The author gives an exhaustive description of the macroscopic and microscopic findings in a fatal case of pulmonary asbestosis. There was a diffuse fibrosis spreading from the top toward the bottom. It is emphasized that whereas in silicosis there is a striking contrast between severe x-ray changes and the slight physical lung findings, in asbestosis this contrast is reversed. The anatomical and histological findings of silicosis and asbestosis differ throughout. In the latter, the microscopic-pathological-anatomical ones may be explained by the mechanical action of the asbestos needles. Asbestosis cannot be used as a support for the existence of a silicatosis.—*L. Teleky.*

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

DUST CONTROL IN INDUSTRY. *J. D. Leitch, L. B. Leppard and H. V. A. Briscoe. Nature, (letters), vol. 140, pp. 772-773, (Oct. 30, 1937).*

Messrs. Leitch and Leppard criticise the suggestion of Briscoe and his collaborators (Nature, *139*, 753, May 1, 1937) that the admixture of other dusts might be used to mitigate the effects of siliceous dusts. The positive way of preventing silicosis is to remove dust from the air breathed by the worker, either by the suppression of dust or by the wearing of respirators.

In his reply, Professor Briscoe agrees that dangerous dusts should be suppressed by all known means, but he maintains that since the finest fraction of active dusts is the most difficult to suppress and is the most by blasting, a second which gives a high degree of atomization with small amounts of air and water, and a third which yields an appreciable reduction in the dust content of air.—*Chem. Abstr.*

PULVERIZING SILICA SAND. *D. M. Wilhelm. Rock Prod., vol. 41, pp. 47–48 (Apr. 1938).*

The Milwood Sand Co. plant at Zanesville, Ohio is described and illustrated. The dust hazard has been practically eliminated by the use of dust seals on all equipment in which dust is generated.—*F. F. Rupert.*

REDUCE DUST COUNT TO MINIMUM WITH REDESIGNED BOOTHS. *Ceram. Ind., vol. 30, pp. 68–70 (Apr., 1938).*

The brief article relates how the dust in the electrical porcelain department of the General Electric Co. was greatly reduced by installation of water-wash booths and later by the redesign of the booths. Dust concentrations of 3.8 million particles per cu. ft. are now obtained at the operator's nostrils, and the count in the room outside is 3.5 million.—*F. F. Rupert.*

SOLVING THE DUST PROBLEM. *F. W. Ortman, Jr. Safety Eng., vol. 75, pp. 13–16 (Apr., 1938).*

The author briefly describes the dust control methods used in the grinding, milling and boring department of the Koppers Co. 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 yrs., with improvements that have been added 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.—*F. F. Rupert.*

PULMONARY SILICOSIS AND SAND DUNES. *H. Velu. Comp. rend. Soc. de biol., vol. 128, pp. 13–14 (1938).*

The author analyzed the lungs of adult sheep from a sandy region of Morocco where the vegetation is abundant in winter but very sparse in summer. Analyses of lungs of five animals (2 lambs and 3 sheep of unknown origin), presumably considered as "controls," show values ranging from 0.36–0.63% of silica in the ash (insoluble in HCl). The lungs of 3 sheep from the sandy region gave figures of 1.30, 1.34 and 1.75, while lungs of 4 others that had lived at the edge of the desert yielded 5.83, 1.89, 3.82 and 6.32%.—*Helen Lawson.*

RECENT DUST EXHAUST APPARATUS. *F. Prockat. Staub, no. 6, pp. 249–287 (1937).*

The author describes, with examples and illustrations, the most important points of exhaust apparatus: various kinds of dust removal (gravity systems, removal by utilizing the mass inertia, by centrifugal force, by filters, etc.). Then he 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.—*L. Teleky.*

PREVENTION OF ASBESTOSIS IN INDUSTRY. *F. Prockat. Staub, no. 5, pp. 133–162 (1937).*

Description of asbestos, the various kinds, its uses and the way it is worked for various purposes. Many illustrations show how in certain processes dust can be decreased by proper installation of exhaust systems and practical planning.—*L. Teleky.*

THE SPECTOGRAPHIC DETERMINATION OF LEAD IN BLOOD FROM NORMAL HUMAN SUBJECTS. *G. H. Scott and J. H. McMillen. Am. J. Med. Sci., vol. 195, pp. 622–627 (May, 1938).*

The blood of 89 medical students with no history of industrial lead exposure was examined spectrographically using the interrupted arc. The iron in the blood was used as the internal standard. In one-half of the individuals no lead was detected. The remainder showed between 0.001 and 0.06 mg. % of lead in whole blood. None of the individuals presented any symptoms of lead poisoning. The limit of sensitivity is claimed to be 0.001 mg. %.—*Stewart H. Webster.*

ier-Villars. Bull. et mem. Soc. d. hôp. de Paris, vol. 54, pp. 214-221 (1938).

The authors describe the clinical course, x-ray and pathological-anatomical findings of silicosis in a castings polisher. They found pneumothorax, adherence of lung to costal pleura, emphysema and many very small nodules up to 1 cm. in size. The larger nodules in the center were caseous. Koch bacilli could not be detected although a careful search was made. The authors consider the case to be a proof of the effect of tuberculosis on an existing silicosis. In 8 other casting polishers with many years' experience, no signs of silicosis were detected.—*L. Teleky.*

DISEASES OF THE TEXTILE INDUSTRY, CAUSES AND PROPHYLAXIS. *E. R. Hurtado. Revista del Trabajo, vol. 1, pp. 79-86 (Oct. 1937).*

Of the various causes of disease in the textile industry, the author considers dust as the most important. In the cotton industry, which is the most important textile industry in Mexico, two kinds of dust have been found, (1) small particles of cotton, (2) sand. Chemical analysis revealed the presence of 50.9% SiO_2. This accounts for the pulmonary trouble found among the laborers. The author suggests ventilation of the carding machines and the use of respirators by the employees.—*C. A. Sands.*

DECISIONS ON SILICOSIS CASES. *F. Sommer. Monatsschr. f. Unfallheilk., vol. 45, pp. 74-95 (1938).*

The author who is a pathological anatomist, reports on his experiences in a number of silicosis cases, especially those made very difficult legally by the wording of the German laws. Of his cases, two-thirds died of pulmonary tuberculosis. Among the notable cases is that of a man who died in 1930 of advanced "rock cutter's lung". He had given up this work in 1919 and the first symptoms were seen in 1921. In 1924 it was diagnosed as pneumoconiosis. In another case, one of silico-tuberculosis, there developed tuberculosis of the urinary tract, and in another tuberculosis of the meninges. In one case the x-ray findings could not explain the severity of the symptoms and at autopsy there was discovered an angitis obliterans of the mid-lung arterial branches. The author reports that determination of silicosis is possible by exhuming a body some time after death. Silicosis is very resistant to putrefaction—one body was exhumed 2 yrs. after death and the existence of silicosis proven.—*L. Teleky.*

THE BEARING ON SILICOSIS QUESTIONS OF THE THIRD LAW FOR EXTENSION OF ACCIDENT INSURANCE TO INDUSTRIAL DISEASES. *Lochtkemper. Zbl. f. Gewerbehyg., vol. 15, pp. 9-12 (1938).*

This law puts all silicoses on a par with accidents; up to now this was true only for certain especially dangerous industries. The author notes the need of this extension, especially for increasing prophylactic measures. One can now decrease the hazard by introducing into all industries protective measures, medical examinations and medical supervision. The author reports then on some of his own experiences: finding severe silicosis in a worker who was employed in a room near a sandblaster. The quartz dust penetrated into this room and was kept in motion by a moving belt. He has found silicosis in chamotte workers and in clay tube factories (average quartz content of the clay tubes was 40%). Another case was that of a man who for a year had shovelled grain mixed with sand.

In first examining an applicant it is important not to exaggerate findings that are alarming: old calcareous foci are not significant; on the other hand, a very careful history is essential and one should give special attention to light silicoses contracted in previous work.—*L. Teleky.*

SILICOSIS AS A MEDICAL AND SOCIAL PROBLEM. *E. Eizaguirre. Revista Assoc. Med. Argentina, vol. 51, pp. 51-59 (Dec. 1937).*

Although a part of this article is devoted to a survey of the important work done in silicosis, the author cites a case which was brought to his attention. A man, 40 yrs. old, had been working at sandblasting for 7½ years, but had left because of dyspnea, thoracic oppression, and frequent colds. No Koch bacilli were found. Radiologically, there were dense shadows in the middle and upper parts of both lungs. Occasionally, he suffered from rise in temperature coincident with increase in expectoration. The patient finally died at the age of 44.

The autopsy showed some pleural exudates in the left lung, marked lobulation, and the presence of some granulation. Microscopic examination showed heavy deposits of iron, silica, and coal dust.

In the zones of massive fibrosis, there were places in which the fibroblasts had disappeared almost entirely, but the general microscopic picture was one of fibrosis. Lung permeability had disappeared.

The author found the presence of large multi-nuclear cells, whose morphological characteristics differ from those seen in tuberculosis—*C. A. Sands.*

ASBESTOSIS AND ITS PREVENTION. *T. Windel. Arbeitsschutz, pp. 26–32 (1938).*

Continuing his earlier work (see these abstracts, vol. 19, p. 112, 1937), the author first presents more material on asbestosis in the textile industry. The number of asbestos workers has increased and now there are about 1300 in Germany, of whom about 1000 are considered to be dangerously exposed, including the weavers. Up to March 31, 1937 there have been 27 cases of asbestosis, of which 16 have been fatal. Since April 1, 1937, asbestosis has been legally rated as an industrial disease on an equal basis with accidents and since then (in 6 months) 10 cases have been indemnified. The earliest observed symptom of the disease is seen after 3 or 4 yrs.' work. An x-ray should be taken of each new employee and each should be examined after 3 yrs. and then at intervals to be determined by the doctor. Above all, observers must prove whether or not a light case will inevitably progress in spite of removal from exposure.

With the help of many illustrations, the author shows obsolete and new, satisfactory protective measures and describes the technical improvements that are necessary. —*L. Teleky.*

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

A STUDY OF THE CRYSTALLINE SILICEOUS MINERALS PRESENT IN SILICOTIC LUNGS BY THE X-RAY DIFFRACTION METHOD. *C. M. Jephcott, W. M. Gray, and D. A. Irwin. Canadian Med. Ass. J., vol. 38, pp. 209–215 (March, 1938).*

A series of 35 lung ashes and several mine dusts and tamping powders were analyzed by the x-ray diffraction method. The authors describe briefly the fundamentals of x-ray diffraction and also the method of preparing lung ashes. The lungs examined were from persons exposed to various types of dusts, including those encountered in brick making, granite cutting, enamelling, and metal mining. The control minerals used were micas, kaolin, quartz, microcline, orthoclase, talc, tourmaline, chlorite, and tremolite. The findings revealed that quartz was present as the chief constituent in all the lung ashes; mica and soda feldspars were important components; potash feldspars, talc, and tremolite occurred only as traces. It was also found that correlation between crystalline siliceous material found in the lung ashes by the x-ray diffraction method and the occupational history of the individual was not possible.—*C. R. Williams.*

PETROGRAPHIC IDENTIFICATION OF ATMOSPHERIC DUST PARTICLES. *W. D. Foster and H. H. Schrenk. U. S. Bur. Mines Rept. Invest. #3368 (Jan. 1938).*

A dark-field method of determining quartz by immersion is proposed. The writers preface the description of their method by a brief discussion of the petrographic technic and its limitations. Comparative tests showing the limit of visibility of quartz in liquids of different refractive indices by light-field and dark-field methods are given. The curve for light field shows that in a 1.540 liquid, quartz particles must be larger than 2μ to be seen. This figure is somewhat high when an oil-immersion objective is used. The method described involves immersing the sample in liquids of various indices of refraction and judging the amounts of various minerals present by the brightness or faintness of the particles in various liquids. It is impossible by this

THE BEHAVIOR OF CERTAIN DUSTS UNDER MECHANICAL IMPINGEMENT. *J. B. Ficklen and L. L. Goolden. Science, vol. 85, pp. 587–588 (June 18, 1937).*

The results of a study of breakage of dust particles collected by impingement on various surfaces (dry surface of gelatine and glycerine, dry glass plate and glass plate submerged in water) are given in tabular form. Samples of quartz and feldspar in the size range between 5–10μ and dried spores of pencillium oxalicum were used. The authors conclude that the amount of breakage depends chiefly on velocity of impingement, type of dust and impingement surface. The ratios of small particles produced to particles of original size varies from 4.5 to 100:1. No indication is given as to the methods used in sampling, methods of determining particle size or amounts of dust used in the experiments.—*C. R. Williams.*

A MICROPROJECTION METHOD FOR COUNTING IMPINGER DUST SAMPLES. *C. E. Brown, L. A. H. Baum, W. P. Yant and H. H. Schrenk. U. S. Bur. Mines Rept. Invest. no. 3373 (Jan. 1938).*

The introduction refers to Brown and Yant's previous article describing a microprojection method for determination of particle size distribution and concentrations of Owens jet and thermal precipitator samples.

The regular microscopic method for counting impinger samples requiring time-consuming dilution preparation, etc., is discussed. The authors emphasize the well-known eye strain associated with this method, which requires observation of dust particles whose apparent size is of the order of 0.1 mm. (the authors have apparently set the limit of visibility for the light-field method as 1μ, which at 100 diameters magnification would be 0.1 mm.).

The difference between the regular microscopic method and the projection method of counting is explained. In the latter, a magnification of 1000 is used instead of 100 as in the former. The same objective (10x) is used (and apparently the same type of illumination—light field), thus revealing the same number of particles. The greater magnification is obtained through a 20x eye piece instead of 10x, and by projecting on a translucent screen at a predetermined distance. At 1000x magnification, a 1μ particle will have an apparent size of 1 mm.; furthermore, both eyes can be used for counting, all of which makes for reduced eye strain.

The article describes all the extra apparatus needed, such as automatic-feed carbon-arc lamp with condenser and rheostat for available current; a heat filter to eliminate heat from light before it enters the microscope; suitable eye piece; a right-angle projection prism; a ruled translucent screen; remote control for focusing and operation of stage, etc. Any regular microscope with adjustable tube suitable for counting impinger samples by the standard method is satisfactory for use in the microprojector. For particle size determination, which requires a magnification of 10,000x, a 90x oil immersion objective is needed.

Two tables give comparative values between the two methods of counting, which show excellent agreement, and three illustrations show typical arrangement of the micro-projector.—*N. R. Bernz.*

DUST CONTROL METHODS IN AN ASBESTOS FABRICATING PLANT. *R. T. Page and J. J. Bloomfield. U. S. Pub. Health Repts. vol. 52, pp. 1713–1727 (Nov. 26, 1937).*

The various processes used in the fabrication of asbestos are described and illustrated. Very useful information, in some cases with schematic views, is given on exhaust hoods coupled with estimates of dust concentrations in the breathing zone with and without the ventilation system being run. A final table shows clearly that the industry can keep dustiness well below 10 million particles per cu. ft. (impinger method, light field counts). It is intimated that the industry should set its own standards of air cleanliness on the basis of the performance data given in this report.—*Philip Drinker.*

NEW ROCK DRILL DUST CONTROL. *Engin. News Rec., vol. 119, pp. 1058–1061 (Dec. 30, 1937).*

A group of contractors in the New York area, under the direction of a consulting mining engineer, have developed a dust whole as unsatisfactory, but Yant's work on the urine sulfates test for benzene absorption is praised. Normally inorganic sulfates constitute 85-95%, the remainder being organic. In benzene absorption there is a decrease in this ratio which is quantitatively related to exposure.

Methods of prevention and treatment are suggested. Milk, carbohydrates and sugar should have a prominent place in the diet of exposed persons.—*Helen Lawson.*

THE UTILIZATION OF LETHAL GASES IN HYGIENE. *P. G. Stock, Proc. Royal Soc. Med., (Epidem. and State Med.), vol. 31, pp. 427-442 (March, 1938).*

The uses to which lethal gas are put are listed and include destruction of pathogenic organisms, disinfection of water and sewage, destruction of rodents, destruction of insects, and destruction of agricultural pests.

The author discusses the different gases used, which include oxides of sulfur, carbon monoxide or carbon dioxide, salforkose, which is a mixture of carbon bisulfide and alcohol, hydrogen cyanide, orthodichlorbenzene, trichloronitro-methane, tetrachlorethane, ethylene oxide, and chlorine. He also gives a very instructive discussion of the use of each of the above gases and the dangers encountered in their use.

A clear concise discussion of the method of application is also given.—*C. E. Schwob.*

VAPOR PRESSURES OF SOLVENTS. *D. S. Davis. Ind. Eng. Chem., vol. 30, pp. 320-321 (1938), and D. H. Killefer, ibid. pp. 477-479, 565-567 (1938).*

Nomographic charts are given in which the log of vapor pressure is plotted against inverse temperatures for a group of solvents boiling below 90°C, between 90-150, 150-200, and above 200. The charts are especially convenient for anyone working in industrial hygiene. A set can be obtained for 25 cts. from Industrial and Engineering Chemistry, 706 Mills Bldg. Washington, D. C.—*Philip Drinker.*

INDUSTRIAL POISONS, WAR GAS AND LEUCEMIA. *J. A. M. A. (Queries and minor notes), vol. 110, p. 1508 (1938).*

Do industrial poisons cause leucemia and is there any relationship between it and war gas poisoning?

As to leucemia from industrial poisons many sources are cited which tend to incriminate benzene; ethylene glycol monomethyl ether and radioactive substances are also mentioned. War gases evidently do not produce this condition.—*Helen Lawson.*

INDUSTRIAL SOLVENTS. *W. D. McNally Indust. Med., vol. 7, pp. 295-303 (June. 1938).*

The constant and increasing need for new solvents in industry has resulted in a great number of these substances.

The author discusses the group as a whole pointing out their irritating effect upon the respiratory tract and skin and their peculiar action upon fats and lipoids as well as upon the central nervous system.

Methyl alcohol, benzine, carbon tetrachloride, trichlorethylene, benzene, tetrachlorethane, tetrachlorethylene, carbon disulfide, tetraethyl-ortho-silicate, diethylphthalate, all are described individually and the toxicology outlined.

There is an excellent table giving a list of solvents, their use in industry, their toxic effects, and the autopsy findings. The article is accompanied by references.—*W. Irving Clark.*

DUST HAZARDS AND THEIR EFFECTS

ASBESTOS. *S. R. Gloyne and E. R. A. Merewether. Occupation and Health, Internat. Lab. Office, Geneva (1938).*

This is one of the brochures included in the International Labour Office Supplement to its two-volume Encyclopedia on Occupation and Health. This particular brochure reviews the chemical composition and physical properties of a variety of silicate minerals commercially known as asbestos; the common uses of asbestos; extraction; manufacturing processes; risks to health; essential features of asbestosis; diagnosis; pathological features; asbestosis and tuberculosis; preventive measures; and compensation for asbestosis. Of special interest are the references made to the difficulties in diagnosis and the dis[illegible] on the formation of asbestosis bodies, illustrated with forty-one free-hand drawings of these bodies showing their different appearances.

The most important single clinical sign of asbestosis is stated to be that of diffuse bilateral impairment of the percussion note which is slight in degree and associated with a slight sense of resistance. It is best elicited by very light and rapid percussion of the back of the chest from apex to base on each side. The other important feature in diagnosis is the radiographic examination of the chest. The distinguishing differences between the radiographic pictures of asbestosis and silicosis are listed. The brochure emphasizes the point, however, that asbestosis cannot be diagnosed with absolute certainty on either radiographical or physical examination alone. With the aid of both, the disease can be diagnosed with certainty if present in some degree, although not necessarily to an extent sufficient to cause either symptoms or any disablement. In very difficult cases where gross tuberculous lesions obscure the picture, careful investigation of the subject's exposure to asbestos dust, particularly as to the dustiness of the processes engaged in and the length of exposure, will enable the correct decision to be reached. The preventive measures are based largely on those principles incorporated in the Code of Regulations adopted in Great Britain to achieve the British standard of threshold dustiness. The views expressed in the brochure are authoritative and exceedingly instructive.—*W. J. McConnell.*

THE LUNGS OF COAL, METALLIFEROUS AND SANDSTONE MINERS AND OTHER WORKERS IN NEW SOUTH WALES. CHEMICAL ANALYSIS AND PATHOLOGY. *C. Badham and H. B. Taylor. Extract from Annual Report, Dept. Public Health, for 1936, pp. 100-143, Gov't. Printer, Sydney, 1938.*

In a previous paper (these Abstracts, *15,* 103, 1933) the authors described their analytical procedure which was adapted from Fresenius' method for analyzing clays and unfortunately is omitted in the present paper.

Two- to three-hundred grams of lung are cut into small pieces and dried to constant weight at 105°C. The dry lung is then heated at dull redness until carbon-free. Half a gram of this ash is fumed with concentrated H_2SO_4, HCl, and HNO_3, with decantations and heating in the usual way. This residue, A, is "Silica from silicates decomposed by acids, plus silica present as such in the lung ash, plus undecomposed silicates."

Residue A is then extracted hot with 10% soda solution and washed with water and 1:10 HCl, ignited and weighed, giving Residue B. The silica in this residue is then determined colorimetrically.

Residue B is then treated with HF and H_2SO_4 leaving for weighing, Residue C.

The water-soluble portion is then extracted and weighed as Residue D.

The novel part of Badham and Taylor's procedure, not given in the present paper, but stated clearly in their earlier paper, is in the interpretation of the results. It is claimed that the "greater portion of the alumina in Residue C was probably derived from a silicate of the form $Al_2O_3 \cdot 2SiO_2$. The remaining alumina and potassium sulfate are considered to be from a silicate of the form $K_2O \cdot Al_2O_3 \cdot 6SiO_2$."

"The amount of free silica in the ash is given by subtracting from Residue B the weight of the undecomposed silicates which can be calculated from the Residue C by allotting to the K_2SO_4 its correct proportion of Al_2O_3 and SiO_2, according to the formula $K_2O \cdot Al_2O_3 \cdot 6SiO_2$ and to the residual alumina its correct proportion of SiO_2 according to the formula $Al_2O_3 \cdot 2SiO_2$."

"The amount of combined silica is the sum of the SiO_2 extracted by sodium carbonate" and in the two silicates given above.

Carbon was determined on a 2 gm. specimen of dried lung by hot digestion with 25% NaOH treatment with HNO_3, and fat extraction with alcoholic potash. Loss on ignition of the final residue was considered as C.

The authors deplore the lack of uniformity in analytical procedures by different investigators and suggest that the method of sampling (the lungs) should be agreed upon internationally as the results of these analyses undoubtedly have important medico-legal and scientific significance. They suggest that the lungs

Anaesthetized cats were given intratracheal insufflations of fine bismuth carbonate, bismuth subnitrate and lead glass powders by means of a powder blower inserted through a bronchoscope. Fluoroscopy and roentgenograms demonstrated that in the dry state these radio-opaque minerals were not carried into the terminal air spaces but remained adherent to the walls of bronchi lined with ciliated epithelium. The process of removal could be readily followed. The column of dust on the mucosal surface moved upward with a spiral motion. Neutral bismuth carbonate was usually completely eliminated in 1 to 4 days, the acid subnitrate was excreted slightly more rapidly and the lead glass had disappeared in from 7 hrs. to 2 days. The reaction of the mineral did not affect the rate of elimination, a result at variance with those of other observers. If the particles were suspended in fluid either saline or thin syrup, they were carried into the terminal alveoli from which they were slowly excreted by the bronchial route over periods of weeks. No evidence of drainage to lymph nodes could be discovered. The authors suggest that inhalation of dust in the dry state might be less dangerous than if it were moist. The presence of sufficient amounts of water might permit the mineral particles to penetrate beyond the protective ciliary epithelium and allow gradual accumulation in the lungs.—*L. U. Gardner.*

OCCUPATIONAL CANCER IN ASBESTOS WORKERS. *M. Nordmann. Ztschr. f. Krebsforsch., vol. 47, pp. 288-302 (1938).*

The author reports on 2 cases of lung cancer of which he made the pathological-anatomical examination. He reports likewise on the clinical aspects of Hornig's case (see following abstract) and on a 55 yr. old man who had worked in asbestos from his 36th to 43rd years. Autopsy showed asbestosis and in the left upper lobe a markedly necrotic, cornified squamous celled epithelioma. The author mentions 4 additional cases of cancer with asbestosis in the literature and one must agree with him that, in view of the small number observed and the very few cases of asbestosis autopsied (12 cases in Germany), the number of cancers found is a very high one. Of these 6 cases, the site of the cancer in 3 cases was the lower lobes, in five there was a squamous-celled epithelioma. Three of the victims were less than 43 yrs. old, in all, work with asbestos had begun 15 [illegible] yrs. before. After all, the author seems quite right in seeing a causal relation between asbestosis and lung cancer.—*L. Teleky.*

CLINICAL CONSIDERATIONS ON THE QUESTION OF INDUSTRIAL CANCER OF ASBESTOS WORKERS. *F. Hornig. Ztschr. f. Krebsforsch., vol. 47, pp. 281-287 (1938).*

A 35 year old woman who worked in an asbestos factory from 1919-1928 fell ill of asbestosis; in 1937 a sharply defined shadow was seen roentgenologically 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. Confirmation at autopsy of the diagnosis of lung carcinoma is presented in a paper by Nordmann (preceding abstract).—*L. Teleky.*

EXPERIMENTAL INVESTIGATION OF THE SCHNEEBERG LUNG CANCER QUESTION. *H. R. Döhnert. Ztschr. f. Krebsforsch., vol. 47, pp. 209-239 (1938).*

In a very exact manner, with regard to the pertinent literature, and with careful consideration of all factors, the author reports on the tumors found in mice kept in the Schneeberg mines. In the experiment were 48 animals of whom 28 died. Of these, 2[illegible] were given careful pathological and anatomical examination; the other two were sent to another Institute for examination of their radioactivity. In 7 animals tumors were found; in two of them, multip[illegible] tumors in various organs. Since the experimental animals came from almost tumor free stock, the number of tumors found is [illegible] high one. In two cases there were tru[illegible] epithelial lung tumors, in two, ulcers of th[illegible] mediastinum, in the other 3 cases there wer[illegible] tumor-like, more or less generalized change[illegible] of the lymphatic system. After carefu[illegible] consideration, the author blames the re[illegible]