FILE NAME: Owens Illinois Library (OWL)

DATE: 1949

DOC#: OWL026

DOCUMENT DESCRIPTION: Relevant Book Reviews from the Journal of Industrial Hygiene and Toxicology

THE JOURNAL OF INDUSTRIAL HYGIENE AND TOXICOLOGY

VOLUME 31
JANUARY, 1949—NOVEMBER, 1949

PUBLISHED BY
THE WILLIAMS & WILKINS COMPANY
Baltimore, Md.

VOLUME 31. INDEX TO TEXT AND BOOK REVIEWS

(Asterisk denotes book reviews)

ıight well provide a valuable
·thods of dust control.
t such effectiveness is due
hat small dust particles are
osols and that once aggre-
even after the evaporation
f the aerosols droplets. In
he penetration of the dust
pths is greatly retarded.

BOOK REVIEWS

TECHNICAL AND SCIENTIFIC DEVELOPMENTS RELATED TO THE ASBESTOS INDUSTRY IN GERMANY. Board of Trade. German Industry. F.I.A.T. Final Report No. 1070, (March 23), 1947. London: H. M. Stationery Office. 4s. 6d.

This report is a description of the machinery and installation of the German asbestos industry which is considered to be of interest to American industry, and is a supplement to previous reports especially Fiat Final Report 460 and Bios Final Report 404, Item 22. The main problem for the German asbestos industry is regarded at present as one of lack of material, in which the British Zone is not so badly off as the American. The report consists broadly of three sections, one dealing with industrial plant, another with problems of dust control and a third with some experiments made by German scientists during the war to prepare a synthetic asbestos. The present position with regard to the plant and installation is solely an engineering problem. The preparation of a synthetic product has been held up by the collapse of German industry, and not a great deal appears to be known about it, but the basic idea seems to have been "gelling" of sodium silicate with hydrochloric acid, washing out of the gel to remove NaCl by liquefying it under steam pressure, evaporating the solution to 14 per cent SiO_2 with the addition of 5–10 per cent sugar, introducing a spinning process and finally ageing the fibre, washing the sugar residue and drying. The section on dust control has a direct bearing on general industrial hygiene.

For many years before the war, insurance against the risks of dust and accidents was compulsory. The use of respirators was recommended only in extreme cases, reliance being chiefly placed on an efficient dust control organization. The report gives a translation of the regulation for Dust Prevention in Asbestos Processing Plants issued by the German Government in 1940. This lays down general engineering precautions for dust control, with detailed instructions as to the protection of machines and the provision of exhaust equipment. [Many of these are already in use in Britain, but the details are too technical for abstraction.] An official center for advising on dust prevention, especially in the case of the installation of new plant, was provided by the Government. Children under the age of 18 were not considered suitable for dusty occupations [no details are given, however, as to the regulations for their exclusion]. It was forbidden to eat, or to remain, in dust-endangered rooms during rest periods. Outdoor clothes were not to be kept in workrooms and work clothes had to be cleaned at regular intervals [time not stated].

The writer of the report also interviewed Dr. Luise Holzapfel who had had charge of an organization in Berlin for the investigation of silicosis problems, before the collapse of Germany. She stated that she and her staff had been engaged for some time on the isolation of organic silicon compounds. Two important ones had been discovered, but their chemical composition had not been completely determined when the war ended. One was a silicon compound of the lipoid group obtained from the lungs of patients suffering from silicosis accompanied by tuberculosis, the other was a Si-N compound present in normal blood. The isolation of these compounds had been extremely tedious, taking from 2 to 3 years and when the Russians took over that section of Berlin they had ordered the destruction of all material on the ground of risk of infection. Dr. Holzapfel considered that there was no risk of tuberculosis provided that silica metabolism in the body was normal, and she regarded disturbed fat metabolism in undernourished workers as a predisposing cause of tuberculosis. She was of the opinion that the compound isolated from healthy blood might have some therapeutic value both in tuberculosis and tuberculosilicotic patients. The striking resemblance between the tissue of a silicotic lung and vulcanized rubber suggested to her the presence of long-chain organic silicon oxygen compounds, probably formed when the fresh surface of quartz grains reacted with some unknown constituent of the blood. The presence of oxygen was necessary, she believed, for that reaction to take place and she further expressed the view that "a compound in which the silicon atoms are completely surrounded by organic radicals probably cannot cause silicosis because such a compound will be insoluble and unreactive". Dr. Holzapfel had tried to cultivate the tubercle bacillus on SiO_2 gel containing various nutrient substances, but without success.

The writer of the report states that further information on the two substances mentioned can be obtained from the Kaiser-Wilhelm Institut fur Silikat Forschung in Berlin-Dahlem. The substance formed in normal blood had 1.3 per cent SiO_2, 6.5 per cent N, but no iron or cholesterol; it was water-soluble, strongly alkaline, with a melting point over 250° [presumably Centigrade] and had been isolated from the lecithin fraction in the blood. The second was a water-insoluble substance from the lung tissue, and could be concentrated in the ester fractions. The lecithin compound, on the other hand, was almost completely absent from lung tissue. In silicosis the melting point of the extracted mixture of ester-free fat was found to increase in relation to the severity of the disease. Early cases of silicosis yielded a mixture of melting at 45° whilst the material extracted from more advanced cases melted at 72–81°. Extraction of silicotic lungs

gave a higher proportion of lipoids (esters, free fatty acids and phosphatides) than was obtained from healthy lung tissue.—*S. Roodhouse Gloyne, Bull. of Hygiene.*

THE PRACTICE OF INDUSTRIAL MEDICINE. *By R. A. Lloyd Davies, M.D., M.R.C.P.*, with a chapter on the hazards of coal mining by *G. F. Keatinge, M.D., D.I.H.*

Reviewed in *Chemistry and Industry*, February 5, 1949.

THE PRINCIPLES AND PRACTICES OF MODERN COSMETICS. VOLUME II. Cosmetic materials: their origin, characteristics, uses and dermatological action. *By Ralph G. Harry*, Leonard Hill, Ltd. 17 Stratford Place, London, W.1, 1948, 479 pp.

This book presents in alphabetical arrangement a list of materials commonly used in cosmetics or for cosmetic manufacture. Included are discussions on the origin, characteristics, uses and dermatologic action of cosmetic materials. Thus one may pass from "abracols" to zinc sulfate and find information on formula, molecular weight, occurrence or manufacture, physical and chemical properties, B.P. standard, use in toilet preparations and dermatologic action. The appendixes include discussions of methods of U. S. Toilet Goods Association for testing for certain substances and a list of the coal tar colors certified by the Food and Drug Administration. Although the book is written in England, it, unlike many others, has equal usefulness for those who reside outside the United Kingdom. Thus, this volume should be of considerable usefulness to those in the United States who are interested in the preparation or identification of cosmetics and cosmetic ingredients. It is not intended for the practitioner, but it will be found practical for the pharmacist, chemist, teacher and others who have interest in the details of cosmetology.—*J. A. M. A.*

DETOXICATION MECHANISMS. *By R. Tecwyn Williams.* John Wiley & Sons, Inc., New York, 1947. 288 pages. Price $5.50.

This is an excellent review of the literature on the metabolic fate of many organic compounds that are of interest to the industrial toxicologist. This book should be in the library of everyone interested in toxicology.—*Albert O. Seeler.*

NUCLEAR RADIATION PHYSICS. *By R. E. Lapp and H. L. Andrews.* Prentice-Hall, Inc., New York, 1948. 487 pages. Price $6.00.

This book is the outgrowth of an elementary manual on radiological safety. In its present form, however, the majority of the text is on fundamental nuclear physics.

There are 5 chapters of the 18 in the book of specific interest to industrial hygienists and health physicists. These chapters cover nuclear radiations, ionization chamber instruments, Geiger-Muller counters, radiation measurement technique and health physics.

The book presents the basic principles of the sciences underlying atomic structure and nuclear fission. It is a useful book for reviewing fundamentals for people with technical backgrounds entering the field of nuclear energy production and protection.

The chapter on health physics describes the biological effects of radiation, permissible radiation, radiation standards, safety requirements and monitoring technique.

The appendices also present useful data on isotopes and safety rules now used by the U. S. Atomic Energy Commission. Manufacturers of radiation instruments are presented in the last appendix but this is the type of information which will require frequent revision as will the description of such instruments.

Industrial hygiene personnel will find this book a useful addition to their libraries.—*Leslie Silverman.*

HISTORY OF FACTORY AND MINE HYGIENE. *By Ludwig Teleky, M.D.* Columbia University Press, New York, 1948. 342 pages. Price $4.50.

This historical treatise, while retaining a well-balanced perspective of occupational hygiene throughout the world from the Paleolithic Age to present times, includes much of the strong, stimulating personality of its author. The major developments in the field have occurred since the turn of the century, and throughout the book are evidences of Teleky's active participation over this period, injecting warmth and readability into its pages.

We tend to lose sight of the stern pioneering which preceeded the state of responsive management attitude to industrial hygiene existing today until we read of Teleky's experiences of not so long ago. By 1906, regulations in the large cities of Austria had driven the white phosphorus match industry into the small villages. An example of this industry's hostility to investigation of its occupational disease situation in those days is the treatment accorded Dr. and Mrs. Teleky. After a long day of walking through the hamlets of the Bohemian forest in search of cases of phosphorus poisoning, they reached the village inn owned by the match manufacturer only to be turned away because of the purpose of their presence in the area. Teleky does not leave us with any impression that the need for striving for improved working conditions is past or that we should rest on the gains made to date. He stings any who may feel that everything is as it should be with the reminder that there is no statistical evidence to support any contention that great progress has been made, and he points to the still existent need for "laws and regulations thoroughly worked out and enforced by well trained inspectors."

After a foreword by Dr. Alice Hamilton, itself a

characteristically discerning review of th
has presented historical development
hygiene, followed by data on legislati
control of health hazards, the major
research and studies of occupational di
prevention, and has included a discuss
together with a number of tables both o
and occupational disease. A chapter
mines and miners and in addition re
occupation are made throughout the bo
Following a full life's activity in indu
Austria and Germany as an indefatigab
field and the university, and as an ed
writer, Teleky has been associated o
years with the industrial hygiene divisi
Department of Public Health and the
Department of Labor. The fact th
enforce recommendations for control o
in both Illinois and New York is spec
the department of labor has doubtless
erroneous impression that none of th
partment units have this right and
activity is as consultants. There
department units which have specifi
and in addition the great majority of
of health have broad general powers
trial plants and enforce regulations.
the need for laws and their enforcem
a British senior inspector that "the f
today may be characterized as a
whose advice is backed by the know
the power to enforce his recommend
For any superficial reviewers of t
deplore the space given to continen
tributions and references, it is perha
the page headings in Chapter 2, "Le
and the United States", are abbrev
tion in Europe", not only for the
Britain and the 14 pages mainly on
as the heading for the 24 pages de
in the United States. However, a
tion of a subject which had its treme
over the years during which th
played such an active and forma
would be expected to include a full
the scenes with which he was mos
In fact, it is only to be deplored t
tise is not an appropriate vehicle
more episodes of Dr. Teleky's rich
pational disease investigation and
minated Dr. Hamilton's absorbi
work, "Exploring the Dangerous
Certain points of view on subje
much may be said on both sides
it seems to us, too unequivoc
doubtless find a place as a text
courses in industrial hygiene an
such statements may tend to l

WITH RESPIRATORY COMPLAINTS. *Hurley L. Motley, Leonard P. Lang and Burgess Gordon. Am. Rev. Tuberc., vol. 59, pp. 270–288 (March, 1949).*

One hundred cases of anthracosilicosis with pulmonary symptoms and a long history of exposure to mine dust were studied. The degree of emphysema in these patients was estimated by comparing the residual air with the total lung volume. It was found that no relationship existed between the length of exposure and the degree of pulmonary emphysema. Likewise the degree of pulmonary emphysema could not be correlated with the stage of silicosis present as determined by x-ray.

It was found that the maximum breathing capacity gave a better indication of the degree of emphysema than did the vital capacity and the authors recommend the routine use of maximal breathing capacity measurements in the study of silicosis.

The authors discuss factors other than emphysema that may play a rôle in the impairment of pulmonary function in anthracosilicosis.—*Albert O. Seeler, M.D.*

ASBESTOSIS: VI. ANALYSIS OF FORTY NECROPSIED CASES. *Kenneth M. Lynch and W. M. Cannon. Dis. of Chest, vol. 14, pp. 874–889 (Nov-Dec., 1948).*

Findings in 40 autopsies on cases with asbestosis are reviewed. The authors believe that there is little progression of the disease following cessation of exposure to the dust. Asbestosis bodies persisted as long as twenty-seven years. Three of the forty cases of asbestosis had cancer of the lung. It is the impression of the authors that asbestosis does not predispose to tuberculosis.—*Albert O. Seeler, M.D.*

NEHPRITIS IN CHRONIC CARBON DISULFIDE POISONING, LEAD POISONING AND SILICOSIS. *O. Gsell. Ztschr. f. Unfallmed. u. Berufskrankh., vol. 41, pp. 55–65 (March, 1948).*

Three cases are described in which the problem of a possible causal relationship between nephritis and an accompanying occupational disease is determined. The occupational diseases in the three cases reported were silicosis, carbon disulfide poisoning, and lead poisoning. In the first case it was decided that silicosis had neither caused nor aggravated the nephritis. The opinion in the second case is that the nephritis did not arise as a separate disease, but along with injury to other organs, as a result of severe poisoning by carbon disulfide. The chronic nephritis in the third case was regarded as the result of lead poisoning, especially in the absence of any other cause of renal injury.—*Indust. Hyg. Found., from Bull. Hyg.*

MANAGEMENT OF COMMON OCCUPATIONAL SKIN DISEASES. *Nelson Paul Anderson. J. A. M. A., vol. 139, pp. 912–916 (April 2, 1949).*

The general practitioner faced with a dermatosis of possible industrial origin must be concerned not only with the problem of treatment, but with the implications of the dermatosis for the employer and other workers, and with the medico-legal aspects. Criteria are cited for the recognition of the industrial origin of the dermatosis. Diagnosis is facilitated by a knowledge of dermatological hazards in specific industries, by a thorough physical examination, and by the appropriate and judicious application of patch tests. The clinical recognition of infectious eczematoid dermatitis as a concomitant of occupational injuries is discussed.

In the treatment of the industrial dermatosis, the importance of avoiding the use of irritant and sensitizing therapeutic agents is stressed; among these are the mercurials, sulfonamides, penicillin, local anesthetics, acridine dyes and various dyes and paints; phenol, resorcinol, and nitrofurazone ointments; and, probably, adhesive tape. Ultraviolet rays should be used only in suberythemal doses.

Prophylactic aids of value include protective clothing; mild soaps, detergents and cleansing agents; and protective ointments, which have some value.

Local topical remedies for dermatoses should be confined to soothing or, at least, innocuous agents, and overtreatment should be avoided. Specific therapy of acute, subacute and chronic dermatitis and of secondary pyodermias is discussed.—*Bertrand C. Kriete.*

STANNOSIS. *F. Barták, M. Tomečka, and O. Tomíček. Časop. lék. česk., vol. 87, pp. 915–920 (Sept. 3, 1948).*

The authors have established stannosis as a pathological condition. Their claim is based upon the case of a workman aged 49 who had worked for 18 years in an enamel-ware factory, attending a furnace in which metallic tin was burnt to produce stannic oxide. Much dust was raised during the emptying of the furnace. He had suffered from asthma for many years, and the attacks had become worse before treatment was sought; his health was otherwise quite good. On X-ray examination of the lungs, many small sharply-defined shadows were seen, the appearance of which was unlike that of any recognized condition. Investigation of 16 other persons working in the same environment showed that 6 of them had a similar condition; they had been exposed to the dust of stannic oxide for periods ranging from 6 months to 25 years. Symptoms were absent. The original patient died of carcinoma of the stomach one year after coming under observation. Examination of sections of the lungs showed changes attributable to asthma, and also deposits of black pigment and infiltration with macrophages. Pigment was also found in the tracheal lymph glands. Tin was identified by chemical means in the lungs, lymph glands, liver and spleen. Deposits of stannic oxide were demonstrated in sections of lungs and lymph glands by means of micro-incineration: they were less in amount than those visible in stained preparations, the discrepancy probably being due to a deposit of carbon. The findings were confirmed by micro-incineration of tissues of rabbits and

guinea pigs inoculated with s
appearance could also be duplic
oxide upon the skin of the thor
Hyg.

OCCUPATIONAL DISEASES OF T
INHALING BERYLLIUM. *G. C. Richard, and L. Rache. Arch. pp. 304–308 (1948).*

The use of the rare metal ber
front for alloys with bronze, f
X-rays, and in the manufactur
fluorides and chlorides of bery
dust, and, if heated, emanate to
describe 9 workers exposed for 2
double fluoride of beryllium, an
short time to fumes of beryllium
enced lung trouble and were adr
months later, when their condit
studied. The symptoms include
nose and air passages, varying ir
nals. The ocular and nasal irri
days or weeks; but then cough
to get worse, keeping the pa
dyspnoea followed effort and
asthmatic attacks, sometimes a
gradually diminished and disap
sensitivity of the air passages
In one or two cases x-ray showe
some discrete reticulo-nodular
turn tended to disappear in
features of these cases are the sho
onset of severe pulmonary sympt
recovery after several months.—

PULMONARY FIBROSIS DUE TO S
and C. van Marwyck. Deutsc 72, pp. 708—710 (1947).

This paper consists of a short
tion of portions of a lung obtai
posed to dust from the smelting
ture of corundum. A portion of
hazel nut was fixed in formali
cent. perhydrol, dried, and red
Another portion of lung was subj
examination in the usual way.
dried lung was compared with t
oven by means of phase and rö
and showed corundum, bauxite,
and mullite (a silicate allied to si
of the portion of lung examin
those of a proliferating perivasc
perialveolar connective tissue fo
the production, at these sites, of
which did not however, resemb
nodules of silicosis.

Similar appearances were fou
bits experimentally infected wi

less of a fibrogenic reaction in the productive silicotic sense than it is a bronchiolar obstruction and peripheral atelectasis due to a peribronchiolar inflammatory reaction. Short fibers which reach the alveoli appear to cause no fibroblastic cellular reaction after they have been phagocytized.

A recently recognized fact, that certain amorphous silicas may when superheated or calcined release free silica, was not discussed in this paper. A classical example is crude diatomaceous earth which has always been considered inert, but which when heated to 1,275° liberates a highly reactive free silica, crystobalite. Exposure to dust of the calcined product has caused widespread fibrosis in some workers so exposed. The little understood Shaver's disease due to the fusing of bauxite in the manufacture of the artificial abrasives may have a similar etiological basis.

Hamlin closes this excellent discussion of the pneumoconioses with the sound advice that the medical profession generally should inform itself of all phases of this complex problem before giving advice and opinions to workers with lung changes. Irreparable damage is being done every day by some physicians who by their well-intentioned but unstudied advice to patients are causing workers to leave their jobs which they can continue with complete safety. Modern dust control and hygienic practices have so reduced the dust hazard in most industries that it no longer is necessary to recommend change of employment in the majority of the so-called dusty trades. Firsthand investigation by these physicians in the plants involved is invited by most plant management, which will prove to be an enlightening and worth while experience.—*O. A. Sander, M.D.*

CHANGES IN THE LUNGS PRODUCED BY NATURAL GRAPHITE. *H. E. Harding and G. B. Oliver. Brit. J. Indust. Med., vol. 6, pp. 91–99 (April, 1949).*

A brief description is given of the industrial uses of natural graphite, which is a crystalline carbon mixed with up to 10 per cent. of free silica and with other minerals. The greatest dust risk occurs in the grinding of natural graphite, and evidence is presented to show that this can lead to disabling and fatal pneumoconiosis. Marked changes in the lungs are, however, seldom seen in grinders who have less than twenty years' exposure. The results of three autopsies and some of the findings in other workmen are given, together with the results of some experiments on animals. The radiological and histological findings are similar to those found in South Wales coal workers.—*Authors' summary.*

SOLUBILITY OF INDUSTRIAL SILICEOUS DUSTS. *P. F. Holt and H. V. A. Briscoe. Nature, vol. 163, pp. 334–336 (Feb. 26, 1949).*

The solubility theory of silicosis has given impetus to the study of the solubility of siliceous dusts in water and in various media. All the experiments have been made under conditions quite different from those in the body, especially in that in the body the liquid in contact with the dust is continually renewed. The results obtained have been quite variable, apparently depending upon small differences in the conditions of the experiment. The authors have studied some of these conditions and in one case have attempted to simulate the action of body fluids. They have demonstrated experimentally the following factors in the influence of carbonates on the solubility of silica, especially from flint: (1) calcium silicate is decomposed by carbon dioxide, resulting in a marked increase in the silica which passes into solution, shown by re-igniting a sample of calcined flint dust, converting much of the calcium sulfate into silicate; (2) carbon dioxide reduces the solubility of lime-free flint; and (3) calcium carbonate increases the solubility of flint. Under the authors' experimental conditions, the solubility of silica from purified flint was reduced from 8.6 to 0.2 mg. per 100 cc. by saturating with carbon dioxide, while from natural flint, the solubility was increased from 0.6 to 2.0 mg. They also obtained different results at different dilutions, which is to be expected from the above results. According to the solubility theory, cement dust is less harmful than flint dust because it is less soluble, as shown by several earlier investigators. However, the authors found that on repeated extraction of samples of calcined flint and of cement dusts with fresh portions of water saturated with carbon dioxide, flint shows a progressive decline in the rate of solution with each successive extraction, but the opposite is true of cement; on the fourth extraction, for instance, about four times as much silica is extracted from the cement as from the flint. In a future paper on experiments on dissolution of dusts in the body, a similar comparison will be reported.—*Indust. Hyg. Found.*

SILICOSIS AS VIEWED BY AN INTERNIST. *W. Bernard Yegge. Dis. of Chest, vol. 14, pp. 550–567 (July–Aug., 1948).*

Dr. Yegge reviews briefly the etiology, symptomatology, differential diagnosis, roentgenographic classification, complications and treatment of silicosis. Ten case histories serve to illustrate various aspects of silicosis.—*Albert O. Seeler, M.D.*

SILICOSIS AND PULMONARY FIBROSIS. A CONTRIBUTION TO THE TERMINOLOGY OF PULMONARY DISEASE DUE TO DUST. *K. W. Jötten and H. Gärtner. Deutsche med. Wchnschr., vol. 72, pp. 531–534 (1947).*

The authors discuss at length in the light of recent publications the present confusion in the terminology of the dust diseases, in the world's literature. Intensive methods of study, chemical, mineralogical and physical, have been introduced since the last international conference on silicosis met shortly before the war

while new substances have also cor
as a result of a world war in which
vention was exploited]. Now, in addi
nodular silicosis due to free silica,
without nodule formation has be
exposure to many different substa
free crystalline silicic acid, *e.g.*, sil
corundum, emery, aluminium, etc.,
clature is needed. "Without free
acid, no silicosis" is the authors' dic
To this group may be added asbe
dusts and tuberculosis complicate t

LUNG LESIONS IN A CORUNDUM SM
Ztschr. f. d. ges. inn. Med. u. d.
761 (1947).

This article is a discussion on th
ings in the lungs of two electric o
process of corundum smelting. [Cor
pure natural oxide of aluminium,
glass; it is now made by an electr
used for polishing purposes; *vide* E
Encyclopaedia, 7th edition by R.
Baillière, Tindall and Cox, 1946.]
was recorded by the author in coll
Marwyck (see p. 45), the other by
f. d. g. Innere Med. u. Grenzebiet
The article begins with a succinct
accounts in the German journals o
problem of the aluminium dust
summary it is concluded that th
pulmonary lesion by metallic alum
accepted, but that the nature of the
resulting from the inhalation of a
less certain. The salient features of
review are set out in tabular form.
as an "*aluminiumlunge*" whereas t
his as a "*sillimanillunge*". [Silliman
aluminium silicate occurring natu
form in gneisses and schists. A s
mullite, almost identical crystallog
tically with this, is obtained by hea
and other substances at very high
"artificial sillimanite" is used for gl
furnace bricks exposed to great h
supra.] Both workers had a history
years to the fumes of the electric
both had been regarded as instanc
disease due to corundum. In Wätje
in the lung were those of a chronic
believed to be a tissue reaction to
in the case recorded by Gärtner an
lung picture was that of nodular fib
that produced by the experimental
mals with sillimanite. The findings
were correlated with chemical, phas

various media. All the experiments have been nder conditions quite different from those in y, especially in that in the body the liquid in with the dust is continually renewed. The re- ained have been quite variable, apparently de- upon small differences in the conditions of the nt. The authors have studied some of these s and in one case have attempted to simulate n of body fluids. They have demonstrated ex- ally the following factors in the influence of es on the solubility of silica, especially from calcium silicate is decomposed by carbon di- sulting in a marked increase in the silica which to solution, shown by re-igniting a sample of flint dust, converting much of the calcium nto silicate; (2) carbon dioxide reduces the of lime-free flint; and (3) calcium carbonate the solubility of flint. Under the authors' ntal conditions, the solubility of silica from int was reduced from 8.6 to 0.2 mg. per 100 turating with carbon dioxide, while from int, the solubility was increased from 0.6 to hey also obtained different results at different which is to be expected from the above results. to the solubility theory, cement dust is less han flint dust because it is less soluble, as several earlier investigators. However, the und that on repeated extraction of samples of int and of cement dusts with fresh portions aturated with carbon dioxide, flint shows a decline in the rate of solution with each extraction, but the opposite is true of ce- he fourth extraction, for instance, about four uch silica is extracted from the cement as lint. In a future paper on experiments on of dusts in the body, a similar comparison orted.—*Indust. Hyg. Found.*

S VIEWED BY AN INTERNIST. *W. Bernard is. of Chest, vol. 14, pp. 550–567 (July–Aug.,*

e reviews briefly the etiology, symptomatol- ntial diagnosis, roentgenographic classifica- ications and treatment of silicosis. Ten case ve to illustrate various aspects of silicosis.— *der, M.D.*

ND PULMONARY FIBROSIS. A CONTRIBUTION ERMINOLOGY OF PULMONARY DISEASE DUE *C. W. Jötten and H. Gärtner. Deutsche med. , vol. 72, pp. 531–534 (1947).*

rs discuss at length in the light of recent the present confusion in the terminology iseases, in the world's literature. Intensive study, chemical, mineralogical and phys- en introduced since the last international n silicosis met shortly before the war

[while new substances have also come into the picture as a result of a world war in which every scientific invention was exploited]. Now, in addition to the classical nodular silicosis due to free silica, pulmonary fibrosis without nodule formation has been described after exposure to many different substances containing no free crystalline silicic acid, *e.g.*, sillimanite, graphite, corundum, emery, aluminium, etc., and a new nomenclature is needed. "Without free crystalline silicic acid, no silicosis" is the authors' dictum.

To this group may be added asbestosis, while mixed dusts and tuberculosis complicate the issues. It is important therefore in describing a pulmonary fibrosis to add the causal agent thus: pulmonary fibrosis due to sillimanite, to kieselguhr, to metallic aluminium, etc. Again many different forms of silicic acid, crystalline, amorphous and soluble, are now recognized. Lastly, the new methods of investigation include, in addition to the older chemical and histological examinations of the lung, phase analysis, and radiographical analysis and polarization of the dusts extracted from the dried lung as well as similar tests made on the dusts of the factories implicated in tin manufacturing processes.—*S. Roodhouse Gloyne, Bull. Hyg.*

INDUSTRIAL TOXICOLOGY

LUNG LESIONS IN A CORUNDUM SMELTER. *H. Gärtner. Ztschr. f. d. ges. inn. Med. u. d. Grenzgeb., vol. 2, p. 761 (1947).*

This article is a discussion on the pathological findings in the lungs of two electric oven workers in the process of corundum smelting. [Corundum is a nearly pure natural oxide of aluminium, hard enough to cut glass; it is now made by an electrical process and is used for polishing purposes; *vide* Kingzett's Chemical Encyclopaedia, 7th edition by R. K. Strong, London: Baillière, Tindall and Cox, 1946.] One of these cases was recorded by the author in collaboration with van Marwyck (see p. 45), the other by Wätjen (Zeitschr. f. d. g. Innere Med. u. Grenzebiete, 1947, v. 2, 179). The article begins with a succinct review of previous accounts in the German journals on this little-known problem of the aluminium dust lung, from which summary it is concluded that the production of a pulmonary lesion by metallic aluminium can now be accepted, but that the nature of the changes in the lung resulting from the inhalation of aluminium oxide is less certain. The salient features of the two cases under review are set out in tabular form. Wätjen recorded his as an *"aluminiumlunge"* whereas the author describes his as a *"sillimanitlunge"*. [Sillimanite is an anhydrous aluminium silicate occurring naturally in crystalline form in gneisses and schists. A substance known as mullite, almost identical crystallographically and optically with this, is obtained by heating bauxite, kaolin and other substances at very high temperatures. This "artificial sillimanite" is used for glass-making pots and furnace bricks exposed to great heat; Kingzett, *vide supra*.] Both workers had a history of exposure for five years to the fumes of the electric smelting oven and both had been regarded as instances of industrial lung disease due to corundum. In Wätjen's case the findings in the lung were those of a chronic interstitial fibrosis believed to be a tissue reaction to aluminium; whereas in the case recorded by Gärtner and van Marwyck the lung picture was that of nodular fibrosis and resembled that produced by the experimental inoculation of animals with sillimanite. The findings in this second case were correlated with chemical, phase-analysis and radiographical analysis of dusts isolated from the lung and of seven samples of dusts from the factories. In the lung, particles of corundum above 1μ, of mullite below 1μ, and of bauxite intermediate in size between those of corundum and mullite, were isolated, as well as amorphous SiO_2.

Sillimanite is known to have been isolated from the lungs of nine porcelain workers in 1939 and Gärtner believes that this substance can produce tissue changes in the lung similar to those of silicosis. Although at first sight there was some resemblance between these two cases reported by Wätjen and himself he concludes that the more nodular reaction and the analysis of the dust point to the fact that the substance which causes the damage to the corundum smelter's lung is really mullite (sillimanite), possibly in combination with amorphous SiO_2.—*S. Roodhouse Gloyne, Bull. Hyg.*

MANGANESE PNEUMONITIS. FURTHER CLINICAL AND EXPERIMENTAL OBSERVATIONS. *T. A. Lloyd Davies and H. E. Harding. Brit. J. Indust. Med., vol. 6, pp. 82–90 (April, 1949).*

Pneumonitis has continued to affect men exposed to the inhalation of dust containing manganese dioxide and the higher oxides of manganese. The intratracheal injection of suspensions of manganese dioxide in normal saline and solutions of manganese chloride in normal saline into the lungs of rats causes characteristic histological changes. Within fifteen minutes of contact with manganese dioxide the epithelial cells of the bronchi discharge their mucus and the epithelium becomes ragged and may be loosened from the basal membrane. An intense mononuclear-celled infiltration of the alveolar walls and alveoli develops after about twenty-four hours, and shortly after this large hydropic cells appear, often in large numbers. Late and inconstant changes are a granulomatous reaction and giant-cell formation. After about a year these changes have disappeared and the lung appears normal. The injection of manganese chloride causes intense congestion of the lung; many animals die from pulmonary oedema. The bronchial epithelium is disorganized and often detached, but compared with the effect of manganese