The American Ceramic Society

February 15, 1993

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Christine Schnitzer

Christine Schnitzer
Product Manager
Ceramic Information Center

735 Ceramic Place
Westerville, Ohio 43081-8720
614 • 890 • 4700
TWX: 7101109409

CERAMIC ABSTRACTS

Compiled by

The American Ceramic Society

Ross C. Purdy, *Editor*

Mary J. Radcliffe
Emily C. Van Schoick
Dorothy J. Turner
} *Assistants*

Committee on Publications: J. D. Sullivan, *Chairman*, R. G. Cowan, T. A. Klinefelter, R. F. Sherwood, R. C. Purdy

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Volume 15, 1936

Abstracters: Abde Ally, J. B. Austin, A. A. Ayars, Rudolf Barta, M. H. Berns, Arthur Bevan, L. T. Brownmiller, W. H. Bruckner, Peter Budnikoff and E. Stefanowsky, J. C. Chaston, P. T. Clark, W. M. Cohn, M. V. Condoide, Maurice Delangre, R. W. Devillers, A. H. Emery, W. F. Figée, W. D. Foster, J. L. Gallup, J. D. Gat, Max Hartenheim, M. J. Hausman, F. G. Heck, R. A. Heindl, E. B. Hewitt, G. M. Hutt, Herbert Insley, C. B. Jenni, Seiji Kondo, E. H. McClelland, S. I. Perkal, F. P. Peters, G. M. Petersen, C. J. Phillips, J. G. Phillips, R. H. H. Pierce, Jr., Alexis Pincus, R. F. Rea, Katherine Reed, F. Renaud, H. K. Richardson, R. W. Ryan, A. B. Searle, M. C. Shaw, G. R. Shelton, H. E. Simpson, A. P. Som, J. H. Steigerwald, H. H. Stephenson, B. H. Strom, L. E. Thiess, Gilbert Thiessen, E. J. Vachuska, F. E. Vaerewyck, J. M. Warde, F. J. Zvanut.

Editorial Office: 2525 North High Street, Columbus, Ohio.
Publication Office: 20th and Northampton Streets, Easton, Pa.

crons in largest diameter are considered to cause silicosis since no larger ones are able to enter the tiny air sacs of the lungs), (3) mineral composition of the dust with quartz the dangerous constituent, and (4) length of time exposed to the dust. A rating of the health hazards of a particular plant can be made only after considering the physical conditions of the plant, the processes and materials, duties of the employees, their previous medical and occupational histories, the four exposure factors listed, and the medical findings on employees. This last should include a thorough history and examination of the chest, with stereoscopic X-ray films. Medical methods of prevention include preëmployment examinations with chest films, periodic examinations with chest films, and placement of employees according to the results of these examinations. Engineering prevention includes making dust analyses, rating the efficiency of protective devices, and comparing the information gained with the established criteria. The protection used may take the form of protection for individual employees or of control of the dust particles. The measurement of the remaining hazard is not concerned with what the protective devices take away but rather with what remains for the worker to breathe. Illustrated.

J.L.G.

Steel prepares to meet new opportunities. V. G. IDEN. *Nation's Business*, p. 22 (March, 1934).—Numerous examples of the applications of stainless steels, sheet steels, and improved welding methods are given, and it is shown how these advances have lead the steel industry, the business barometer, back toward better times.

P.T.C.

Views on silicosis. W. E. COOKE. *Jour. Hygiene*, 35 [2] 207–18 (1935).—It is claimed that the consensus of opinion is that the chemical action of free silica plays the major part in the production of silicosis. The theory of W. R. Jones that sericite and not free silica is the cause of silicosis is discredited. The size of the particles is important only on account of their effect on the solubility. Sharp and angular particles do not necessarily cause respiratory disability. Pneumonoconiosis from asbestos may be due to the liberation of free silica from solution of asbestos in tissue fluids. *No explanation is given for* the immunity from silicosis of some workers under adverse conditions.

G.H.A.

BOOKS

Ceramic Data Book and Catalogs. 8th ed. *Industrial* Publications, Inc., Chicago, 1935. 330 pp. No charge. This edition carries 80 pages of well-illustrated advertisements, each of which contains informational matter of value to every ceramist. These 80 pages of advertising are not by any means of small value; they are sources of information. There are 44 pages devoted to a review of the literature with bibliographies on enamel, whiteware, glass, refractories, and structural clay products and production. There are 150 pages devoted to a compilation of tables, charts, definitions, and data which are frequently used. Forty-five pages are devoted to ceramic raw materials. Eleven pages are devoted to formulas and calculations. While some of the material of this eighth edition appears in the previous editions, a great deal of it is new, bringing the information up to date. This has characterized all previous editions, making of these books valuable and fairly exhaustive reference works on ceramics.

ROSS C. PURDY

Ceramic Engineering (Ingeniería Cerámica). T. W. GARVE, Columbus, Ohio. 8 pp., 11 figs. This small bulletin discusses driers, kilns, etc., and is written for the needs of the clayworker in Latin-American countries. It contains an improved design of a chambered continuous kiln especially suitable for the prevailing capacities and requirements of the Spanish and Portuguese South. This kiln permits the firing of all structural and other ware, enabling flashing, salt-glazing, etc. An appendix contains a table of pyrometric cones and other vital data relative to the conversion from the English to the metric (Spanish) system.

T.W.G.

Chemical Engineering Catalog. 20th annual ed. Reinhold Publishing Corp., New York, 1935. 863 pp. Price $3.00. The publishers have once more rendered valuable service to the industries in the issuance of this book. The technical and scientific book section of 50 pages is alone worth the price of this catalog. The many equipment and instrument concerns have furnished 800 pages of condensed alphabetized and indexed catalog, thus providing a handy reference book. It has a separate index of the laboratory and reagent chemicals.

ROSS C. PURDY

Chemical Guide Book, 1935. Chemical Markets, Inc., New York, 1935. 803 pp. Price $2.00. Reviewed in *Ceram. Age*, 26 [4] 159 (1935).

F.G.H.

Dynamic Economics. Theoretical and Statistical Studies of Demand, Production, and Prices. (Monograph of the Cowles Commission for Research in Economics, No. 1). CHARLES FREDERICK ROOS. Principia Press, Bloomington, Ind., 1934. 275 pp. Price $3.50. A good general description of this book by the former Director of Research and Planning of the NRA is found in the first sentence of his preface. "In 1929 I decided to refrain from publishing research papers in economics until I had a sufficient number to justify the publication of a book which would relate these researches to each other and to my earlier papers." Unfortunately, R. has not quite succeeded in all he set out to do, for in spite of certain points of correlation between the chapters they remain a collection of research studies lacking in continuity and of uneven quality, the more mathematical ones being, in general, superior to the others. This is partly due to the fact that, like Alfred Marshall whom he quotes, R. obviously thinks "much more easily in mathematics. . .than in English." His text is not well finished and is sometimes wordy, as in the case of Chapter I, in which he takes 12 pages to develop the concept of "dynamic economics" which must be clear to anyone who is competent to understand what follows. There is also a tendency to overwork certain symbols which occasionally leads to confusion. For example on page 196, reference is made to the letters *A*, *B*, and *C* without further comment except that they are "described in the preceding chapter," which in turn seems to contain several kinds of *A*'s, *B*'s, and *C*'s.

In regard to subject matter, R., whose mathematical equipment is impressive and beyond question, has attempted to provide a broad basis for economic theory and in so doing has made frequent excursions into highly ab-

James Pass. RICHARD PASS. *Bull. Amer. Ceram. Soc.*, 15 [6] 220–23 (1936).

New regulations for mine police in anthracite coal areas in Germany. SCHURMANN. *Zentr. Gewerbehyg. Unfallverhütung*, 22, 164 (Aug.-Sept., 1935).—S., silicosis expert (Stettin), comments on the new regulations for mine-police (*Glückauf*, p. 773 (1935)) in hard-coal areas (upper Breslau, Bonn, Dortmund), showing emphatic instructions for the technical security of industrial workers, who must be safeguarded in every possible way from mechanical injuries, from customary illness, and from occupational diseases. The campaign against silicosis through prevention of dust in boring operations is particularly provided for.

K.R.

Organization and work of laboratories for the study of ceramic materials in France. W. DE KEYSER. *Verre & Silicates Ind.*, 7 [10] 116–19 (1936).—The essential points of the organization of the Institute for French Ceramics and the Official Laboratory of the Syndicate of Manufacturers of Ceramic Products in France are discussed briefly.

M.V.C.

Silicosis and the minerals causing it. E. L. MIDDLETON AND W. R. JONES. *Foundry Trade Jour.*, 52 [969] 191–92 (1935).—Silicosis was discussed before the Southern Section of the Institute of Vitreous Enamelers in London. M. (Medical Inspector of Factories) dealt with the disease itself and J. discussed the minerals which cause it.

H.E.S.

Silicosis prevention in the porcelain industry. HARTMANN. *Zentr. Gewerbehyg. Unfallverhütung*, 22, 141–50 (Sept., 1935).—Closely descriptive pages on porcelain manufacture told in narrative sequence deserve a separate abstract. The entire paper carefully translated would make good required reading for pottery amateurs or ceramic apprentices. Dust dangers unload with the masses of raw material, rich in silica and its compounds. The worker may be safer by dampening down the dusts or sucking it away at the point of origin. Here Hartmann, as engineer, asserts himself. Actual pictures are reproduced from holes, corners, floors, and ceilings, showing desirable and undesirable appliances and place-location of workers; ventilators below that should be above, or else in reverse activity. The 1934 protective regulations of the Engineering Insurance Assn. are submitted like solemn commandments. Hartmann emphatically urges ceramic cleanliness. Floors, machines, ceilings, the air itself, can not be too often cleansed, scrubbed, wiped, polished, ventilated, or blown away, to suit his ceramic-medical ideal. As he contemplates continuous droppings and scatterings from beginning to end of the work-cycle, arising and re-arising in ever finer and drier dust-clouds, whirling as in a dance of death, he almost shouts above the roar and clatter, "Ceramic dust is *not* Fate—it is criminal slovenliness."

K.R.

Swedish Commission visits Germany. ANON. *Zentr. Gewerbehyg. Unfallverhütung*, 22, 204 (Nov., 1935); also in *Aertzl. Sachver. Ztg.*, 41, 324 (Dec. 1, 1935).—A Swedish delegation from the Royal Insurance Society toured Germany to study research methods and practical aspects of the current campaign against dusts causing silicosis. In Berlin, Dr. Bauer, the Reich's Labor Ministry's medical advisor, spoke on "Damages sustained in severe silicosis." The group visited the University-Institute for Occupational Diseases, the State Porcelain Works, the Siemens Plant (sandblast-polishers), and the Berlin industries having a silicosis risk (silica paint works and cosmetic and scouring powder manufacturers). Dr. Udluft, the geologist, talked on the minerals whose dusts cause silicosis and pointed out their occurrence in the terrain around them. Prof. Jötten, Government Research Laboratory for Industrial Diseases, Munster, reported his results on "Dust research upon experimental animals." At the Kaiser-Wilhelm Institute for Physiological Research in Dortmund, G. Lehmann demonstrated his work on the efficiency of the nose in dust filtration. At the Silicosis Symposium, in session at the Bochum mines, silicosis experts discussed the pathology and clinical course of silicosis and the miners' susceptibility to it in that region. In Düsseldorf Dr. Lochtkemper showed an X-ray series illustrating silicosis in its several phases and in different occupations. The ceramic industries were studied in Frankfurt-am-Main, where slipware porcelain, technical appliances, and dentures are made. Silicosis is found among the Elb stone-workers. Dr. Brandt, industrial physician of the vicinity, and Prof. Saupe at their clinic reported on silicosis and asbestosis in Saxony. Dr. Siegmund, Kiel, spoke on his research on colloidal silicic acid.

K.R.

Training of a chemical engineer. R. K. MURPHY. *Jour. Australian Chem. Inst.*, 3 [4] 109–25 (1936).—American, European, and Australian methods are compared.

H.H.S.

What to do after the flood. G. A. VAN BRUNT. *Factory Management & Maintenance*, 94 [4] 144–45, ad. p. 52 (1936).—Bearings should be emptied, silt cleaned out, and grease or oil removed with solvents. Motors and transformers should be dried out and insulation checked by resistance tests. Meters should be returned to the maker. Gears and transmission chains should be cleaned. Rubber and waterproof belts need only to be cleaned and the surface dried. Leather belts must be cleaned and then dried very slowly under a coating of belt dressing or oil. Foundations, floors, and roofs should be checked and repaired where needed. Illustrated. See *Ceram. Abs.*, 15 [1] 46 (1936).

J.L.G.

Why and how an engineer can help clay products plants. ERNEST W. KNAPP. *Brick Clay Rec.*, 88 [4] 147–48 (1936).—Many plant failures and inefficiencies are due to faulty design. The application of common sense, practical engineering skill to the remodeling and rebuilding of plants and equipment would help improve the quality of the ware and reduce costs now often exorbitant. K. cites personal remodeling of a drier to reduce costs and secure better operation. The advantages of properly operated updraft kilns are also cited.

E.J.V.

NEW JOURNAL

Annals of Science. (Quarterly.) Edited by D. MCKIE, HARCOURT BROWN, AND H. W. ROBINSON. Taylor & Francis, London. Price 6s 3d. quarterly, or £1 per annum, post free. Vol. 1, No. 1, Jan., 1936. Reviewed in *Discovery*, 17 [194] 58 (Feb., 1936).—This is a quarterly review of the history of science since the Renaissance.

H.H.S.

Softening of vitrified materials. EDUARD RENCKER. *Ann. Chim.*, 4, 523–66 (1935); abstracted in *Chem. Zentr.*, ii, 421 (1936).—The relationship between the transformation point and incipient softening of vitrified materials was studied. See *Ceram. Abs.*, 13 [10] 255 (1934). M.V.C.

Studies on aluminium oxide by means of electronic rays. E. BELWE. *Z. Physik*, 100 [3] 192–96 (1936).—When alumina is exposed to electronic rays, interference lines are obtained which allow conclusions to be drawn regarding its structure. Two types of alumina were examined: (1) alumina made by an electrolytic oxidation, and (2) alumina made by the oxidation of metal foil in a flame. Electrolytic alumina consists of a very finely crystalline γ-alumina. Alumina made in the flame consists of the usual coarsely crystalline form with crystals of metallic aluminium interspersed in it. L.T.B.

System K_2O–PbO–SiO_2. R. F. GELLER AND E. N. BUNTING. *Jour. Research Nat. Bur. Stand.*, 17 [2] 277–89 (1936); R.P. 911. Price 5¢.—The system was investigated by means of well-known methods involving quenching, petrographic examination, and heating curves. Five ternary compounds were identified optically in the system K_2O·SiO_2–PbO–SiO_2, and the compositions of four of these were established. The first, crystallizing as hexagonal plates with a melting point at 918°C, is uniaxial negative, and the optic axis is perpendicular to the cleavage. The second, crystallizing as well-defined fibers or laths, melting at 779°C, and resembling a short-fibered asbestos when crushed, has the optic axis parallel with the longitudinal axis. The third is positive biaxial and crystallizes as rectangular, platy granules of parallel extinction which melt at 757°C. The fourth is platy, melts incongruently at 735°C, and is very unstable. The crystalline phase of undetermined composition apparently melts incongruently at about 750°C to form glass and SiO_2. Unfortunately, all the glasses examined (which otherwise held promise of usefulness as glazes) on heating and cooling undergo volume changes so great as to preclude their use on clayware as now manufactured, with the exception of certain "high silica" and "high talc" wall tile. R.A.H.

Thermal decomposition of kaolin and the compositions issuing from it under higher temperatures. O. F. HONUS. *Stavivo*, p. 387 (1935). R.B.

BOOKS

Hydrofluoric and Fluosilicic Acids and Their Metallic Salts: Vol. 24 (Flussaüre, Kieselflusssaüre und deren Metallsaltze). OSKAR KAUSCH. Enke's Library of Chemistry and Technique. Edited by Ludwig Vanino. 438 pp. Reviewed in *Glashütte*, 66 [20] 349 (1936); *Sprechsaal*, 69 [24] 352 (1936).—The following topics are discussed: (1) hydrofluoric acid, its properties, formation, and preparation; (2) fluosilicic acid, its properties and production, and metallic silicofluorides; (3) metallic fluorides and double fluorides; (4) analysis of hydrofluoric and fluosilicic acid and their metallic salts; (5) uses of hydrofluoric and fluosilicic acids and their metallic salts. The last part deals with the use of these materials in the glass industry. Numerous patents are mentioned. M.V.C.

Microgas Analysis and Its Application (Die Mikrogasanalyse und ihre Anwendung). HEINRICH SCHWARZ. Emil Haim and Co., Vienna and Leipzig, 1935. 286 pp. Price (paper) 21 Rm.; (linen) 22.80 Rm. Reviewed in *Ind. Eng. Chem., News Ed.*, 13 [6] 116–17 (1935). F.G.H.

Theory of Emulsions and Their Technical Treatment. WILLIAM CLAYTON. J. and A. Churchill, London, 1935. 459 pp. Price 25s. Reviewed in *Trans. Faraday Soc.*, 32 [6] 972 (1936).—The very large technical literature on emulsions has been incorporated. There is an equally thorough treatment on colloid mills, homogenizers, and the manifold devices used for de-emulsification, inversion of emulsions, and multiple emulsions. G.R.S.

PATENTS

Alkaline trisodium phosphate. HOWARD ADLER (Victor Chemical Works). U. S. 2,050,249, Aug. 11, 1936 (April 9, 1934).

Method of producing persilicates of increased stability with high content of hydrogen peroxide or active oxygen. F. KRAUSS. Brit. 452,144, Sept. 2, 1936 (Dec. 15, 1933).

Process for making sodium aluminate. O. A. OLSEN. U. S. 2,052,486, Aug. 25, 1936 (Feb. 5, 1934). A process for making sodium aluminate comprises adding sodium hydroxide to an aqueous solution of aluminum sulfate, adding substantially anhydrous alcohol, removing sodium sulfate from the alcoholic solution of sodium aluminate, and separating the sodium aluminate by distillation.

Process of treating zinc oxide. HUGO REINHARD (Wilhelm Grillo Handelsges. m.b.H.). U. S. 2,053,249, Sept. 1, 1936 (June 20, 1934). The method of producing zinc oxide comprises vaporizing zinc metal by boiling in an externally heated muffle, burning the vapors within a combustion chamber in the presence of a quantity of oxygen-containing gas sufficient to oxidize the vapors and to convey the oxidized product to a precipitation zone, and simultaneously retarding the flow and the rate of cooling of the resultant fumes within the range from 800 to 500°C.

Treatment of clays, etc. WILLIAM FELDENHEIMER. U. S. 2,053,329, Sept. 8, 1936 (Aug. 23, 1935). In the treatment of clays, etc., to improve their color, the step comprises treating the clay in the wet state with a soluble chromous salt.

General

Filtration of air in foundries. O. TH. KORITNIG. *Giesserei*, 23 [12] 295–98 (1936).—The hygienic and economic harmfulness of the dusts in foundries is pointed out, and means for removal by filtering or electrical precipitation and the respective advantages of these methods are discussed. M.H.

Health hazards in industry. F. N. FEATONBY. *Jour. Australian Chem. Inst.*, 3 [7] 199 (1936).—Most important of industrial hazards is inhalation of very fine dusts, especially siliceous dusts, although Pb attacks most dangerously on the respiratory tract. Accident proneness (25% of workers being in 75% of accidents) is noted. A bibliography of the Australian Commonwealth Dept. of Health service publications on the subject is attached. H.H.S.