

OWENS. ORNING FIBERGLAS CORPORATION

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INTRA-COMPANY CORRESPONDENCE

General Offices - Toledo, Ohio

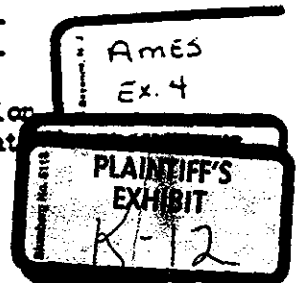
June 16, 1941

Mr. Harold Boeschstein - Toledo

cc: Mr. W. P. Zimmerman
Mr. E. J. Marshall
Mr. R. J. Scott
Mr. W. R. Thomas
Mr. T. S. Rogers - (Please
share with Dr. Campbell)

Investigation of Health Aspects of Fiberglas
by Dr. Walter J. Siebert
2415 North Kingshighway
St. Louis, Missouri

En route to St. Louis June 12, I stopped to see Dr. Enos at the Owens-Illinois plant in Alton. Dr. Enos said that Dr. Siebert is regarded with considerable respect by members of the medical profession in the St. Louis area, as indicated by his affiliation with the medical school of Washington University and his position as consulting pathologist in five hospitals. Dr. Enos said that although it is well known that Dr. Siebert does not abhor the use of hard liquor, he is not regarded as an alcoholic.



Dr. Enos' remarks confirm other evidence, such as listings in medical directories, that Dr. Siebert is regarded as an authority in his field. He performs some seven hundred autopsies yearly and reports his findings to the medical practitioners, whose diagnoses are checked with the findings in the autopsy. In addition he spends five or six hours daily at a microscope diagnosing tissues sent to him for sectioning. From Mr. Bartley I learn that Dr. Siebert is regarded by organized labor and the insurance companies as an incorruptible witness whose professional testimony is not subject to influence by any consideration other than his scientific judgment.

For us I believe it is extremely fortunate that Dr. Siebert has this kind of temperament and professional attitude. His approach to the assignment given him by Mr. Bartley is to do a thorough, scientific job that will make him an authority on the health aspects of Fiberglas.

* * *

After registering at the Park Plaza, I met Dr. Siebert in his laboratory at DePaul Hospital. In an adjoining room where he keeps blood plasma he showed me the Fiberglas samples that he had received from Newark. We returned to the Park Plaza, where we met Mr. Bartley for lunch. Afterward Mr. Bartley, Dr. Siebert and I went to Dr. Siebert's apartment in the St. Regis, where we discussed the proposed report for five hours. Result of the discussion is the appended outline of procedure which indicates the scope of the investigation upon which Dr. Siebert is launched.

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Frequently during the discussion Dr. Siebert sidetracked himself on minute points that seemed to fascinate him as a scientist. For example, while describing to Mr. Bartley the investigation that he carried on in Toledo and Newark on June 2 and 3, he told of examining scores of Newark employees. He was amazed to find, he said, that there were no cases of eye irritation in the plant. "Now," he said, "I would like to know why. As a pathologist I would like to determine what happens to particles of Fiberglas that get into the eyes, as they certainly must do. When I ask the employees in Newark whether they get any glass in their eyes, they tell me: 'Sure, now and then, but it don't bother me none.' Undoubtedly it is because the blink reaction takes care of it and washes it out of the eye. But I am concerned with what would happen to an employee whose blink reaction might be paralyzed by a scar above the eye. Undoubtedly the skin irritation experienced on arms and wrists by new employees is to be explained by the fact there are no mucosa on these parts of the body to wash away the fibers. But they all say they get used to it. Again and again I heard that phrase: 'It don't bother me none.'"

Because it was obvious that Dr. Siebert was outlining for himself a years-long program of research, I offered the suggestion that he might use in his report some such statement as this: "Our best knowledge at present indicates that the fibers have no deleterious effect whatsoever on the eyes because the fibers are entirely non-toxic and inorganic, and because of the fineness of their diameter they lack sufficient strength to penetrate the mucosa." I suggested that in this connection he cite the work of Dr. Roy Philip Scholz who is using Fiberglas for surgical sutures and document the reference with a footnote, if he chose to do so, indicating that the whys and wherefores of this situation might open up a fruitful field of inquiry for a research student doing postgraduate work in some medical school. To press home the point, I suggested that a person building a home wanted glass panes in his windows because they were transparent and kept the rain out. The homebuilder, I suggested, did not insist that the contractor explain why the glass in the pane resisted water. That was a question for the glass technologist and the physicist to explore. Thus I tried to get across a pragmatic point of view, suggesting that the union members would be satisfied with his finding that Fiberglas causes no eye irritation or severe dermatitis, and that if scientists want to know why, they can pursue their inquiry elsewhere more appropriately. Mr. Bartley concurred in this point of view.

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Dr. Siebert said he has received the biopsy from Dr. Campbell and is planning to make a microscopic section for examination. He also showed Mr. Bartley a piece of glass fiber that he has in his own thumb. He said: "It don't bother me none, but it's there, and I know exactly where and when I got it. I am going to make a biopsy of it and put it under the microscope."

Commenting on Dr. Gardner's investigations, Dr. Siebert repeated to Mr. Bartley the statement he made to me in Toledo: "If these findings had been made by any man other than Gardner, I would have asked, 'Why did you not have this investigation made by Dr. Gardner?'" Even so, Dr. Siebert added, he wanted very much to talk with Dr. Gardner or at least have the opportunity to make microscopic studies of all the slides made by Dr. Gardner. (Through Mr. Staelin, arrangements have been made with Dr. Gardner to send his slides to Dr. Siebert.) Dr. Siebert agreed that he would return to Dr. Gardner all of the slides and would furnish an affidavit to the effect that he had made no photomicrographs of any of them unless Dr. Gardner gave him specific permission to do so. He suggested that it might be of interest to Dr. Gardner to let him know that he was a colleague at DePaul Hospital of Dr. Edward C. Ernst, roentgenologist, who at one time was associated with Dr. Gardner in some silicosis studies.

Dr. Siebert pointed out what he described as an inconsistency in the second paragraph of Dr. Gardner's Interim Report of May 16, 1941:

Microscopic examination of their lung tissues has failed to demonstrate the presence of any fibres of glass. Small quantities of very minute particles, which are probably glass splintered in the process creating the dust, have been observed within the lungs. Reaction to these particles is limited to microscopic collections of cells which could not conceivably influence pulmonary function.

I pointed out that the first sentence has to do with fibers, which are not present, as differentiated from minute particles, which are exonerated from any conceivable influence on pulmonary function. Nevertheless, Dr. Siebert said, this differentiation offered one reason why he wished to examine the slides. Further, Dr. Siebert said, Dr. Gardner's report implies that there is no health hazard because glass fibers are too large to get into the lungs. This assumption, based on size, he indicated, is no longer warranted in the light of knowledge that asbestos particles much larger than the Fiberglas particles do get

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into the lungs. "We need to know," he said, "what size glass fibers do get in." We know there can be no silicosis hazard from glass fibers because they contain no free silica, but we also know that other dusts can be injurious and it is still necessary to exonerate glass fiber dust."

Dr. Siebert repeated that it is fortunate that Dr. Gardner has done this work, and he emphasized that he can accept Gardner's procedure and techniques. He wishes only the opportunity to examine the slides and check Gardner's interpretations with his own. My hunch is that he looks forward to this opportunity to bring himself to the attention of Dr. Gardner. It may be necessary to bundle him into a plane later for a one-day session with Gardner in Saranac.

Dr. Siebert said he wants to talk to Gardner to inquire whether it would be possible to take some of the glass-fiber-dusted animals and subject them to tuberculosis. "We need to know," he suggested, "whether exposure to glass wool dust—which may be entirely benign in and of itself—nevertheless predisposes an organism to tuberculosis." He explained that normal, healthy guinea pigs, injected with tuberculosis germs, die in eight weeks. It would be very simple for Dr. Gardner, Dr. Siebert suggested, to take several healthy guinea pigs as a control group, inject them with tuberculosis germs, do the same with glass-fiber-dusted guinea pigs, and watch results. If the glass-fiber-dusted animals died no sooner than the unexposed animals, he said, it would be conclusive evidence that exposure to glass wool dust does not predispose an individual to pulmonary disorders.

Dr. Siebert also said he is planning to create dusted atmospheres in the room adjoining his laboratory in DePaul Hospital. He will do so with a steel tennis racket, beating samples of Fiberglas with counted strokes on successive days, measuring the particles per cubic foot. Using himself as the guinea pig, he will breathe the dust and have himself examined by eye-ear-nose-and throat physicians at the hospital to determine the effect on the mucosa of his throat and nasal passages. He will repeat the experiments with the samples of competitive products (85% magnesia, rock wool, rock cork, etc.) sent to him from Newark. I called his attention to the fact that Fiberglas is a practically dust-free product and described the Purdue vibration tests which showed negligible settlement after prolonged, severe dropping of a jig and extensive oscillations. He requested a copy of the Purdue report (which is to be sent by Mr. Rogers) and said this would be very significant.

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Information on which Dr. Siebert will rely falls into these three categories:

1. Data supplied from our records;
2. Data from sources other than Owens-Corning. (In this category he includes information available to the general public, like Dr. McIlvain's report (Bulletin No. 2 of the Pennsylvania Safe Practices Conference).
3. Independent research undertaken by himself.

Although these are detailed further in the attached outline, the following information is significant. Dr. Siebert says that Mr. Marshall informed him that additional data are to be sent him within two weeks by the Ohio Industrial Commission concerning our assertion that no award has ever been made in Ohio to any individual on the basis of an occupational disease attributable to exposure to Fiberglas products. Mr. Bartley added parenthetically that he hoped this information would go back through the period before Owens-Corning was formed and include the time when Fiberglas was manufactured by Owens-Illinois. Mr. Bartley, minimizing his interest in the possibility of a dermatitis hazard, said he is greatly concerned over length of exposure over a period of years as a factor in the investigation.

Dr. Siebert said that he has a protege:

W. K. Wilson, M.D.

who is plant physician for Chevrolet, Fisher Body, and the new T.N.T. plant in St. Louis. Dr. Wilson is now in Toronto, having been sent there by these three companies to make a study of occupational diseases. Dr. Siebert has asked him to bring back any available information.

Dr. Siebert requested that he receive letters from the three ophthalmologists (eye-ear-nose-and-throat specialists) in Newark as to whether they notice in their private practice any unusual incidence of nose or throat infections among Fiberglas production employees. (I have requested Dr. Campbell to get these letters for us and will follow him.)

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He asked also for a statement from Aetna regarding experience with the Owens-Corning group. (I am sending him a copy of John Hill's letter attached. Incidentally, Mr. Hill is following this letter with one from Aetna's chief engineer at Hartford.) He also asked for letters from the United States Navy, Budd Manufacturing, Gustin-Bacon, and Pan-American Airways about experience with their employees in the handling of Fiberglas. (I think we should steer this one off on the ground that we have supplied him with complete data, and that although he is free to write himself, he will realize we are not anxious to put any negative suggestion in the minds of some of our best customers. Moreover, he has Fiberglas Standards sheets setting forth naval specifications on our products, which imply that the material is satisfactory to the Navy; he has the McIlvain report to cover Budd; and we can supply him with a reprint of the New York Times story on Pan-American's use of acoustical blankets, together with the application photograph from Boeing. As to Gustin-Bacon, they are the exclusive purveyor of Fiberglas products to the railroad industry and their statements would reflect our point of view.

Dr. Siebert went through my collection of glossy prints showing workers handling Fiberglas, both in the Newark plant and in applicator plants, and requested copies to document his report. These are going off to him.

* * *

At Dr. Siebert's urgent insistence, I stayed in St. Louis Thursday night and spent most of Friday with him. Thursday evening he gave me his longhand draft of the attached outline, which I typed in quadruplicate at the hotel on Friday morning. Retaining two copies, I left the original and the longhand draft with Dr. Siebert after discussing it further with him, and sent the duplicate copy to Mr. Bartley by messenger.

Mr. Bartley telephoned me Friday morning to say he had received a copy of a letter written to a Mr. George A. Hodgeman of the Fidelity and Casualty Company of New York, from Dr. Peterson of the Reference Library of the American Medical Association. Mr. Hodgeman had made an inquiry of Mr. Bartley's request. The letter cited Dr. Gardner's work, Dr. Lanza's work, and a professor at the Colorado School of

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Mines who said Fiberglas causes keratosis. Mr. Bartley is to send copies to Dr. Siebert and to me. (Copy attached).

On Friday afternoon I unpacked the samples at the hospital and examined them with Dr. Siebert. Late Friday afternoon, Dr. Siebert and I visited the Anheuser-Busch brewery, where I renewed my acquaintance with Ray Seeker and Agnes Rabbit, both of whom were prominent at the A.I.H.A. meeting May 19. Dr. Siebert is pathologist to the brewery and is proud of his association there. He is a good friend of Dr. Ted Hanser, who is industrial physician at Anheuser-Busch.

Mr. Bartley proudly displayed his memofold when we met him Thursday noon. At his request memofolds also have been ordered for his partners at Bartley & Mayfield, 208 North Broadway, St. Louis: Gene Mayfield, James P. Kellett, Malcolm L. Bartley, Waldo C. Mayfield. (Kellett once was associated with John L. Lewis and is former Industrial Commissioner of Illinois under Gov. Dunn). A memofold also has been ordered for Dr. Siebert.

Note re Dr. Siebert's fee:

I explained to both Mr. Bartley and Dr. Siebert that we will be glad to take care of Dr. Siebert's charges for the investigation, whatever they are, because we do not want the Union to be put to any expense. All that we ask, I said, is that Dr. Siebert charge an amount that he can sustain by sound professional opinion as being appropriate and that we would like that to be the test because we don't want him to be in the position of charging any more or less than the report is fairly worth. I said that we are looking forward to helping the Union get an honest, thorough report that any competent professional man could look at and find right, and that we are anxious that he make this kind of a report on his account as well as on our own. I also explained that we have in mind following this matter through to the point where the report and subsequent interpretations of it or testimony based on it will bury completely every question that might be raised and that we expect to feel free to call on Dr. Siebert in conjunction with Dr. Gardner or Dr. Campbell or anybody else to carry through whatever further studies may be necessary. Dr. Siebert agreed that he will render the bill to us through Mr. Bartley. This procedure is satisfactory to Mr. Bartley, and I explained to him that we will pay any charges rendered by Dr. Siebert that he approves.

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Notes on Timing of Report

It will be impossible for Dr. Siebert to have his report ready for consideration by the Union during June. He is still shooting at the August 1 date.

Dr. Siebert, I think, realizes the urgency of the situation from our point of view. But he dislikes being hurried. ("Remember, I am pathologist at five hospitals, and sick people depend on my routine work. If I had known, Bill," he said to Mr. Bartley, "that this investigation would take so much time, I never would have got into it. But here I am, and chances are that the three of us in this room," he said, including himself, Mr. Bartley, and me, "together with Gardner and a few other fellows know just about everything that is known concerning the health hazards of Fiberglas.") Mr. Bartley read him Mr. Marshall's letter expressing the hope that Dr. Siebert's report would be available in time for action by the Local in June, so that a report could go into the July issue of the Asbestos Worker. Dr. Siebert suggested that Mr. Bartley go before the Local at its next meeting (June 17) and say that an extensive report is now being prepared by Dr. Siebert, to be based on independent research, a study of the world medical literature, and information from all other available sources. Mr. Bartley agreed to give this word to Gus Schmitters, business agent of Local No. 1, although he appeared to be somewhat loath to be in the position of pressing something into the Local's minutes for publication in the Asbestos Worker.

The subject of Sickles' letter to Schmitters regarding Consolidated Edison did not come up. Whether Mr. Bartley knows about it I do not know. I suggest, however, it will be well for Mr. Marshall to send him the attached photostat of the letter of June 12 from Mr. Beardsley, just received from Mr. Dias, which demolishes the rejoinder that Sickles made to Beardsley's letter of May 2.

I feel sure, however, that my visit hurried him along by nailing down his procedure and formulating the outline. I think that by telephoning at intervals of two or three days, correspondence, and visits at intervals of ten days or two weeks, we may step this up by two or three weeks. For instance, if I were to go to St. Louis again on Monday, June 23, and stay until necessary to go to Dallas

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for the June 28 meeting, and stop in St. Louis again on Monday
June 30 returning from Dallas, I can do the following:

1. Offer my own services as a guinea pig in the dusting tests.
2. Carry through the mechanical details of setting up laboratory procedures at DePaul hospital for the independent research he plans.
3. Stand by to get his draft dictated. (This is the way he works.)
4. Step up the clerical work of getting the report in final shape for submission to Mr. Bartley.

ECA
Edward C. Ames

ECA/hs

1. Statistics on the number of persons employed at the Newark, Ohio plant where Fiberglas products are manufactured. Figures set forth by months covering the period from January 1937 through May 1941, are given in the letter of June 17, 1941, to the author from D. A. O'Neill, Personnel Manager at the Newark plant of Owens-Corning Fiberglas Corporation.
2. Fiberglas Standards No. PL.2.1, "How Workmen Handle Fiberglas Thermal Insulating Materials," published by Owens-Corning Fiberglas Corporation in May, 1940.
3. Letter of June 17, 1941, to the author from J. A. Shaw, Claims Referee of the Industrial Commission of Ohio, Legal Section, setting forth the result of Mr. Shaw's search of the records of the Ohio Department of Safety and Hygiene for information on compensable claims and occupational hazards arising from manufacturing or handling Fiberglas.
4. Copy of Report, dated May 5, 1936, on ingestion and injection experiments with glass wool dust, written to Owens-Illinois Glass Company by Dr. Leroy U. Gardner, Director of the Saranac Laboratory for the Study of Tuberculosis.
5. "Interim Report on Glass Wool Inhalation Experiment" dated May 16, 1941, by Dr. Leroy U. Gardner, Director of the Saranac Laboratory for the Study of Tuberculosis.
6. Letter of June 10, 1941, to G. A. Hodgman, St. Louis General Agent of the Fidelity and Casualty Company of New York, from Dr. Carl M. Peterson, Secretary of the Council on Industrial Health of the American Medical Association.

7. "Report of the Director" in Annual Report of the Garannac Laboratory for the Study of Tuberculosis of the Edward L. Trudeau Foundation for the Year 1940. See page 11.
8. Leroy U. Gardner, M. D., "The Pathology and Roentgenographic Manifestations of Pneumoconiosis" in Journal of the American Medical Association (114:535-545), February 17, 1940. The exhibit is a reprint of this article. Reference is made to page 12 of the reprint.
9. Reprint of "Researches of Mellon Institute 1940-41" in News Edition, American Chemical Society, Vol. XIX, p. 402 (April 10, 1941).
10. Copy of précis of J. W. Miller and R. R. Sayers, "Response of Peritoneal Tissue to Industrial Dusts" in U. S. Public Health Reports, 56 (7) 264-72 (1941), précis published in American Ceramic Society (May 1941).
11. Copy of telegram dated May 19, 1941 from A. C. Freligh, Secretary of Owens-Corning Fiberglas Corporation, to Carl G. Staelin, Legal and Patent Department of Owens-Corning Fiberglas Corporation, concerning Ohio Compensation rates applying to Fiberglas employees and rates in comparable industries.
12. Letter of June 11, 1941, to Edward C. Ames of the Owens-Corning Fiberglas Corporation from John A. Hill, Toledo General Agent of Aetna Life Insurance Company, covering Aetna's experience on group coverage of Fiberglas employees (life, disability, sickness and hospitalization) as well as Products Liability coverage.
13. Brochure entitled "Owens-Corning Fiberglas Corporation Group Insurance" prepared in 1940 by Aetna Life Insurance Company for distribution to Fiberglas employees explaining rates and benefits.

14. Photostatic copy of cover page and pages 1 and 5 of Dr. E. H. Mellvain, "Insulation in Stream-Lined Trains," published at Harrisburg in 1939 as "Safe Practice Bulletin No. 2" in the Occupational Disease Prevention series of the Department of Labor and Industry of the Commonwealth of Pennsylvania.
15. Tyler Stewart Rogers, "Safe Practice in the Manufacture and Uses of Fiberglass," published at Harrisburg in February 1940 as "Safe Practice Bulletin No. 58" in the Occupational Disease Prevention series of the Department of Labor and Industry of the Commonwealth of Pennsylvania.
16. Reprints of representative articles about Fiberglass products appearing in Universal Commerce, Manufacturers' Record, American Dvestuff Reporter
17. Reprints of general products advertisements inserted by Owens-Corning Fiberglass Corporation between November 1933 and June 1941 in Time, Fortune, News-Week, Business Week.
18. "Handling Glass Wool" in Occupational Hazards and Safety, Vol. I, No. 4 (January 1938), p. 40.
19. List of references in medical literature to occupational hazards encountered in manufacturing or handling fibrous glass products, supplied to the author by the Reference Library of the American Medical Association, Chicago.
20. Photostat of "Dermatitis from Spun Glass Christmas Tree Ornaments" in Journal of the American Medical Association (102:1249), April 14, 1934.
21. Photostat of "Dermatitis Due to Spun Glass" in Journal of the American Medical Association (102:1874), June 2, 1934.

22. Photostat of "S. von Szentkiralyi, 'Dermatitis Artificialis durch Engulbär' in Dermat. Wehnschr., (93/1302), August 15, 1931.

23. Photostat of "Dermatitis from 'Angel Hair'" in Journal of the American Medical Association (103:63) 1934.

24. Photostat of "Dermatitis in Glass Wool Industry — Salt in Heat Exposure" in Journal of the American Medical Association (103:1644) November 24, 1934.

25. Letter dated from Dr. H. A. Campbell, plant physician of Owens-Corning Fiberglas Corporation in Newark, Ohio, to Dr. Carl M. Peterson, Secretary of the Council on Industrial Health of the American Medical Association.

26. Fiberglas Standards NS.2.21, "Fiberglas in Naval Service — Where, Why and How Fiberglas Products Are Used in Navy Fighting Ships and Auxiliaries," published in May 1941 by Owens-Corning Fiberglas Corporation.

27. Manual of Fiberglas Standards "C" sheets, describing Fiberglas products.

28. Letter of March 17, 1941, to A. G. Brauer Supply Company, St. Louis, from W. R. Baker, Works Manager, The Moore Corporation, Joliet, Illinois.

29. Letter of to the author from Dr. Clarence D. Selby, Medical Director of General Motors Corporation and member of the Council on Industrial Health of the American Medical Association.

30. Letter dated March 24, 1941, to Walter Morris, Sales Manager of Fiberglas Canada, Ltd., Oshawa, Ontario, from Thos. MacLean, International Representative resident in Oshawa of the United Automobile Workers of America.

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31. Marmal of seven photographs showing workers installing Fiberglas thermal insulating in water heaters, ranges, oil burners, and airplanes in plants of manufacturers to whom Owens-Corning Fiberglas Corporation supplies the material.

32. Reprint of article on use of fibrous glass products in airplanes, by Francis Hewens in Aviation Section, The New York Times, Sunday, April 13, 1941.

33. Letter of May 2, 1941, to W. B. Dias, Owens-Corning Fiberglas Corporation, 718 Fifth Avenue, New York, N. Y., from C. R. Beardsley, Manager, Contract Inspection Department, Consolidated Edison Company of New York, Inc.

34. Letter of June 13, 1941, to W. B. Dias, Owens-Corning Fiberglas Corporation, 718 Fifth Avenue, New York, N. Y., from C. R. Beardsley, Manager, Contract Inspection Department, Consolidated Edison Company of New York, Inc.

35. Minutes of the meeting of the International Board of the International Association of Heat and Frost Insulators and Asbestos Workers of March 12, 1941, as reported in The Asbestos Worker, Vol. II, No. 15 (April 1941) p. 4.

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36. Letter dated June 5, 1940, to C. G. Staelin, Owens-Corning Fiberglas Corporation, Toledo, Ohio, from Adolph B. Loveman, M. D., Hayburn Building, Louisville, Kentucky.
37. Reprint of "Fiberglass Product Control at Owens-Corning Plant" in Glass Industry, August 1939.
38. Manual containing three photographs of scenes showing workers handling glass wool products in the Newark, Ohio, plant of Owens-Corning Fiberglass Corporation.
39. Memoranda dated May 23, 1941, and June 28, 1941, to E. C. (Ned) Ames, Owens-Corning Fiberglass Corporation, Toledo, Ohio, from D. A. O'Neill, Personnel Director of the Newark, Ohio, plant of Owens-Corning Fiberglass Corporation, tabulating "Respiratory Infections, February 8, 1939 - April 1, 1941," and setting forth data on the source of these statistics.
40. Brochure entitled "Vital Statistics for 1940" published by the Ohio Department of Health.
41. Letter to the author dated June 5, 1941, from R. H. Markwith, M. D., Director of Health of the State of Ohio.
42. Letter to the author dated June 17, 1941, from C. G. Faue, M. D., of Newark, Ohio.
43. Letter to the author dated June 17, 1941, from John E. Hendricks, M. D. of Newark, Ohio.
44. Letter to the author dated June 17, 1941, from Clark B. Hatch, M. B., of Newark, Ohio.
45. Statement, nine pages, numbered 1-9, inclusive, furnished the author by Dr. H. A. Campbell of Newark, Ohio, setting forth roentgenological diagnoses and occupational histories of the eight Newark employees to have suffered from tuberculosis, together with copies of

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- County, Ohio, Tuberculosis Sanatorium diagnostic chest charts.
46. Letter to the author dated June 17, 1941, from Louis A. Mitchell, M. D., of Newark, Ohio.
47. Letter to the author dated June 22, 1941, from Louis A. Mitchell, M. D., of Newark, Ohio.
48. Statement furnished the author by Dr. H. A. Campbell of Newark, Ohio, setting forth the names and date of employment of batch house employees of Owens-Corning Fiberglas Corporation, and supplementary letter to the author from Dr. H. A. Campbell, dated June 22, 1941.
49. Statement furnished the author by Dr. H. A. Campbell of Newark, Ohio, setting forth names and occupational histories of the three silicosis cases at the Newark plant of Owens-Corning Fiberglas Corporation.
50. Copies of two reports, dated October 4, 1937, and November 15, 1937, by the Engineering Experiment Station of Purdue University on settling characteristics of glass wool.
51. Performance (published by National Mineral Wool Association), Vol. II, No. 1 (1937), containing on p. 4 facsimile reproduction of p. 73 of The Scientific American of April 1937.
52. "Sample Request" listing specimens of Fiberglas products sent to the author for study following his visit to the Newark plant on June 3, 1941
53. Albert C. Titus, "Silica and Silicate Solubilities."
54. Letter of June 23, 1941, to the author from Dr. Leroy U. Gardner, Director of the Saranac Laboratory for the Study of Tuberculosis, transmitting to the author for study Dr. Gardner's microscopic sections of glass wool injection, ingestion, and inhalation experiments.

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55. Letter of May 19, 1941, to W. R. Thomas, Owens-Corning Fiberglas Corporation, St. Louis, from Roy Philip Scholz, M. D., concerning

use of Fiberglas thread as suture material in nose and ear operations.