PLAINTIFF'S EXHIBIT
G-284

ASBESTOS TEXTILE INSTITUTE

MINUTES of the General Meeting held June 19, 1946 at the Warwick Hotel, Philadelphia, Penna.

IN ATTENDANCE:

GEORGE L. ABBOTT,
The Garlock Packing Co.

HOWARD T. BAIN,
Johns-Manville Corp.

J. A. BEITES,
Raybestos-Manhattan, Inc.

J. F. BURKE,
J. Franklin Burke & Co.

C. H. CARLOUGH,
Carolina Asbestos Co.

S. V. DILLON,
Johns-Manville Corp.

GEORGE S. FABEL,
Southern Asbestos Co.

GEORGE W. MARSHALL, JR.
Raybestos-Manhattan, Inc.

F. SIMS McGRATH,
Cadwalader, Wickersham & Taft

ERNEST MUEHLECK,
Keasbey & Mattison

E. R. TEUBNER, JR.
Philadelphia Asbestos Co.

FRANK J. WAKEM,
Johns-Manville Corp.

J. M. WEAVER,
Raybestos-Manhattan, Inc.

D. W. WIDMAYER,
Keasbey & Mattison

HARRIS D. McKINNEY,
Institute Manager

NO. 1

The President called the meeting to order and the Manager read the minutes of the General Meeting of April 4th. The minutes were approved as read by unanimous vote. The President then read the auditor's report and the Treasurer's report. Mr. Marshall moved that these reports be approved as read, seconded by Mr. Fabel and approved unanimously.

NO. 2

The Manager presented a brief outline of the activities of his office during the last quarter. These included the notification to members and non-members on O.P.A. removal of ceiling prices, distribution of Garlock Dust Control System report, correspondence with non-members regarding Manager's Summary Report, record of activities in gathering news for publicity items and his work with the various

committees. Mr. Muehleck moved that the Manager's report be approved as presented. Motion seconded by Mr. Fabel and approved unanimously.

NO. 3

The President brought up the matter of keeping non-member companies informed on Institute activities. Discussion was held and it was recommended that the Manager send copies of the minutes of this meeting, with accompanying committee reports, to the following non-member companies. It was also unanimously agreed that representatives of these companies be invited to attend the next General Meeting of the A.T.I.:

ASBESTOS MANUFACTURING COMPANY
ASTEN-HILL MANUFACTURING CO.
FIBRE & METALS COMPANY
GREENE-TWEED COMPANY
U. S. RUBBER COMPANY

NO. 4

The matter of publicity news releases was discussed and Mr. Marshall suggested that each member company furnish the Manager with a specially-selected list of about 10 representative buyers and/or users of textiles, so that the Manager can contact them with a view to obtaining information for news items on new products, new uses, etc. This suggestion met with full approval and the Manager will write to each member company regarding the required list.

NO. 5

Mr. Weaver, Chairman of the Technical Committee, presented a report on recent activities of his Committee. (copy attached). It was the recommendation of the Technical Committee that the Institute establish a Fellowship at Rutgers College, and to consider Dr. Myril C. Shaw as head of the activity. Mr. Fabel moved that we appropriate a sum of $15,000. a year, for two years, to set up an Asbestos Followship as recommended by the Technical Committee. This motion was seconded and

passed by all companies present.

It was understood that this Fellowship would operate under the Technical Committee who would be responsible for its supervision and guidance. Furthermore, the record of the man recommended in the Technical Committee report to head this Fellowship, Dr. Myril C. Shaw, met with the approval of the group, but the full responsibility for selecting a man to head the Fellowship was assigned to the Technical Committee.

The President pointed out that the Constitution calls for a vote by all member companies on matters relating to special assessments. It was therefore recommended that the Manager get in touch with the two absent member companies (Asbestos Textile Company and Union Asbestos & Rubber Company) at an early date, for purposes of obtaining their approval of the Fellowship program.

NO. 6

Mr. Bain, Chairman of the Sales Promotion Committee, presented his report on recent activities. (copy attached). Mr. Bain stated that the "Primer" is now in production and that cost estimates obtained for preparing and printing this job are well within the approved figure. However, these cost estimates do not include any mailing or distribution expense that might be invelved.

The matter of news releases was again brought up for discussion and it was agreed that some general publicity could be gained by sending releases about Institute General and Committee meetings, to publication in the textile field and to "Asbestos" magazine. The Manager will accordingly do so.

The Manager then presented revised layouts and copy for the space advertising program. Open discussion was held on these layouts and approval was voiced informally. It was agreed that details in the space advertising program should be handled through the Sales Promotion Committee. It was also agreed that the currently-

planned space advertising should include a 'definition' of the Institute based on that given in the Constitution. The following wording met with approval: "The Asbestos Textile Institute is a voluntary, non-profit organization formed to render service to buyers and users of asbestos textiles."

Mr. Miehleck moved that the Sales Promotion Committee report be approved as read. Motion seconded by Mr. Fabel and unanimously approved.

NO. 7

In the absence of Mr. Luttenberger, Chairman of the Fibre Improvement Committee, Mr. Marshall presented the Committee report. (copy attached)

Since all members who requested trial lots of fibre from the Canadian Producers have not as yet sent their reports to the Manager's office, the President suggested that they do so as soon as possible.

The many shortcomings of the shaker box method of evaluating spinning fibres were discussed and Mr. Luttenberger suggested that this matter of purchasing test equipment be referred back to his Committee for further consideration. It was suggested that a development of test methods would be a worthy subject for study by the Fellowship.

Mr. Marshall moved that after Mr. Luttenberger makes his report on the special fibre from the Canadian producers, that another Q.A.P.A. - A.T.I. Joint Committee meeting be arranged. Motion seconded and unanimously approved. The Manager will make the arrangements for this meeting at the required time.

NO. 8

Mr. Miehleck, Chairman of the Dust Control Committee, presented a report of his Committee, (copy attached), including numerous findings and recommendations.

Mr. Fabel presented the tentative plan for an A.T.I. central medical department, as prepared by Dr. Vestal. It was agreed that this plan should be turned over to the Dust Control Committee for action, but that in the meantime, copies of the plan should be distributed to all member companies.

The recommendation of the Dust Control Committee to incorporate damp weaving wherever feasible was brought up for discussion. Mr. Bettes gave his reactions from the Sales standpoint, general discussion followed, but no decisions were reached.

NO. 9

The President complimented all Committee Chairmen on the excellent work of their Committees, and it was unanimously agreed that a great deal of worthwhile work is being capably handled by these Committees. Mr. Wakem moved that, in order to express the appreciation of the member companies for the good work, the Manager be asked to send copies of all minutes of Institute meetings to all members of the committees. Motion unanimously approved.

NO. 10

It was unanimously agreed that the next meeting of the Institute should be held in Hershey, Pennsylvania at the Hotel Hershey on Friday, September 27, 1946.

NO. 11

There being no further business before the meeting, adjournment was moved, seconded and unanimously approved.

HARRIS D. McKINNEY
Institute Manager

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6-18-46

Report of the Technical Committee of the ASBESTOS TEXTILE INSTITUTE

The Technical Committee held a meeting at the Engineers' Club, Philadelphia, Friday, June 14, 1946.

Present:

Members (E. C. Bertolet, Jr. of Raybestos-Manhattan, Inc.
(H. T. Coss of Johns-Manville, Inc.
(C. R. Frederick of Keasbey & Mattison
(T. G. Tyson, Jr. of Philadelphia Asbestos Co.
(J. M. Weaver of Raybestos-Manhattan, Inc.

Harris D. McKinney, Mgr. of the A. T. I.

The purpose of the meeting was to receive and act upon the report of the Sub-Committee appointed to investigate possible institutions for establishment of a fellowship. Mr. C. R. Frederick, Chairman of the Sub-Committee, reported on the five meetings held by the Sub-Committee.

At the first meeting the discussions developed the belief that a fellowship at a Research Institute would not produce as quickly the answers to questions on properties and performance of asbestos needed to counter the advertising of competitive materials, as such answers might be obtained from Commercial Testing Laboratories. The Committee agreed that it could not recommend taking steps to found a fellowship until it could present subject matter or tentative projects for the work of a fellowship.

At the first meeting it was decided that Sub-Committee members would study fiberglas advertising to see in what industrial applications it was being offered to supplant asbestos. One purpose of this study was to evaluate the relative suitability of fiberglas and asbestos in the applications for which fiberglas was being introduced, the results of which study would supply advertising ammunition for Mr. McKinney.

Mr. McKinney supplied a book of clippings of fiberglas advertising which each member of the Sub-Committee read and of which digests were made.

The second meeting was held to discuss the foregoing work. The discussions developed the fact that the asbestos textile industry lacks certain facts on the properties and performance of its materials, supported by authority of industrial engineering practice or by authority of responsible engineering reports by recognized institutions.

Mr. H. T. Coss of Johns-Manville, Inc. informed the Committee that his company had learned by experience that one prominent commercial testing laboratory which had done work for them was unwilling to make reports of tests that could be used in advertising, or in promoting research. The commercial testing laboratory does not permit its name to be used. It does not supplement reports of

MOTION - Mr. Coss

The first presentation should be a general pamphlet describing fundamental processes along with reasons for doing so, nomenclature, definitions, explanation of advantages, disadvantages, specific examples where possible with scope of products available.

Second - Mr. Frederick

MOTION PASSED.

Mr. Weaver suggested the title of "Asbestos Textile Guide".

P. M. Session

The afternoon session was devoted to discussion of fellowship facilities. Mr. Frederick, Chairman of the Fellowship Sub-Committee reported as follows:-

11/16/45 - At the first meeting of the subcommittee the members analyzed competitive data and submitted a report which was presented on 4/11/46.

3/26/46 - Rutgers.
Met with Dr. Koenig of Dept. of Ceramics and discussed facilities for comparative studies on glass, asbestos, and other flame-proof materials.

4/4/46 - Mellon Institute
Subcommittee met Dr. Weidlein at the Chemists Club in N.Y.C. The Institute is tied up with the Naval Programme at present. Dr. Weidlein spoke of a slight possibility for a vacancy in July of this year but probably not until 1947. He thought that Armour Institute, Battelle Memorial Institute, Georgia Tech. and N. Carolina State would be "loaded up" at the present time.

5/9/46 - U. of Pennsylvania
Subcommittee met Deans Arnold and Goff of the Towne Scientific School. They had no definite offers to make as there is a matter of policy to be determined whether a programme of industrial research will be initiated. Subcommittee reported that it "looked like space but no facilities were available."

Penn. State College.
Mr. Coss talked with Dr. Henry at Buffalo. Dr. Henry thought Penn State well equipped. After some correspondence, the picture became confused. Mr. Frederick then wrote to Dr. Whitmore explaining the proposition. To date he had received no answer.

The members present then proposed the following opinion:-

In order to expedite the fellowship, we recommend that a fellowship be authorized and ~~authorized~~ established at Rutgers due to personnel, spirit and facilities available.

Meeting adjourned at 2:30 P.M.

Respectfully submitted,

(Signed) E. C. Bertolet, Jr.,
Secretary Pro-tem.

tests with comments or suggestions that would lead to improvements. There is no approach to research in its work. These facts induced the Sub-Committee to suggest projects suitable for work by an institutional fellowship; and to carry out the task originally assigned, to investigate and report on institutions for establishment of a fellowship, including location, facilities, annual cost, etc.

Among the topics suggested for investigation were:-

a. Heat resistance of textiles when applied where high temperatures are in contact with only one side of the textile material.

b. Life tests to determine, the useful period of various grades at elevated temperatures, as might be disclosed by continuous application to hot surfaces for periods of 30, 60 and 90 days.

c. Flexural strength, a property of very low value in fiberglas.

d. Safe working temperatures for which various grades of textiles may be recommended under authority of engineering tests.

e. Rodent resistance. It is known that rats will go thru concrete, thru aluminum, and into magnesia pipe covering, but it is hoped that asbestos cloth is a barrier.

Other long-range projects have occurred to the Sub-Committee such as

(1) a study to determine accurately the constituents of various types of asbestos;
(2) to find out why there is considerable variation in the analyzed percentages of water of crystallization in different lots of fiber, and what effect this has on performance of the asbestos;
(3) a study of the opening of asbestos so as to separate fibers without injury, and
(4) to determine the maximum degree of fiberizing and methods or technique of taking advantage of the greater strength possible of attainment in twisting together very finely divided fibers.

Possible institutions given consideration for a fellowship on asbestos include:

Armour Institute
Battelle Memorial Institute
Mellon Institute
Mass. Inst. of Technology
Georgia Tech
Lowell Textile Institute
Rutgers College
University of Penna.
Penna. State College
Also the Philadelphia, Lowell and N. C. State Textile Schools.

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The Sub-Committee conferred with Dr. Weidlein, Director of the Mellon Institute, with John H. Koenig, Director of the Dept. of Ceramics, Rutgers College, and with Dean Goff of Towne Scientific School, University of Penna.

Mr. Coss discussed the matter with Prof. Henry of Penn State. In all instances the conferences were held to the status of an investigation of facilities and attitude of the institution toward a fellowship, its probable annual cost and when it could be undertaken if authorized by the Asbestos Textile Institute.

Dr. Weidlein informed us that Mellon Institute has many more applications for fellowships than can be accepted, although he held out some slight hope that the termination of work then underway for the Navy might enable an Asbestos Fellowship to be established. His estimate of the annual cost was approximately $10,000.

The University of Penna. has ample floor space and nothing else. It has no fellowship program underway for industry. The question of going into such activity would have to be considered by the University.

The most promising situation was found at Rutgers College, Department of Ceramics. Dr. John Koenig is willing, in fact very willing, to have a fellowship on asbestos established at Rutgers. I quote as follows from his confirmation of our discussion:

"Rutgers was in a good position to take onthis project from the standpoint of space, equipment and supervisory research personnel. The importance of obtaining a man as investigator, who was interested in working for approximately three years at the University and then continuing work in this field for one of the member companies was remarked. Selection of the investigator should be given great care and the investigator must be satisfactory to the Committee members as well as the Department of Ceramics.

"Cost of the project would depend on whether a part-time graduate, a full-time research man, or more than one man was desired, this depending on how large a project the Institute desired to initiate. It seemed to be the consensus that one full-time investigator was desirable to start this research. Koenig suggested the following cost breakdown which seemed to be satisfactory to all present:

Minimum Cost Estimate

Salary of investigator..... (12-months' basis, 1-month vacation)	$ 3,600
Equipment, supplies, travel, etc.....	900
University overhead (10%).....	500
Total for one year.....	$ 5,000

"If this project is started the following initial steps are to be taken by the investigator:

a. Visit various member plants.

b. Review literature and work at Bureau of Standards.

c. Start testing samples submitted by various companies.

"It was pointed out that the Institute would receive all patent rights and publications would be made only by mutual consent."

Dr. Weidlein's idea of remuneration to the fellow was much higher than $3600. He pointed out that results would justify the highest obtainable type of workmanship in the undertaking.

The Committee has been informed of a well educated and highly trained Ceramics Engineer whose services are available. He is Dr. Myril C. Shaw. I copy a statement he submitted in making application for employment with one of this Institutes members:

"I am 38 years of age and married.

"I am a ceramic engineer, having spent nine years in two universities to acquire my education and have spent the past fifteen years in industrial ceramic research and production. In 1929 I graduated from the Pennsylvania State College with the degree of Bachelor of Science in ceramic engineering. In 1930 I received the degree of Master of Science from the same institution, majoring in ceramic engineering and minoring in metallography and economics. On November 1, 1930, I joined the staff of the Ohio State University Engineering Experiment Station as ceramic research engineer. While holding this position I enrolled in the Ohio State University, and in June, 1934, I received the degree of Doctor of Philosophy with a major in ceramic engineering and minors in Physical chemistry and thermochemical minerology.

"While employed at the Experiment Station, my work was primarily concentrated in the field of ceramic raw materials beneficiation. This work was partically sponsored by the Ironton(Ohio) Chamber of Commerce. A part of this work is contained in publications by the Ohio State University Engineering Experiment Station and the Ohio Geological Survey. The more fundamental and technical phases of the work are contained in my Doctorate dissertation which sets forth a method of beneficiation which at the time was new to the ceramic industry, and has since been successfully adopted for many applications.

"Upon attaining the degree of Doctor of Philosophy, I was immediately employed by the Edward Orton Jr. Ceramic Foundation, Columbus, Ohio; manufacturers of pyrometric cones--temperature measuring devices used in the ceramic industry. My first position here was Director of Research. After about two years, 1936, I was made Superintendent in addition to Research Director. In 1938 I was appointed Assistant Manager, retaining my previous positions. My duties at this point covered all production, control and research problems. In addition,

I was trade representative for both sales and service, making periodic trips throughout the ceramic industry. In May, 1943, I was appointed Manager of The Foundation and held this position until July, 1944, at which time I resigned to accept a position with the General Ceramics and Steatite Corporation. I left the Foundation of my own accord for several reasons, chief of which was that I had attained the highest position available in that organization, and the remuneration was far below many other positions offered to me. In addition, the position which I accepted upon leaving the Foundation was to engage my interest primarily in titanium dielectrics. This was a relatively new and undeveloped field of ceramics and as such, interested me very much.

"At the General Ceramics and Steatite Corporation I was chiefly concerned with titanium dielectric products. I also served as ceramic consultant for the associated plants and engaged in problems concerning electrical porcelain, spark plugs, glazes, ceramic kilns, and allied subjects.

"In the field of titanium dielectrics, I was engaged in development and research coincident with production.

"During the war period this plant was engaged 100% in production essential to the war effort. However, reconversion proved very difficult and a general shrinkage of personnel necessitated my departure. I severed connections with this company December 1, 1945.

"Since December 1, 1945, I have been conducting research pertaining to magnesium oxychloride cement products.

"I am a member and Fellow of the American Ceramic Society, and a Registered Professional Ceramic Engineer in the State of Ohio. I have served as an abstractor and as a member of the editorial committee of the Materials and Equipment division of the American Ceramic Society and have served the Central Ohio Section of the Society as Chairman, Secretary and Treasurer."

Your Technical Committee voted in favor of establishing an asbestos Fellowship at Rutgers College, and to consider Dr. Myril C. Shaw for the position it will create. It is understood that Dr. Shaw's services are available at a salary of $6,000 per year.

In submitting this report, I recommend that The Asbestos Textile Institute make an early decision on whether or not to establish a Fellowship and to direct the Technical Committee on the steps it shall take in the matter, if any.

I wish to point out that the Asbestos Textile Institute will incur, with the founding of a fellowship, an obligation to keep in frequent touch with the work and to authorize someone or more members to be entrusted with supervising the work.

At the meeting of the Technical Committee held June 14, 1946, the matter of publishing a handbook was discussed, the discussion

covering the size, subject matter, and ways to follow in assembling it.

The title agreed upon is Asbestos Textile Guide. The text to be a general description of the fundamental processes in manufacturing asbestos textiles and the reasons therefor; also nomenclature, and definitions; explanations of the advantages and limitations with specific examples of uses where possible.

Mr. Coss suggested following the style found in an excellent treatise on cotton entitled "The Story of Colonel Cotton Blossom".

The Guide will enumerate those products in the various grades and constructions made for various groups of consumers, such as

Electrical - general
Electrical - cables, etc.
Safety Clothing
Plastics laminators
Railroads
Glass Industry
Friction Materials Manufacturers
Packing and Gasket Manufacturers
Thermal Insulation
Oil Burner Wicking
Household and Laundry uses
Building and Architectural
General Industrial Uses

As Mr. McKinney participated in the discussion and made notes, and as the work of compiling the Guide will be his undertaking, the Technical Committee leaves to him the task of presenting to the Board of Governors the details of its size and cost.

Respectfully submitted,

J. M. Weaver

Extemporaneous Remarks by J. M. Weaver supplemental to the Report of The Technical Committee made at the Meeting Held June 19, 1946, by the Asbestos Textile Institute.

The range of work that may be carried on in a Fellowship of Asbestos Research may well include the refinement of processing technique followed today in the production of asbestos textiles. I submit that such work is logical and worthy of joint support. Let us not overlook the fact that improvements made by any one company eventually get around throughout the industry. Improvements that are obtainable in a Fellowship comprise a way to advance the industry. The results of such work should provide technical facts to support asbestos textiles in their fields of usefulness, where we are painfully informed by good competitive advertising other materials are entering. I refer particularly to glass fiber.

With regard to the tests planned to determine the maximum safe temperature recommendations for various grades of asbestos, we need authoritative data based on information released by a responsible institution. In my company's catalog the range of figures published for various grades is based on muffle furnace tests which were made by my direction, and in the higher brackets by tests made at the National Bureau of Standards. But the Bureau does not permit the use of its findings in the sale of products, and muffle furnace tests are not comparable to conditions met by asbestos textiles in actual use. As an industry we need the test results that will be afforded by a Fellowship.

Who knows but that in the long range work of a Fellowship new technique in working, carding and spinning may not be developed? We now restrict the opening of asbestos to comparatively large fibers. The small fiber as seen by the naked eye is actually a bundle of fibers. We are limited to the degree of separation by the long established practice of our present technique. But who knows that it is not within the range of practicability to use finer card clothing, to set the rolls of the cards closer, to do a finer combing job and to avoid rolling of fiber between the clothing? It is well known that the strongest cable can be made by building up twists of the finest wires. So too may it be found practicable to produce strong, very fine asbestos yarn by twisting much finer fiber than is the present day practice.

In the matter of asbestos cloth for safety clothing, Fellowship research should establish facts that can be used to promote the use of Underwriter's and higher grades to promote actual safety to users of safety clothing. We have gone-on record that no lower grade than Underwriter's should be used. This recommendation is founded on a report by the Bureau of Standards, but the report cannot legally be mentioned to sound warnings against Commercial Grade.

A series of tests made by the National Bureau was reported by Dr. Lyman Briggs as showing that Commercial grade was much inferior to Underwriter's in flammability, even though the difference in percentage of cotton was small. Here is work for a Fellowship in duplicating and thereby making available the facts that will give greater protection to workmen who must wear asbestos garments.

These are some of the reasons why I advocate the establishment of a Fellowship on Asbestos Research.