

ASBESTOS TEXTILE INSTITUTE MINUTES

1960

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TOMORROW'S CHALLENGE

Perhaps the most important consideration in the lives of each of us today is something that none of us have any assurance we will ever see. So important is it that we as individuals plan and live our lives in preparation for it and most of our energies are expended in order that this all-important experience may be tolerable if not enjoyable. What is this vision that looms so important and often so ominous? Tomorrow.

Business, be it large or small, is perhaps even more influenced and concerned with tomorrow than is the individual. Or perhaps it may just appear to be that way as we are constantly appraised of the plans and preparations industry and business are ever making and the billions of dollars they are expending in these preparations. Research dollars perhaps best illustrate the concern of business for tomorrow since the achievements of research can best be measured in terms of an industry's productivity in the future. Crawford H. Greenwalt, Du Ponts Company's President, rather succinctly presents the picture in his statement:

"Research on the majestic scale evident today should give some assurance toward progress. While it is not a cash-and-carry activity, in which a given expenditure can guarantee a given result, it does provide us with the only valid basis we have for projecting future growth and development."

He goes on to give some unusually apropos figures on research in his own giant organization:

"The ratio of research dollars to construction dollars (since 1921) has averaged about one to three--for every dollar we have spent in our laboratories we have sooner or later spent \$3 for new plants, products, and processes. This ratio, incidentally, has been reasonably constant over a period during which our annual research expenditures have increased from \$1 million to something over \$70 million."

I rather suspect that the percentage allocation for research here given is somewhat higher than the average of our nations industries, but it does serve well to illustrate how productive our research activities have been and are in planning for our future.

Somewhat related to these considerations are remarks made by Sidney Feuchtwanger, President of Commercial Discount Corporation in a statement regarding long range planning by those who are concerned with financial futures. He states:

"We have learned that no matter what tremendous assets a corporation has at the moment, the business is an unsound risk if the management does not worry about facts or about numbers. You can predict a company's future from those alone.

In investigating applicants for long-term capital loans, the first characteristic we look for is a management's disposition to worry about facts. For example, before a factually minded management decides to produce a new product, they make an extensive market study on the new product, plus production and sales costs--and then determine company

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action by such facts. We have consistently found that a primary reason for failure of businesses is optimistic speculation on the part of managers who refused to worry about projected sales, operating problems, capital requirements, etc.

The second characteristic we look for is management's disposition to worry about numbers. There are companies continuing unprofitable lines, or continuing to serve customers on which they lose money, only because nobody has the disposition to worry about figures where there are more glamorous things to do.

It has taken us close to a billion dollars in financing to ascertain that these 2 characteristics are key indices of business success. As far as we can ascertain, without those 2 qualities, no management has managed to survive. We make our 5-year capital loans only to companies which possess these two characteristic qualities."

Projecting these thoughts along lines pertinent to the asbestos textile industry it would appear that the challenge and opportunities for growth within this major industry are greater now than ever before. With a few notable exceptions, our research dollars devoted primarily to the extension of asbestos textiles are relatively meagre. The types and styles of asbestos textiles produced today are not essentially greatly different from those marketed 10 or even 20 years ago. There have been improvements in quality and some new asbestos textiles have been added to our standard cloth list to be sure, but these additions were, as a rule, really not new but are rather variations of materials that have been available for years. On the other hand, many asbestos textile items that were manufactured in years past have been dropped from production because other materials such as glass and certain other substitutes have been "sold" as "superior at a lesser cost". The over-all picture of the industry has not been one of vigorous engagements and advancements in new areas of application, indeed, there has been some retreating on the flanks that have been somewhat difficult, if not impossible, to defend. As engineering advancements in the automotive fields reduced a portion of the asbestos textile products utilized and consumed in the modern automobile and as glass made its inroads in the electrical industry a sizable segment of the asbestos textile consuming market was eliminated. Efforts were exerted by our industry to arrest and overcome this trend away from asbestos textiles usage in these two instances, however the end was inevitable and simply served to awaken our industry to the fact that asbestos textiles are no different from millions of other materials in that they too are expendable and as time and circumstance evolve new conditions, new methods and new materials, some of the old conditions, methods and materials are necessarily going to have to be replaced. Fortunately, with the advent of the small car market some of the automotive materials again appear to offer a favorable re-entry in that field.

However, the purpose here is not to dwell upon the declining market as represented by these two examples of that portion of our lost horizon but rather to consider what is beyond the vast horizon that is still before us and how we should prepare ourselves and our industry in order that we may be ready and able to produce the materials that will be required "tomorrow". Mr. Feuchtwanger has perhaps set the theme for our efforts with the suggestion that we sincerely and conscientiously be concerned about the problems that confront us. No doubt we all have our worries and the root cause of many an ulcer, fatal and otherwise, has had its beginning with the worries of a business advancement or decline. Many there are who nurture and baby a worry along to the point that it becomes a pleasure to have it -- it serves as a conversation piece when discussions are pursued with friends and associates

and some there are who would be lost if it were not ever with them. Such worries are non-productive and aside from their social values serve no useful purpose. However, there are productive worries and it is this type of mental agitation of which Mr. Feuchtwanger speaks and with which we are concerned at this point.

It seems to me however, that perhaps a better term for this type of mental agitation and one which suggests a productive approach is "concern" rather than "worry". Worry somehow always impressed me as a negative, pessimistic approach while concern indicates a "studied consideration with a purpose".

That, I feel, is a reasonably clear picture of the position we in the asbestos textile industry find ourselves today. At no time in the history of our industry have the opportunities for growth and service been so great. Practically every technological and scientific advancement of the past twenty years has opened new areas of application for materials that will be serviceable under conditions of elevated temperatures ranging from moderate temperatures up to extremes we find difficult to comprehend.

Many of the conventional and regular asbestos textiles have fit well into the programs as they have developed and many new items have been produced to satisfy specific applications. However, I strongly suspect that in many cases conventional materials have been tried and found wanting for one reason or another in some of the newer fields of service where significantly different characteristics than have been heretofore designed into our textiles were required. In most such cases the industry has been unprepared to meet this challenge because we have not been, in the past, sufficiently "concerned" with the service requirements that have been building up ahead of us. Even now we are not familiar with many high temperature applications where asbestos textiles properly engineered and designed would serve the purpose.

The prime contractors and engineers on many constructions today are in part the cause of some of our woes. They are often bound by reasons of security to withhold basic information that would perhaps assist us in developing materials to meet their requirements and until a more cooperative attitude is achieved between these consumers and their suppliers progress in materials development will be slow.

However, during the past few years, many of us have become familiar with certain rocket and jet engine requirements; nuclear power plant requirements, new automotive and aviation requirements and new Army, Navy and Air Force requirements as embodied in both regular military specifications and in special specifications. It would seem likely that on the basis of these requirements and a better understanding of the conditions of service of the new applications, the industry should be able, through concerted and cooperative efforts and a pooling of these pertinent bits of information, to design and engineer the necessary new materials to meet these requirements. A new approach to the problems confronting us will be necessary and perhaps new conceptions as to the best and most logical method of utilizing the raw materials available to our industry will be basic considerations and premises upon which our progress will be measured. Some of the resulting materials will no doubt have construction characteristics that are vastly different from present day

conventional textiles which will be necessary if they are to meet the unconventional or unique conditions to be satisfied.

The extent of our ventures in these developments are limited only by our sincere "concern" not "worry" as to what contribution our industry will make to our tomorrow. I am sure that each representative of industry here has the necessary concern else he would not be here sharing in the work of this Institute. It is necessary that we also excite the interest of each of your associates in your respective companies and, in addition, gain the support and cooperation of those in our industry who are not associated with this organization, if we are to progress and share in the full fruits of tomorrow that offers a promise of things beyond our fondest hope.

Myril C. Shaw,
Research Director

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Fundamental Considerations of Elevated Temperature Properties of Significance Related to Heat Transfer.

Introduction

During recent months there have been increased expressions of interest in the elevated temperature properties of asbestos textiles related to the K value or thermal conductivity, specific conductivity, thermal diffusivity and the heat sink coefficient. All of these terms serve to define the significant thermal properties of materials as they are to be adapted to rocket constructions and as components for jet engines where extremely high temperatures are encountered, where thermal insulation is important and where thermal shock due to rapidly changing temperature gradients is usually quite destructive.

In view of this interest and the importance of the subject matter involved, a portion of this Fellowship Report is being devoted to some of the fundamental considerations involved.

The fundamentals of heat transfer are usually reasonably well understood by those who deal in this area of engineering and design and the cause and effect relationships are appreciated in most instances. However, very often all of the principles upon which a given set of heat transfer conditions may rest are not always given proper consideration with the result that there are often experiences of engineering failure or over-designing. We are perhaps not as concerned with over-designing, except as it may influence the original cost or investment involved, as we are with the possibilities of an engineering failure which may result in damage to expensive equipment or injury to personnel. Neither of these extremes is acceptable in an efficient operation and neither will be present if there is a proper understanding of all of the basic principles involved.

It is our purpose here to endeavor to clarify some of the fundamental points of interest which are not always too well understood and quite often are misapplied when the overall elevated temperature serviceability properties of a given material for a specific application are being considered.

Definitions

Thermal Conductivity.

The resistance of a given material to transfer heat is dependent upon the thickness of the material and the Thermal Conductivity, K. Thermal Conductivity is defined as the rate of heat transfer in one direction (perpendicular to an area) per unit area, per unit temperature differential per unit thickness, per unit time (for example, Btu per sq. ft., per degree temperature difference between surfaces per one in. thickness, per hour). Conductivity is a specific property of a material, a rate of heat transfer, and is dependent only upon the mean temperature of the material under consideration. Conductivity, as represented by "K", is not dependent upon the area, thickness or shape of the material but the total quantity of heat that will be transmitted by this material is dependent upon the area, shape and length of path or thickness and "K".

These basic understandings are offered in order that the terms we are here dealing with and the application of these terms to useful engineering data may be clearly understood. Thermal conductivity is normally expressed as the "K"

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value" in terms of Btu/hr/sq ft/°F/ft and a specific value or "K" factor has been established for a great variety of materials. Table I sets forth typical "K values" for a variety of materials.

Table I. Thermal Conductivities of Some Representative Materials (1)

	Density (lb per cu ft)	Temp. °F	K (Btu/hr(sq ft) (°F/ft)
Aluminum		68	120.0
Copper		68	222.0
Iron, Cast		68	29.0
Mercury		68	5.0
Silver		68	237.0
Aluminum foil	0.2	90	0.025
Celotex	13.2	90	0.03
Hair Felt	11.0	90	0.022
Rock Wool	10.0	90	0.024
Cotton Tape		100	0.043
Glass Plate		100	0.46
Paper Board, Varnished		100	0.17
Porcelain		100	0.84
Silk, Varnished		100	0.096
Silk, Unvarnished		100	0.027
Concrete		Normal use	0.43 - 1.25
Brick, Refractory		" "	0.34 - 1.25

The "K" factor specifically characterizes the conductivity characteristics of the unit, basic material at a specific temperature of performance. However, the "K" factor may be misleading if, when pursuing conductivity considerations, all of the circumstances surrounding the service are not rationalized. Mr. L. B. McMillan (2) has this to say in this regard: "It is well-known that insulating materials owe their insulating value to porosity, and often it is said that the air spaces are responsible for the low conductivity. That is true as far as it goes, but a more complete statement of the situation would be that it is the multitude of surface resistances at the boundaries of the air spaces which give the material its resistance to heat flow. Because of the close proximity of the warmer and cooler walls of these spaces, the magnitude of each of these surface resistances is naturally small as compared with the resistance at an outer surface, yet because of their multitudinous number the sum of all of these small resistances may result in a total resistance of relatively high magnitude. The solid material between the spaces may be relatively a good conductor of heat, yet if the physical structure of the particles be such as to provide a sufficient number of spaces with their corresponding surface resistances, the resulting product may be a very good insulation. This is illustrated by the fact that the conductivity of magnesium carbonate in the form in which it is used as an insulation is about one-thirtieth of that of the same material in solid form. An even more striking example is the case of carbon, which in the form of graphite has a conductivity of more than two hundred times that of carbon in the form of lampblack."

(1) Heat Transmission, William H. McAdams, (1954)

(2) Heat Transfer Through Insulation in Moderate-and High- Temperature Fields-- L. B. McMillan, A.S.M.E. (1926).

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It is well known that the temperatures of service markedly influence the conductivity of many materials. In Figure 1, (3) examples of the range of such values are presented.

The usefulness of the "K value" of a given material in indicating the overall conductivity of a product or form into which that material may be fabricated rests in the homogeneity of the ultimate product or form. For example, the glass of which fiber glass may be blown may be formed into a solid block or pane, and will have a density of 140 lbs/cu ft and a "K value" at that density of 0.40. That same glass formed as a block of Foamglas, having a density of 10.6, will have a "K value" of 0.035, while that same glass formed as a fiberglass board, having a density of 11.0, will have a "K value" of 0.02.

The heterogeneity or lack of homogeneity brought about through the blending or mixing of a material with air or some other gaseous product markedly influences the capability of that material to transfer heat. The "K value" of the basic material may remain unchanged but the heat transfer capabilities of the resultant product will be different depending upon the bulk density.

To know the "K value" of chrysotile in its form as a crude fiber would be of academic interest but from a practical point of view it would, in most cases, be of very little practical value. The fiber is always used in an opened condition, blended with either air, resin, cement or any number of other contaminants and these so-called contaminants influence the thermal conductivity properties to a great or lesser degree depending upon the form and density.

The thermal conductivity characteristics of asbestos textiles in the many forms and fashions of its fabrication are becoming ever more important and answers to inquiries in this area of interest are continually being sought. Particularly in the fields of application where ablation and heat sink problems are encountered is thermal conductivity of vital concern.

In view of this interest and concern an effort is here made to show the relationship of Thermal Conductivity to such properties as Specific Heat and Density in the complex determinations of Heat Sink, Conductivity and Ablation characteristics of materials.

Specific Conductivity.

Specific Conductivity relates thermal conductivity with density and the values so determined serve to indicate insulation efficiency. Mathematically it is expressed:

$$S.C. = \frac{1}{Kd} = \frac{in^2}{Btu \text{ OF } ft^2 \text{ hr.}}$$

Examples of the magnitude of the values for such determinations are set forth in Table II and are representative data for typical materials. The higher the values cannot efficient insulation, weightwise.

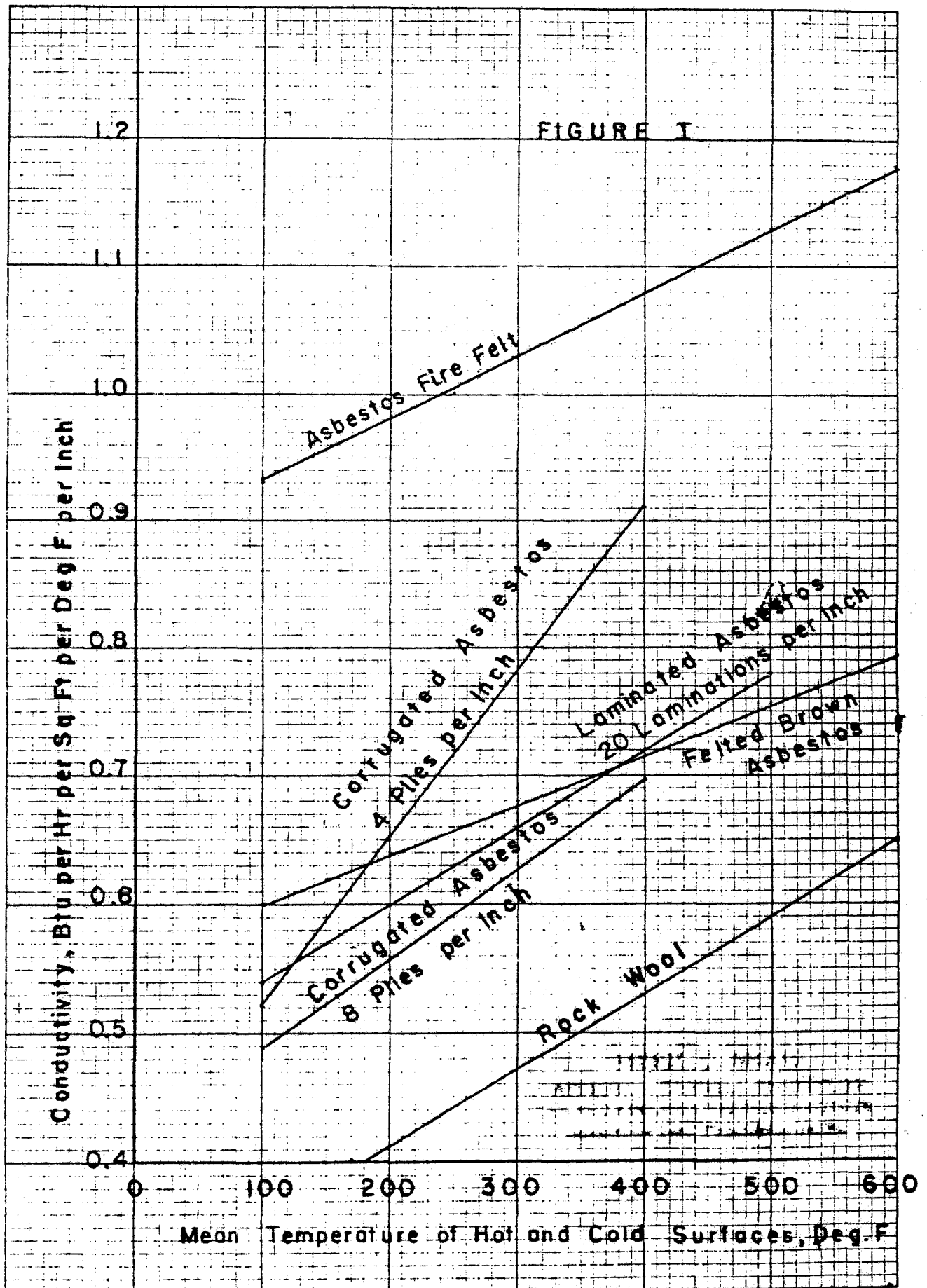
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(3) The Basic Laws and Data of Heat Transmission; W. J. King, Mechanical Engineering (1932)

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Table II. Thermal Properties of Some Space Materials as Measured at About 200° Fahrenheit⁽⁴⁾

Material	Conductivity K	Specific Heat C	Density d	Specific Conductivity 1/Kd	Heat Sink Coefficient Cd
	$\frac{\text{Btu}}{^\circ\text{F in hr ft}^2}$	$\frac{\text{Btu}}{\text{lb } ^\circ\text{F}}$	$\frac{\text{lb}}{\text{in}^3}$	$\frac{\text{in}^2}{\text{Btu } ^\circ\text{F ft}^2 \text{ hr}}$	$\frac{\text{Btu}}{\text{in}^3 ^\circ\text{F}}$
Aluminum	98	.22	.098	.105	.022
Copper	211	.09	.320	.015	.028
Graphite	79	.17	.050	.253	.085
Fiberglass Epoxy	.89	.24	.063	17.9	.015
Refrasil Mod.					
Phenolic	2.3	...	.060	7.3	...
Urethane Foam,					
Rigid	.48	.41	.006	347	.002

Thermal Diffusivity.

Thermal Diffusivity relates thermal conductivity with density and heat capacity and is expressed mathematically as follows:

$$T.D. = \frac{K}{d C_p} = \frac{\frac{\text{Btu}}{\text{hr ft}^2 ^\circ\text{F ft}}}{\frac{\text{lb}}{\text{ft}^3} \frac{\text{Btu}}{\text{lb } ^\circ\text{F}}} = \frac{\text{ft}^2}{\text{hr}}$$

When K = thermal conductivity
d = density
C_p = heat capacity

Through a proper application of this evaluation, the elevated temperature insulation and thermal diffusion properties of similarly applicable materials can be equated and related.

Heat Sink Coefficient.

The heat sink coefficient relates specific heat and density. The product of these two values for a given material serves to provide information as to its ability to act as a heat sink medium. Mathematically the value is expressed:

$$H.S. = Cd = \frac{\text{Btu}}{\text{in}^3 ^\circ\text{F}}$$

Table II provides representative data covering this property for typical materials with the higher values cannoting efficient heat sink properties, weightwise.

Summary

With this brief analysis and in the presenting of the definitions and mathematical deriviations for some of the elevated temperature properties which

⁽⁴⁾ Norair Proposes All-Plastic Rocket. - Frank G. McGuire. Rockets & Missles, February 8, 1960

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are currently receiving much attention, it is hoped that some clarifications have been affected. A misunderstanding of the term, thermal conductivity, and the properties related to this term has perhaps been responsible for the greatest amount of misunderstanding and the discussion and data here offered has been rather detailed in an effort to bring these terms into their proper relationships. The effect and influence of temperature upon the properties of materials is not always well understood, however, the data as set forth in Figure I serve to clearly demonstrate this point with regard to thermal conductivity and to further illustrate the significance of this point, Table III is included to show the effect of temperature upon a property as basic as specific heat.

Table III. Specific Heats of Solids⁽⁵⁾
Btu/(lb) (°F)

Temp. °F	Pb	Ni	Fe	SiO ₂
32	.0306	0.1025	0.1051	0.1667
212	.0315	0.1132	0.1166	0.2061
1112	.0328	0.1326	0.1737	0.2624
2012		0.1403	0.1505	0.3080
2912		0.1455	0.1460	0.3538

Bearing these facts in mind, it becomes obviously clear how inaccurate it would be to ascribe a "K" value for thermal conductivity or a "C" value for Specific heat, or to attempt to adapt such data in the calculations for specific conductivity or the heat sink coefficient without due consideration of the temperatures at which the materials are expected to serve.

The problems with which we are confronted today are still further compounded by the rapidity with which conditions of service may change. Extremely rapid temperature changes are encountered in all rocket applications and, equally rapid changes in the atmospheric environment, ranging from the earth's atmosphere where air which will support combustion and promote melting is encountered to that of outer space with little or no air but probably composed of a number of rare or inert gases. The thermodynamic considerations involved in these problems will certainly challenge the ingenuity and talents of our engineers and scientists of today and tomorrow.

Conclusions

To date, there have been relatively few materials found or developed that have satisfactorily met the challenge for the components that the rocket and jet engine industries require. The materials requirements for tomorrow will be even more difficult of attainment. We in the asbestos industry do not for the most part know the full potentials of the products of our own industry. Some of the larger members of our industry have been carrying on research during the past few years that has given them some of the answers and some of the basic information upon which improved materials can be formulated. However, the old adage "many hands make light work" is as true here as it has ever been and until the basic information is made available to our industry as a whole our progress will not be as rapid as it might be.

(5) Heat Transmission, W. H. McAdams. 1954

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On the basis of these observations we would suggest that perhaps the Fellowship program could yield no greater service to the member companies of the Institute and to the asbestos textile industry as a whole, than to devote some of its attention to the determination and accumulation of some of the basic data upon which the development of the materials to meet the needs of the future might be predicated.

Such basic information as 1) thermal conductivity over the temperature range of serviceability (up to 3000°), 2) specific heat over the same serviceability range, 3) density and specific gravity changes over the serviceability range, are but a few of the properties that are of particular significance at this point. Having gained these fundamental properties, such serviceability characteristics as heat sink, thermal diffusivity and the ablative properties can be mathematically determined. Knowing the serviceability parameters, the research and development that will be required to bring into being the materials necessary to meet the requirements and specifications will therefore have a basis upon which to initiate investigations.

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Elevated Temperature Studies

In an effort to extend the facilities of our laboratory so that studies at temperatures in excess of 2800°F might be pursued, a rather detailed and intensive review of the field of high temperature heat sources and furnaces has been undertaken. In this study a great many systems were considered and it was rather surprising to learn how few practical devices there are which can be adapted to materials studies and evaluations. Most practical units have temperature limits of 3000°F. As temperature exceeds 3000°F the target area or serviceable test area becomes extremely small, usually much less than one-half square inch. Also, as the temperatures of service rise the cost of the unit increases at a fantastic rate due to 1) the complexity of the overall unit with its ultra high power requirement, 2) usually water cooling at various points, 3) numerous service and safety controls and 4) finally, the complex devices used to measure the temperature attained. Due to the high original cost and the extensive material and power requirements that would be required in the operation of such a unit, it was felt that such a unit could not be justified in our present studies. However, during our review we were appraised of the possibility of adapting an oxygen-acetylene flame as a heat source for a small test furnace. Such furnaces have been constructed to operate at temperatures between 4000°-5000°F at its hottest part. Pursuing these possibilities further, a furnace was designed having a muffle or hearth area in the form of a circle, 3 inches in diameter by 1 inch high. In this design the flame would be so directed that it would be split into two segments with each segment or half of the flame following a circular path around the inside of the circular hearth. A furnace of this design could be adapted to elevated temperature tensile strength testing and other tests where specimen dimensions would not exceed 1"-1½" in width and the effective heating area length would not be greater than 1".

Consultation with a welding engineer served to confirm our contentions and it was felt that temperatures well in excess of 4500°F should be attainable. On the basis of this study, the construction of such a furnace has been undertaken. The oxygen-acetylene torch, necessary regulators and accessories have been purchased at a cost of \$130.00. Certain super refractories will eventually be required but it is contemplated that the entire construction will be possible at a figure considerably under \$200.00.

The one problem that has not been resolved is that of measuring the temperatures attained. Relative measurements have been and can be made by melting point determinations using materials having known melting points but this leaves much to be desired when any degree of accuracy is desired. Certain optical methods are available but the cost of such appliances are in excess of the funds we would have available for such work. Further investigations in this area are being pursued.

Cerbestos.

Work on cerbestos materials has been continuing during the past quarter and through the use of new formulations for the ceramic ingredients further improvements in structural and elevated temperature serviceability have been accomplished. The new formulations are in the form of a commercially available refractory cement manufactured and marketed by Sauereisen Cement Company, Pittsburgh, Pa. These cements range in refractories up to 3000°F and some are very dense and unattached by boiling water, acids or alkalis.

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We have had an opportunity to investigate only a few of these cements as additives for the cerbestos components but have been very encouraged with the results noted to date.

Using one of these cements as the bonding medium, a 36P10 - AAA cloth was impregnated and various laminations were formed. Using the impregnated cloth single and double layer mats were formed. In another case similar mats were applied to stainless steel and sheet aluminum using one, two, three and four layers of Cerbestos. Following the air drying of these samples they were subjected to a burn-through test with an oxygen-acetylene flame, in an effort to evaluate the relative protective qualities of the cerbestos treatment.

In this test, the tip of the oxy-acetylene torch was held exactly 2" away from and at right angles to the sample for the duration of the test, the flame being applied directly to the Cerbestos face. The test was concluded when the flame pierced the entire sample thickness and came through the back face.

The results of these tests are set forth in Table IV.

Table IV

Oxygen-Acetylene Burn-Through Test

	Time - Burn Through seconds
Aluminum metal, as received	2
Stainless Steel, as received	8
36P10-AAA, as received-one layer	6
36P10-AAA, As Received - two layers	8
Cerbestos - one layer	29
Cerbestos - two layers	48
Cerbestos - one layer - aluminum	27
Cerbestos - two layers - aluminum	50
Cerbestos - three layers - aluminum	105
Cerbestos - four layers - aluminum	135
Cerbestos - one layer - stainless steel	52
Cerbestos - two layers - stainless steel	147
Cerbestos - four layers - stainless steel	300

The elevated temperature protection afforded by the Cerbestos facing is obviously clear. The stainless steel alone was pierced by the flame in only 8 seconds but with only one layer of cerbestos, protection was afforded 6-1/2 times longer or 52 seconds and with four layers of cerbestos the flame never did fully penetrate as the test was stopped at 300 seconds or 37-1/2 times as long as the plain steel resisted penetration.

In these fabrications the ceramic portion of the overall components of cerbestos-steel amounted to between 10%-15% by weight and the asbestos cloth 25%-30% by weight.

It is hoped that the construction of the ultra high temperature furnace may be completed within the next few months so that tensile strength and destruction properties of plain asbestos textile materials and cerbestos fabrications may be evaluated under these extreme conditions.

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ASBESTOS TEXTILE INSTITUTE
Treasurer's Report
February 29, 1960

Balance on Hand in Various Funds - November 30, 1959:

Fellowship Fund	\$ 9,671.90	
General Fund	1,828.93	
Petty Cash Fund	94.80	\$ 11,595.63

Receipts:

<u>Assessments:</u>		
General Fund	\$ 1,500.00	
Fellowship Fund	1,500.00	
Handbook Sales - General Fund	12.50	\$ 3,012.50

Transfers:

To Petty Cash from General Fund	\$ 62.14	\$ 62.14
		\$ 14,670.27

Disbursements:

Fellowship Fund:

Fellowship Salary	\$ 2,549.41	
A.S.T.M. Dues - 1960	26.00	
Lab. Supplies	105.52	\$ 2,680.93

General Fund:

Secretary's Salary	\$ 767.79	
Secretary's Travel	28.50	
Meeting Expense	504.35	
Stenographic Expense	135.00	
Audit Expense	3.50	
Legal Expense	500.00	
Nuclear Studies - Travel	119.81	
Misc. Office Expense	270.80	
Transfer to Petty Cash	62.14	\$ 2,391.89

Petty Cash Fund:

Total Disbursement	62.14	62.14	\$ 5,134.96
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Balance on Hand - February 29, 1960	\$ 9,535.31
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Balance in Various Funds - February 29, 1960:

Fellowship Fund	\$ 8,490.97	
General Fund	949.54	
Petty Cash Fund	94.80	\$9,535.31

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Respectfully submitted,

W. S. Hough, Treasurer

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Introduction

On February 24, 1960, Dr. F. L. Pundsack, Mr. J. P. Wronski and the writer visited the Union Carbide Nuclear Company at the Oak Ridge National Laboratory, Oak Ridge, Tennessee. Discussions were held with Mr. G. W. Leddicotte, Activation Analysis Group and Dr. Oscar Sisman and Mr. C. D. Bopp, both of whom serve in the Solid State Division of the Engineering Materials group. All of the conferees had at some time during the past two years been engaged in the work contracted for by the Institute through Dr. M. S. Maier, to determine the effects of nuclear irradiation upon the mineral asbestos and products produced therefrom. It was the purpose of these discussions to clarify certain portions of the final reports as issued by Union Carbide Nuclear Company, covering this work in order that the first phase of this investigation might be concluded.

The final report as issued by the agency left certain areas of concern open to question and specific information in these regards was sought. The points in question included:

- 1) What quantities of material were irradiated? The radioactivities of the irradiated asbestos samples tested were reported but it was not clear as to the weights of each of the test specimens irradiated. It would be impossible to determine from the information available therefore, whether the resultant activity was of a high or low level intensity and would offer a potential hazard.
- 2) The atmosphere or conditions of irradiation were not indicated. These factors must be established if a proper evaluation of the data is to be affected.
- 3) Certain activation analyses carried out in conjunction with this work were clearly in error (particular attention was called to the iron content of amosite) and an explanation of these determinations was sought.

In addition to these questions, it was understood that the Union Carbide Nuclear Company planned to conduct further studies of asbestos minerals in an effort to develop additional fundamental information regarding the effect of nuclear radiation upon structural changes and what dosages are required to induce such changes. In this work, weight loss data, petrographic analyses, X-ray diffraction data and density measurements will be undertaken. Also, an instrument is being designed at this laboratory to determine the specific heat of materials and it is anticipated that such tests will be included in this program. It was our purpose to determine the extent of this program and to establish what cooperation and participation would be expected of the Asbestos Textile Institute.

Discussions

Mr. Leddicotte

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- 1) In response to the question regarding the size of the samples irradiated it was determined that the specimens were approximately 1 gram in quantity and were irradiated in the graphite reactor, in air, in polyethylene containers,

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at temperatures in the neighborhood of 40°C . On this basis, the information as presented will permit qualified personnel to assess the potential radiation hazard of asbestos exposed to a given neutron flux. The importance of such irradiation data rests not so much in the observed amount of activity remaining after irradiation as in the identity of the atomic species giving rise to the activity. Information now available as a result of this work will permit the health physicist to evaluate a given situation.

2) An attempt to reconcile certain inconsistencies noted with regard to chemical analyses proved unfruitful. A review of the laboratory test records failed to provide anything of significance and Mr. Leddicotte could only suggest that perhaps poor sensitivity within the instrument used in the determination might account for the discrepancy. In any event, the problem at this point is academic and requires no further pursuance.

Dr. Sisman & Mr. Bopp.

1) Our discussions with Dr. Sisman and Mr. Bopp dealt with the physical and chemical changes that may be induced in asbestos through neutron irradiation. This laboratory has devoted a considerable amount of time and effort in studies related to this subject and a thorough discussion of their program was pursued.

It was reported that it had been here established that chrysotile asbestos when irradiated with neutrons at an integrated flux of 5×10^{20} nvt, undergoes marked changes in structure and physical properties. Actually, chrysotile exposed to a flux of 3×10^{20} , was found to lose crystallinity and exhibit amorphous optical properties. Also, the water loss characteristics are markedly altered indicating a change in the role of the water of crystallization in the structure. However, there is apparently a minimum exposure, below which these changes are not induced since it had been observed that fibers irradiated at 1×10^{20} did not exhibit the above noted weight loss characteristics.

It will be the purpose of the proposed additional studies to establish the maximum exposure to which asbestos may be subjected with affecting structural defection. Structural changes will be observed through determination of weight loss and by petrographic and X-ray diffraction analyses.

The studies outlined up to this point will be conducted at no expense to the Asbestos Textile Institute and the information gained will, of course, be public property, available to all who may be interested. However, there are additional studies in this connection that the Institute membership is interested in, and Dr. Sisman has offered the full cooperation of his laboratory in our efforts to pursue this work. The areas of interest with which we are here concerned include studies of the effects of irradiation upon the tensile strengths and flexural strengths of asbestos. This work, to be properly carried out, will require a laboratory that is licensed by the Atomic Energy Commission to handle irradiated and perhaps radioactively "hot" materials.

Johns-Manville Corporation laboratory has such a license and it has been suggested that the Institute should negotiate with representatives of this laboratory in an effort to work out a satisfactory agreement whereby the desired test work might be conducted in this facility. Dr. Sisman will furnish the approved laboratory with irradiated materials for study.

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Conclusions

This report is in the form of a summary compiled from separate reports offered by Mr. Wronski and Dr. Pundsack. To conclude these remarks, the conclusions offered by the two conferees are presented.

Mr. Wronski notes -- "In summary, I think the program has accomplished a good part of its original objectives and that, when the long range program again gets underway at Oak Ridge, we will have a good understanding of what happens to asbestos after neutron radiation. As it stands now, we know what elements in asbestos become appreciably radioactive after neutron irradiation and the level of this activity. When the long range program at Oak Ridge is completed, we should also have a good idea of how the physical properties of asbestos are affected by neutron irradiation and the irradiation level at which degradation becomes appreciable."

Dr. Pundsack summarizes --

"1. Enough data are now available to assess the radiation hazard from irradiated asbestos.

2. At a neutron dose of from 3×10^{20} nvt to 5×10^{20} nvt the structure of chrysotile asbestos is altered profoundly, and probably many of its physical properties are changed drastically.

3. The threshold dose at which neutron irradiation first begins to affect the physical properties of asbestos significantly has not yet been established, but it is believed to be around 1×10^{19} nvt.

4. The Oak Ridge Group plans to continue, on an informal basis, the irradiation program on asbestos."

We are indeed indebted to Mr. Wronski and Dr. Pundsack for the thorough and capable attention they have devoted to this investigation and feel certain that results to date as well as the findings yet to be determined amply justify the time and effort expended.

Respectfully Submitted

Myril C. Shaw

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ASBESTOS TEXTILE INSTITUTE Treasurer's Report February 29, 1960

Balance on Hand in Various Funds - November 30, 1959:

Fellowship Fund	\$ 9,671.90	
General Fund	1,828.93	
Petty Cash Fund	<u>94.80</u>	\$ 11,595.63

Receipts:

Assessments:		
General Fund	\$ 1,500.00	
Fellowship Fund	1,500.00	
Handbook Sales - General Fund	<u>12.50</u>	\$ 3,012.50

Transfers:

To Petty Cash from General Fund	\$ 62.14	\$ <u>62.14</u>
		\$ 14,670.27

Disbursements:

Fellowship Fund:

Fellowship Salary	\$ 2,549.41	
A.S.T.M. Dues - 1960	26.00	
Lab. Supplies	<u>105.52</u>	\$ 2,680.93

General Fund:

Secretary's Salary	\$ 767.79	
Secretary's Travel	28.50	
Meeting Expense	504.35	
Stenographic Expense	135.00	
Audit Expense	3.50	
Legal Expense	500.00	
Nuclear Studies - Travel	119.81	
Misc. Office Expense	270.80	
Transfer to Petty Cash	<u>62.14</u>	\$ 2,391.89

Petty Cash Fund:

Total Disbursement	<u>62.14</u>	<u>62.14</u>	\$ <u>5,134.96</u>
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Balance on Hand - February 29, 1960		\$ 9,535.31
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Balance in Various Funds - February 29, 1960:

Fellowship Fund	\$ 8,490.97	
General Fund	949.54	
Petty Cash Fund	<u>94.80</u>	\$9,535.31

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Respectfully submitted,

W. S. Hough, Treasurer

Ambler, Pa.
March 1, 1960

Mr. W. S. Hough, Treasurer
Asbestos Textile Institute

Dear Mr. Hough:

In compliance with your request, examination was made of the books and records of the Asbestos Textile Institute under Dr. M. C. Shaw's supervision on Monday, February 29, 1960. The audit covers the period from November 30, 1959 to February 29, 1960, inclusive.

The Balance Sheet of the Asbestos Textile Institute at February 29, 1960 is set forth below:

ASSETS

Total Cash in Bank (Schedule A)	\$ 9,440.51
Total Cash on Hand	94.80
Postage on Hand	2.27
* Furniture & Equipment (nominal value)	1.00
	<u>\$ 9,538.58</u>

LIABILITIES

Philadelphia Wage Tax	\$ 34.35
Net Worth	9,504.23
	<u>\$ 9,538.58</u>

* Other Asset items not included in above classification are shown in Schedule B.

The latest statement received from the depository (Chase-Manhattan Bank of New York), in which all funds of the Institute are kept, shows a balance of \$9,025.09 on January 28, 1960. The Petty Cash Fund totalling \$100.00 includes \$94.80 in cash and \$5.20 in vouchers. This fund was verified by actual count.

Schedule A: Showing a reconciliation of the Bank Balance at February 29, 1960:

Bank Balance per latest Statement, January 28, 1960	\$ 9,025.09
Add: Bank Deposit of February 22 and 23, 1960	3,012.50
	<u>12,037.59</u>

Less: Checks drawn subsequent to January 28, 1960

<u>Check No.</u>	<u>Date</u>	<u>Payee</u>	<u>Amount</u>	
1515	1/29/60	M. C. Shaw	\$ 927.38	
1516	1/29/60	First Pennsylvania Co.	234.80	
1518	2/8/60	J. J. Cogan	31.20	
1519	2/16/60	Pennsylvania Railroad	101.60	
1520	2/16/60	Petty Cash	62.14	
1521	2/19/60	Philadelphia Textile Institute	10.23	
1522	2/23/60	J. J. Cogan	41.60	
1523	2/26/60	M. C. Shaw	927.37	
1524	2/26/60	First Pennsylvania Co.	234.80	
1525	2/26/60	A. B. Dick	7.75	
1526	2/26/60	M. C. Shaw	18.21	\$ 2,597.08

BALANCE ON HAND IN BANK

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\$ 9,440.51

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Checks numbered 1494 to 1498, inclusive, outstanding at the last audit, were examined and found to be in order. Bank deposits during this period under audit totalled \$3,012.50. \$1500.00 was credited to the Fellowship Fund and \$1,512.50 credited to the General Fund.

A reimbursement transfer in the amount of \$62.14 was made from the General Fund to the Petty Cash Fund.

Schedule B: Other Assets of Asbestos Textile Institute:

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Date Acquired</u>	<u>Purchase Cost</u>
(a)	7	Visual Aid Display Cases	January 1950	\$ 3,414.32
(b)	1	Suter Tensile Tester	August 1947	726.00
(c)	1	Heat Aging Furnace	April 1951	849.98
(d)	1	Bausch & Lomb Micro-Projector	May 1954	94.00
(e)	1	Brabender Moisture Tester	Sept. 1954	765.00
(f)	1	Federal Thickness Gauge	January 1947	50.50
(g)	1	Mapes Magnetic Analyzer	April 1953	100.00
(h)	1	Scott Twist Tester	December 1947	126.50
(j)		Office Furniture & Equipment	September 1954	757.50
(k)	1	Temco Muffleoven & Control	October 1954	161.00
(l)	1	Cenco Balance	October 1954	32.25
(m)	1	Electric Stopclock	October 1954	50.00
(n)	1	Abradoflex	January 1956	1,175.00
(o)	1	Exhibit - 4 Sections	March 1957	5,000.00
				<u>\$13,302.02</u>

Yours very truly,

S. C. Gehman, Auditor

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Sales Promotion Committee Report
Asbestos Textile Institute Meeting
March 3, 1960

IN ATTENDANCE:

J. A. Brown, Raybestos-Manhattan, Inc.
J. A. Bettes, Raybestos-Manhattan, Inc.
J. T. Griffis, H. K. Porter Co., Inc.
G. J. Harris, H. K. Porter Co., Inc.
A. E. Whitfield, Keasbey & Mattison Co.
B. Bond, Keasbey & Mattison Co.
W. M. Deckman, Keasbey & Mattison Co.
T. C. McCluskey, Tallman-McCluskey Fabrics Co.
A. R. Byrnes, Tallman-McCluskey Fabrics Co.
E. C. Cutler, American Asbestos Textile Corp.
E. A. Schuman, Johns-Manville Corp.

The February 1960 issue of "Living for Young Homemakers" magazine was exhibited. This issue covered quite thoroughly the "asbestos" house that was built in Oklahoma City, Oklahoma. Several pictures of the magazine showed asbestos textiles being used in the form of draperies and screening dividers.

It was pointed out that in the "Missles and Rockets" magazine, January 18th issue, Mr. J. A. Bettes had a letter to the editor protesting a recent article in the same magazine which led people to believe that Chrysotile asbestos is currently in short supply. The letter was effective and well received by the magazine. The Committee is grateful to Mr. Bettes for bringing the supply-demand picture on Chrysotile asbestos into sharper focus.

Our Committee is in process of enlarging the official standard cloth list of the Asbestos Textile Institute. All Companies are to submit additional style numbers to Dr. Shaw who in turn will present a new composite list to the Technical Committee for their comments.

The Japanese import situation was reviewed. Mr. M. I. Ruddock advised for the present we have nothing to fear. Mr. Parker Smith who recently returned from a trip to Japan also felt Japanese asbestos textile imports are not much of a factor in today's business because of their inability to produce volume.

The Textile Fiber Products Identification Act goes into effect March 3, 1960. The rules and regulations of this Act were discussed at great length. Under the provisions of this Act the fiber composition must be specifically listed to an accuracy within minus or plus three percent and a guaranty within these limits must be obtained. Using the ASTM grading system the specific fiber content values for each grade would be as follows:-

	Asbestos Content	Cotton or other Organic Content
Commercial Grade	78	22
Underwriters Grade	83	17
Grade A	87	13
Grade AA	92	8
Grade AAA	96	4
Grade AAAA	99	1

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Mr. Ruddock advises one of the simplest ways to comply with this Act is to stamp the following on each invoice:-

"We guarantee that the textile fiber products specified herein are not misbranded nor falsely nor deceptively advertised or invoiced under the provisions of the Textile Fiber Products Identification Act and Rules and Regulations thereunder."

In addition to the guaranty, the list of fibers present and other composition as listed above should also be shown on the invoice.

It was the consensus of the Committee and the legal counsel that even though this Identification Act was not passed primarily for asbestos Textiles there is no question that we do fall under this Act and must fulfill all requirements of the Act.

Respectfully submitted

E. A. Schuman, Chairman

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Minutes of the Technical
Committee Meeting of the
Asbestos Textile Institute
held March 3, 1960 at the
Warwick Hotel in
Philadelphia, Pa.

In Attendance

Raybestos-Manhattan, Inc.
M. W. Oliver

Philadelphia Textile Institute
M. C. Shaw

Johns-Manville Corp.
E. Beale

Keasbey & Mattison Co.
D. F. Quealy, Chairman

American Asbestos Textile Corp.
E. C. Cutler

1. The Technical Committee had a short discussion regarding the Textile Fiber Products Identification Act as applied to the Asbestos Textile Industry, and we were in agreement with the ASTM grading system, and the plus or minus 3% variation which is allowed for the actual fiber content of the material.
2. An asbestos products dealer has inquired as to a suitable method for cleaning asbestos clothing. Dr. Shaw has a proposed method for this purpose, and if found to be satisfactory, this information will be forwarded accordingly.
3. Government Specifications: With reference to specification MIL-I-3053B, Dr. Shaw has forwarded our recommended changes for width and length test procedures, tolerances for asbestos cloths and tapes and test method procedures for inside diameter of braided tubings. Included also in the recommendations for specification revision is the twist contraction factor in the formula for determining yarn cut which factor we expect will be changed to provide for a 5% rather than a 10% plied yarn twist contraction.
4. Regarding the new standard cloth list upon which we are working, complete data has not yet been compiled.
5. It was disclosed that at the 1960 March meeting of ASTM, the ATI proposal for a Magnetic Rating specification was rejected principally because this specification set forth a maximum magnetic rating of 2 as the dividing line between so-called ferrous and non-ferrous asbestos. The Technical Committee has reconsidered the specification, and it has been tentatively agreed that we should adopt the system used in specification MIL-I-3053A which breaks down magnetic rating into three different classes, namely, class 2 with a maximum magnetic of 0.75; class 4 with a maximum magnetic rating of 2 and class 6 with a magnetic rating of more than 2. However, there are several other perhaps less favorable methods to consider, and in order to establish a specification agreeable to all, this matter will be put up for letter ballot. ASTM will then be advised accordingly.

Respectfully submitted,

D. F. Quealy, Chairman

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MINUTES: ASBESTOS TEXTILE INSTITUTE
FIBER TESTING COMMITTEE
MARCH 3, 1960

The meeting was held at the Warwick Hotel, Philadelphia.

In attendance:

Committee

C. R. Hutchcroft, Committee Chairman - Keasbey & Mattison
S. Collier, Coordinator for ATI, ACPA, AND QAMA
L. C. Williams, Raybestos-Manhattan
J. D. McCluer, Southern Asbestos Company
J. Malone, Keasbey & Mattison
W. C. Streib, Johns-Manville

Guests

T. T. Tigert, Cassiar
W. N. Reakes, National Gypsum
E. A. Farrell, Lake Asbestos Company
H. Smith, Bell Asbestos Mines
W. Whitener, Lake Asbestos Company

Agenda

1. Organization and Administration
2. Discussion of Tests
3. Future Program

1. Organization and Administration

- A. Chairman Hutchcroft announced that Mr. Simon Collier is now active in his new position of Coordinator and Technical Consultant for the ATI and the QAMA. Mr. Collier also holds a similar position in the ACPA.
- B. Dr. Shaw distributed copies of the standard fiber test procedures, which have been approved by the ATI. These include sampling, Q.A., Bauer-McNett, Clark Classifier, Suter-Webb, crudy fiber preparation for Suter-Webb, tensile strength, and magnetic rating.
- C. For the present, this committee recommended suspending any definite action or recommendation regarding the issuance of any official manuals for general distribution. This matter is to be reviewed carefully by the Board of Governors and the QAMA.

2. Discussion of Tests

A. Air Permeability

Mr. Farrell reported on the action taken by the QAMA Air Permeability Sub-Committee. A recommended procedure for the use of the Dyckerhoff permeability unit has been submitted to the Q.A.M.A. by Johns-Manville.

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This tentative procedure was reviewed and requests were made for more explicit description of the equipment and accessories. A new procedure will be drawn up to incorporate these features and re-submitted. Fiber samples from various producers are being sent to Johns-Manville for test. These samples are to be used to correlate with the Rigden equipment.

B. Spicules

Mr. Malone submitted for examination samples of bundles and spicules which he obtained from card drops. He has tentatively defined these particles as follows: A spicule is a hard, thin, inflexible particle which is longer than its diameter and resists fiberization. A bundle is a softer, somewhat more fibrous, flexible and cylindrical particle which opens readily upon fiberizing. The samples collected by Mr. Malone are to be forwarded to the QAMA of their examination and study.

Mr. Collier is to forward to Mr. Hutchcroft a copy of the Johnson Company elutriation method which was discussed by the QAMA.

C. Fiber Composition - Analytical Procedure

Comments regarding the tentative analytical procedure were received from Johns-Manville, Keasbey & Mattison, and Lake. Mr. McCluer rewrote and expanded his test procedure taking into consideration the various suggestions which were offered. The revised procedure was distributed to the members and associate members of the committee for their review. After a suitable time period for study, Mr. Hutchcroft will solicit approval of this procedure by letter ballot.

Mr. H. Smith stated the QAMA position regarding this test method; namely, that the miners could not accept analytical analyses as an official test procedure since they have no control over this factor and have no means of performing such tests.

D. Flexibility

Mr. Malone described in detail the results he had obtained in measuring the flexibility of asbestos fiber. In this particular test, flexibility values were determined on samples taken from crude. Each sample was repeatedly bent through 180 degrees until the specimen broke. Mr. Malone concluded from his tests that excessive variation prevented the use of the flexibility test as a control technique. Instead, the value of the test appeared to be more academic as a research tool. Turner Newall had indicated that this test probably could not distinguish between chrysotile fibers suitable for spinning, but that it could distinguish between soft chrysotiles, crocidolite, amosite and very harsh chrysotiles. Johns-Manville's experience in similar flexibility tests, in general, confirmed these conclusions.

Rather than immediately closing out this project, the committee wished to keep the subject of flexibility open until the next meeting when more data might be available. Johns-Manville was requested to see if it was possible to determine the flexibility of fiber "plugs" fashioned from the long fractions of milled fibers as prepared by the Suter-Webb test.

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E. Color

The use of the Photovoltmeter to determine fiber color was reviewed by Lake and Johns-Manville. The Johns-Manville operating procedure for determining fiber color was submitted to Chairman Hutchcroft. This procedure gave not only the recommended equipment, but also a sample preparation technique which reduced the variations due to sample compaction. Mr. Farrell, Chairman of the Color Sub-Committee, is to write this procedure in ASTM form and submit it for approval.

F. Bulkiness and Resiliency

New definitions were agreed upon regarding these fiber characteristics. Bulkiness and loftiness were considered synonymous since both refer to the apparent specific volume of a fiber. Resiliency was defined as the "spring-back" or the increase in apparent volume resulting from the release of a restraining pressure. Mr. Williams, Raybestos-Manhattan, presented the data he had obtained on his preliminary fiber compression studies. It was agreed that the information was of interest and several suggestions were made regarding the testing procedure and technique. Mr. Williams was requested to continue his work on measuring bulkiness and resiliency.

G. Frictional Properties

Johns-Manville reported little progress in this field. Literature references were presented, but to date these have proved to be of little value for developing an asbestos fiber test. Work will continue. The committee defined the desired surface friction measurement as the resistance presented by two parallel fibers being drawn in opposite directions along their longitudinal axes.

H. Johnson Fiber Shredder

Mr. H. Smith reported that the Johnson Company stated that more work was required on this unit. The QAMA hoped to have their recommendation regarding this unit ready for the next meeting.

I. Bauer McNett

The QAMA recommended the following changes to the Bauer McNett test procedure. These changes were approved by the committee.

1. Amend 7(a) under "Accuracy" to read as follows:

7(a) The accuracy of this test is considered to be 5.0%; i.e. the difference between two results on any one screen shall not exceed 5.0% of the total sample. The results of two tests are to be averaged and reported for each fiber sample tested.

2. Add the following under "Accuracy":

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7(b) (8) To obtain prescribed accuracy, screens should not be cleaned during a determination unless tanks tend to overflow. Test results are not considered reproducible when screens are cleaned frequently and at irregular intervals during the test, due to fibers being forced through the mesh openings and the personal factors introduced by the laboratory technique employed.

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3. Future Program

A. Fiberization Characteristics

Considerable discussion ensued regarding methods of measuring the fiberization characteristics of asbestos fiber. Such possible methods as multiple passes through a fan, ball milling, rod milling, etc. were reviewed. The previous definition for the fiberization characteristics of asbestos was tentatively amended to describe it as the resistance to opening without length deterioration. From this definition it was agreed that an approach similar to the asbestos industry's old potential index (P.I.) test be examined. A fiber was to receive multiple passes through a mild opener such as a fan, and the change in properties be examined using all techniques such as the McNett, Clark, Suter-Webb, Surface area, etc. Mr. T. Tigert was given the assignment to make such a study.

Respectfully submitted,

William C. Streib

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MINUTES of the Meeting of the
Board of Governors of the
Asbestos Textile Institute
held March 3, 1960 in
Philadelphia, Pa.

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY, INC.

AMERICAN ASBESTOS TEXTILE CORP.
J. W. Weber

RAYBESTOS-MANHATTAN, INC.
J. A. Bettes

JOHNS-MANVILLE CORP.
W. S. Hough

TALLMAN-McCLUSKEY FABRICS CO.
T. C. McCluskey

KEASBEY & MATTISON COMPANY
W. M. Deckman

CADWALADER, WICKERSHAM & TAFT
M. I. Ruddock

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

1. The meeting was called to order by President Griffis and the chairman of each of the active committees of the Institute were called upon to present summaries of the formal reports to be presented at the General meeting.

a) Mr. R. B. Smith, Chairman, Air Hygiene and Manufacturing Committee, reported upon the discussions pursued during the course of the committee meeting held earlier on this date. Subjects covered in this report included 1) medical examination programs by the member companies, 2) dust sampling equipment and techniques, and 3) safety programs being followed in some mills. The formal report as presented at the General meeting is attached as a part of the minutes of that meeting.

b) Mr. D. F. Quealy, Chairman of the Technical Committee, reviewed the actions taken at the meeting of that committee held earlier on this date. It was reported that, based upon the request by the Secretary for information as to methods of cleaning asbestos clothing, a brief consideration was devoted to this subject. However, since there were no specific recommendations coming from this meeting it was suggested that when a method for such cleaning was determined it be passed along for membership attention. In the meantime, another member of the Institute, not a member of this committee, did develop a method in answer to this inquiry and an announcement to this effect was made at this meeting. However, upon discussion of this matter by the Board of Governors it was the general opinion that the subject of cleaning of cloth could better be dealt with by the cleaning industry than by the Institute, therefore, it was recommended that the Secretary should not attempt to give any advice on cleaning or transmit a response to the inquiry concerning the method submitted by one member. It was suggested that the inquiry be directed to the Dry Cleaners Institute and the National Safety Clothing Association for consideration.

Other matters considered by the Technical Committee and reported upon by Mr. Quealy included the Fibre Identification Act. It was the recommendation of the Committee that the A.S.T.M. grading system be adhered to in classifying under these regulations.

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This committee is endeavoring to bring up-to-date the standard cloth list and is seeking the aid and cooperation of all member companies in obtaining information covering those cloths that should be added to or dropped from the current listing.

The final subject considered by this committee and here reported upon was in relation to the A.S.T.M. magnetic rating classification. The current classification appears to be too broad to meet the requirements of some wire and cable manufacturers. Certain recommendations in this regard were presented by Chairman Quealy.

c) The Fiber Testing Committee report was presented by Chairman C. R. Hutchcroft. The first compilation of approved methods of test was distributed to the members of the committee and the Board of Governors under the title of "Methods of Testing Asbestos Fibres". It was agreed that the foreign associate member companies should each be sent one copy of this publication with a covering letter from the Secretary. Additional test methods are being considered and as approved will be added to this compilation.

The Chairman reported that the meeting was attended by representatives of every member company and most associate members, and that the discussions pursued with this representation were very fruitful. It was noted that Mr. S. Collier, formerly employed by Johns-Manville Corporation and now serving as a consultant on this committee was also in attendance and his counsel is greatly appreciated.

The formal report by Mr. Hutchcroft as presented at the General meeting is attached as a part of the minutes of that meeting.

d) The report of the Sales Promotion Committee was presented by Chairman E. A. Schuman. This committee in session earlier on this date considered many matters of interest in the promotion of asbestos textile sales. Attention was called to the publicity given asbestos products through the construction of an "Asbestos House" in Oklahoma City under the auspices of the publication "Living for Young Homemakers". Some asbestos textiles were included in the interior decorations of this home and, it was felt, served to promote the products of our industry.

Mr. J. A. Bettes was commended for his position and action as set forth in his letter directed to and carried in Missles and Rockets, January 18, 1960. An earlier issue of this publication was inclined to somewhat falsify the true picture of asbestos fiber availability and Mr. Bettes' remarks served to clarify this point.

Another subject considered in great detail during the meeting of this committee was the Fiber Identification Act and a review of the provisions and regulations pertinent thereto was presented by the Association legal counsel. The formal report of this committee as presented by Mr. Schuman at the General meeting is attached as a part of the minutes of that meeting.

2. Following the committee reports, President Griffis called for a reading of the minutes of the last meeting. However, since all members had received copies of these minutes and were familiar with the actions there taken, it was moved by Mr. Bettes, seconded by Mr. Deckman and unanimously agreed that the reading be omitted at this time.

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3. President Griffis called upon Treasurer W. S. Hough, to present the Treasurer's report. Upon completion of the report Mr. Hough observed that the funds in the bank were unusually low at this time due to the fact that the 1960 assessments have not yet been issued and that as those funds are collected the financial position will improve.

The Assistant Treasurer introduced for authorization of payment an invoice in the amount of \$1,014.65 issued by Cadwalader, Wickersham & Taft, legal counsel, to cover services performed in connection with Special Tarrif matters including the preparation of the brief filed with the U. S. Tarrif Commission and the investigation of the Japanese import situation with respect to the possibility of seeking the imposition of a Countervailing Duty or an Anti-Dumping Law Special Duty. It was moved by Mr. Bettes, seconded by Mr. Hough and unanimously agreed that the bill be approved and payment be made as funds are available.

4. Under matters of old business, attention was called to the June meeting of the Institute which is to be held in the Thetford-Asbestos area of Canada. The suggested program and time plans were offered and general approval was received.
5. Under the subject of new business, President Griffis presented a letter of application for membership in the Asbestos Textile Institute from United States Rubber Company. Following a thorough discussion of this application it was moved by J. A. Bettes, seconded by W. S. Hough and unanimously agreed that the application be approved and that United States Rubber Company be elected to membership in the Asbestos Textile Institute effective March 4, 1960. It was also agreed that the assessments to be required from this new member for the year 1960 should be based upon a participation of only three-fourths of the year 1960. Also, it was agreed that rather than require the production figures for 1959 upon which to base the assessment determination, on the regular basis, the assessment of U. S. Rubber Company dues for 1960 only will be at the minimum figures as set forth in the Constitution and By-Laws. Therefore, the assessment, in this case, will be $\frac{3}{4}$ of $(500+1000) = \$1,125.00$. In addition, the regular initiation fee of \$500.00 will be assessed. For all years subsequent to 1960 dues will be assessed to U. S. Rubber on the same basis as that used for other regular members.
6. There being no further business to come before this meeting, it was moved by Mr. Bettes, seconded by Mr. McCluskey and unanimously agreed that the meeting be adjourned.

Myril C. Shaw,
Secretary

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ROSTER
ASBESTOS TEXTILE INSTITUTE

MEMBER COMPANIES

AMERICAN ASBESTOS TEXTILE CORP.
Norristown, Pa.
JOHNS-MANVILLE CORPORATION
New York 16, N. Y.
KEASBEY & MATTISON COMPANY
Amblar, Pa.
RAYBESTOS-MANHATTAN, INC.
Manheim, Pa.
SOUTHERN ASBESTOS COMPANY
Charlotte 1, N. C.
TALLMAN-McCLUSKEY FABRICS CO.
St. Louis, Mo.

ASSOCIATE MEMBERS

ASBESTOS CORPORATION, LTD.
Thetford Mines, Quebec, Canada
BELL ASBESTOS MINES, LTD.
Thetford Mines, Quebec, Canada
BRITISH BELTING AND ASBESTOS, LTD.
Cleckheaton, Yorkshire, England
THE CAPE ASBESTOS COMPANY, LTD.
London, W.1, England
GASSIAR ASBESTOS CORP., LTD.
Toronto, Canada
ENGLISH ASBESTOS COMPANY, LTD.
Bristol 4, England
JOHNSON'S COMPANY, LTD.
Thetford Mines, Quebec, Canada
LAKE ASBESTOS OF QUEBEC, LTD.
Black Lake, Quebec, Canada
NATIONAL GYPSUM COMPANY
Buffalo, N. Y.
SMALL & PARKES, LTD.
Manchester 9, England
SOCIETE ANONYME FRANCAISE DU FERODO
Paris, France

ASBESTOS
TEXTILE
INSTITUTE

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GENERAL MEETING

Warwick Hotel
Philadelphia, Pa.
March 3--4, 1960

MS 004709

MT-004115

ATI-111

OFFICERS

President J. T. Griffis
 Vice President A. J. Scanlan
 Treasurer W. S. Hough
 Secretary M. C. Shaw

BOARD OF GOVERNORS

J. T. Griffis
 N. L. Barr
 J. A. Bettles
 W. S. Hough
 T. C. McCluskey
 A. J. Scanlan

MEETING SCHEDULE

Thursday, March 3, 1960:

Technical Committee -- 9:30 A.M. - 5:00 P.M.
 Suite 321

Air Hygiene & Mfg. Committee -- 9:30 A.M. - 5:00 P.M.
 Suite

Fiber Testing Committee -- 9:30 A.M. - 5:00 P.M.
 Suite 319

Sales Promotion Committee - 9:30 A.M. - 5:00 P.M.
 Secretary's Suite

Board of Governors -- 5:00 P.M. - Secretary's Suite

Friday, March 4, 1960:

General Meeting -- 10:00 A.M. -- Colonial Room

Luncheon -- 12:30 P.M. - Junior Colonial Room

COMMITTEES

Air Hygiene & Mfg.
 R. B. Smith, Chairman
 J. E. Cerny
 H. M. Jackson
 A. E. May
 J. L. Mitchell
 H. E. Palm
 J. W. Weber

Technical
 D. F. Quealy, Chairman
 Edw. Beale
 E. C. Cutler
 J. D. McCluer
 T. C. McCluskey
 M. W. Oliver
 J. L. Tucker

Sales Promotion
 E. A. Schuman, Chair.
 J. A. Bettles
 J. A. Brown
 A. R. Byrnes
 G. J. Harris
 W. S. Hough
 A. J. Scanlan
 A. E. Whitfield

Fiber Testing
 C. R. Hutchcroft, Ch.
 I. Barnett
 T. C. McCluskey
 J. L. Mitchell
 J. W. Weber

Fiber
 J. A. Marcotte, Chairman
 J. D. Christian
 R. E. Cryor
 A. W. G. Gibb
 N. W. Hendry
 F. Parker Smith

LEGAL COUNSEL

M. I. Ruddock
 Cadwalader, Wickersham & Taft

FELLOWSHIP REPORT

MYRIL C. SHAW

RESEARCH FELLOW

ASBESTOS TEXTILE INSTITUTE

PHILADELPHIA TEXTILE INSTITUTE

PHILADELPHIA, PA.

REPORT #52

March 4, 1960

MS 004711

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MT-004117

During recent months our attentions have been directed primarily toward the consideration of 1) Federal Specification Revisions and 2) Elevated Temperature Serviceability of asbestos textiles. In addition to these subjects, however, other related projects that have received some considerations include 1) A.S.T.M. projects concerned with methods for the determination of thickness of asbestos cloth and tape and the determination of the asbestos-glass-organic fiber content of fabrics containing all three such fibers; and 2) the effects of nuclear radiation upon asbestos fibers.

SPECIFICATION REVISION. The work concerned with the revision of Federal Specifications has progressed very well during the past few months and at this writing two specifications, namely MIL-C-10316B, Cloth, Asbestos and MIL-T-4117A, Tape, Asbestos are now being finalized in forms which include most, if not all, of the recommendations offered by industry. There has been some delay in processing MIL-C-10316B occasioned by revisions in the section covering Packaging, Packing and Marking, however, industry recommendations in this regard have been forwarded and we are hopeful that this question will be resolved as satisfactorily as have the other portions of the specification. In addition to the above noted specifications, Proposed Revised Military Specification MIL-I-3053B, Insulation, Electrical, Asbestos-Fiber, Treated and Untreated, has been submitted to industry for review and replies to the same were returned to the agency to satisfy the closing date of February 14, 1960. Several major revisions of note have been accomplished in this latter specification including, 1) conformance to a uniformity in the format and nomenclature adopted by the Watertown agency which serves to clearly identify the materials covered in terminology that is basic to our industry; 2) adoption of A.S.T.M. grading classification; and 3) adoption of the A.S.T.M. Mapes Method for determination of magnetic rating and relative electrical properties replacing provisions in the earlier edition of this specification that were generally considered unreliable.

With the acceptance of these three specifications it is felt that through the clarifications affected it should be possible for the consumers to more clearly define their requirements and for the manufacturers to more readily meet the specifications offered.

There are other Federal specifications that are still in need of revision and clarification and as an opportunity is provided for a consideration of these points action will be taken on an industry-wide basis.

ELEVATED TEMPERATURE SERVICEABILITY. Further studies in the area of elevated temperature serviceability have been undertaken during the past quarter and, while the results obtained to date are insufficient in so far as they might provide data of significance, it may be of interest to report upon the approach currently being pursued.

In the past, most of our efforts have been directed toward the determination of serviceability of materials after subjection to a heat treatment wherein they were heated to some given temperature within the range from room temperature to 800°F., held there for a specific period of time ranging from 5 minutes to many days following which and after being permitted to cool to room temperature and attain equilibrium with that atmosphere, the tensile strength was determined. Such determinations served to provide information regarding the

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MS 004712

MT-004118

However, it is fully appreciated that conditions such as those here related perhaps do not approach reality as far as actual service conditions may be concerned. Factors related to the peak temperatures that may be encountered, the temperature gradient necessary to attain the service temperature, the atmosphere present during heating or service, or the type of stress, attack or abuse that may be subjected will all contribute to the overall serviceability. In an effort to explore some of these areas of question a test apparatus has been constructed that will permit stress applications and tensile strength determinations while the materials under study are being heat treated or while a specific temperature is being attained. The apparatus consists of two electric heating elements mounted on the Suter Tensile Tester in such a way that heat may be applied to either side or to both sides at once of a 1" wide x 7" long sample of cloth as it is held in the jaws of the tester. Upon the attainment of a predetermined test temperature the Tensile Tester may be actuated and the tensile strength at the moment and while under thermal stress may be determined. Temperatures are measured by means of a Chromel-alumel thermocouple located near the sample under test which registers millivolts on an I&N Potentiometer.

Preliminary tests would indicate that the conditions under this latest method are considerably more destructive than those previously reported for the standard heat aging tests. The strength retention values obtained for samples of Grade AAA, 36P10, at 800°F, for example, have been as low as 30% whereas by standard heat-aging technique values of 65% to 75% have been obtained. There are however, certain differences that must be reconciled before direct comparisons may be accurately accomplished. The latest test, for example, utilizes a ravelled strip sample 1" wide due to space limitations while the standard heat aging test is based on a grab test specimen. Also, the extent of uniform heat distribution is not, as yet, known and if not properly taken into consideration will markedly influence the results so obtained.

However, even though the data presently available by the second method is meagre, it is clearly demonstrated that the conditions under which these materials are to serve will greatly influence their serviceability characteristics.

In further consideration of the problems of elevated temperature serviceability we have endeavored to determine how ultra high temperatures could be obtained so that materials of interest to us might be studied in the area of 3,000°F to 12,000°F. The equipment necessary to achieve these temperatures is unique and of a very special design. Avco Research and Advanced Development Division have developed an apparatus system to accomplish this purpose known as a plasma Generator. Essentially, the unit heats gases to high temperatures by passing them through an electric arc. To give you some idea as to the proportions of such an apparatus we quote from the manufacturers operating data chart:

Power Requirements -- Up to 250V D.C.
2000 AMP D.C.
Water Cooling requires 130 gal. per minute.
Maximum Nozzle Diameter - 2"

The price of such a unit is \$16,880.00 f.o.b. Wilmington, Mass. The installation and construction of facilities to handle such a unit would probably

place the over-all cost at around \$20,000.00. In view of the high cost of such a unit it appears unlikely that any extensive investigations covering the ultra high temperature properties of asbestos textiles are imminent.

Finally, in compliance with the requests by members of the Institute that an effort be made to present more clearly the elevated temperature serviceability information currently available that is based upon the most recently determined heat-aging test data as it is presented in graphic forms in our Reports #39 and #45, the following tabulation is offered in a form that we are hopeful may be more readily understood and will be adaptable to specific problems than has been the case with the data as offered in graphic form.

It must be thoroughly understood however, that the term "elevated temperature condition" is extremely relative and that such factors as atmosphere, physical stress and temperature gradient may well be far more significant and destructive than the temperature factor itself. The data here offered is based upon a testing procedure wherein the materials were heat treated at specific temperatures within the range from room temperature up to 800°F., in an air-circulating oven for two hours, after which they were cooled to room temperature for 30 minutes and then tested for tensile strength. Such conditions are probably much less severe than many actual service conditions where there may be a multiplicity of degrading factors and the strength retentions here noted should therefore be considered as maximums.

Percent Strength Retention*

	Comm.	Und.	A	AA	AAA	AAAA
300	75	85	85	90	95	98
400	30	40	50	70	90	95
500	15	25	35	50	85	90
600	---	15	20	40	80	85
700	---	---	10	30	70	80
800	---	---	---	20	55	70
900	---	---	---	---	40	60
1000	---	---	---	---	30	55

*Heat Aged for two hours in circulating air oven. Tensile strength determined by grab method after samples cooled for 35 minutes.

THICKNESS MEASUREMENTS OF ASBESTOS TEXTILES. Asbestos textiles are currently subject to two different methods of measurement for the determination of thickness. Dependent upon the specification for procurement or purchase such measurements may be made, 1) in accordance with A.S.T.M. Designation D76-53, Section 12, covering the gage and A.S.T.M. Designation D39-49 Section 5, covering the procedure or 2) in accordance with Federal Specification CCC-T-191b, Method 5030.

Both methods use so-called dead-weight type gages however the instruments differ in the bearing or presser foot dimensions and the weights applied during test. The A.S.T.M. gage is equipped with a circular presser foot 0.375 ± 0.001" in diameter and has an applied load of 6 ± 0.1 ounces (equivalent to 3.4 psi), while the Federal Specification gage has a circular presser foot having a diameter of 1.129 inches and a load of 10 ± 0.1 ounces (equivalent to 0.625 pse).

The thickness of an asbestos textile is often a very important property however, the conditions under which service is to be realized will determine the significance of such a characteristic. In some applications loftiness or bulkiness is of utmost importance, where, for example, the material is adapted to serve as a heat resistant barrier having little or no pressure applied to it. However, there are other cases where the effective thickness is influenced by moderate to high pressures which may be applied at the time of application or during a given service. Between these two extremes there are undoubtedly many sets of intermediate conditions. Therefore, the method which may be used to measure the effective thickness of a given asbestos textile cannot always be expected to yield the practical value for applications, but rather any method that may be agreed upon as a standard method will, at best, merely serve to give relative values or comparisons between a selection of materials under identical test conditions and techniques.

We are here concerned with two specific methods of measurements that have been in general acceptance by two different agencies for a number of years. The American Society for Testing Materials Method, however, is currently being reviewed by that organization since it is generally agreed that the adoption of the single method of test which is now considered their standard to fit all materials and sets of condition is impractical and revisions in the instrument and method of test to fit specific areas of application will be forthcoming. However, it appears that for narrow tapes, 1" and under, the A.S.T.M. method as presently written is more satisfactory than the Federal Test Method instrument where the pressure foot diameter is over an inch and the results so obtained when used for materials less than 1.129" wide are markedly influenced by the selvage thickness.

The final results of these considerations will have a definite bearing on the specifications for many asbestos textile products and the membership of the Institute will be kept appraised as developments are forth coming.

CONCLUSIONS

The Fellowship program is currently operating under a project list drafted on December 5, 1956. Several investigations have been undertaken since that date that were not included in the original list, authorization having been granted by the Board of Governors or a committee action. In order that our Fellowship program may best serve the Institute and the industry which we represent it is necessary that each member take a part in its planning. As new problems and projects occur to either an individual member or a member company, they should be directed to the attention of the Fellow who through the Board of Governors and the project committee working with that body may weigh its importance and either place it on the Fellowship project list or give reason for its exclusion from such consideration. Your individual interests and cooperation are sought and are necessary if the work of the Institute is to most effectively serve to advance our industry.

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE'S
AIR HYGIENE AND MANUFACTURING COMMITTEE
March 3, 1960

In Attendance:

W. C. Atkinson - Johns-Manville Corp., Manville, N. J.
J. E. Cerny - Tallman-McCluskey Co., Kirkwood, Mo.
H. M. Jackson - Johns-Manville Corp., New York, N. Y.
J. L. Mitchell - H. K. Porter Co., Inc., Charlotte Works
Charlotte, N. C.
H. E. Palm - Raybestos-Manhattan, Inc., Manheim, Pa.
R. B. Smith - Raybestos-Manhattan, Inc., No. Chas., S. C.
Hans Walter - American Asbestos Corp., Norristown, Pa.

The following items were discussed:

ENVIRONMENTAL HEALTH SURVEY:

During the discussion of this subject it was stated that one member company's insurance carrier had just completed a study of their entire health records and as yet the results had not been announced, but when available they would be presented to the committee. This company also reported that recent X-rays revealed that they now have only seven cases of first stage Asbestosis (each case having been employed for 15 years or longer), this can be compared to eighty-five cases which were evident in 1936. This is "Living Proof" that dust removing systems have and are now benefiting all concerned.

This topic also revealed the fact that there are four (4) members now conducting yearly X-rays of all of their employees. These records will prove to be invaluable in future years.

Several member companies are also conducting and encouraging Group Visitations through their plants, such as Occupational Health Study Groups and Student Nurses' Classes. This type of visitation is to be encouraged and permitted to expand throughout the medical profession so that they may see first hand the progress that has and is being made with the health of our employees.

A review of the factors which would be involved in an environmental health survey was presented, which included both the amount of work and the benefits which would result from a survey of this type. This will be investigated more completely and discussed at our next meeting.

COMPARISON OF DUST SAMPLING EQUIPMENT:

Johns-Manville Corp. is still conducting a comparison between the Standard and the Midget Greenberg-Smith Impinger for us. The results of this comparison will be presented to the committee when it is completed.

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MT-004122

GENERAL ENGINEERING SUBJECTS:

During this discussion we learned of the experiences which several members have had with their bag dumping equipment. Also discussed at this time was systems used in handling paper bags of fiber as received from the mines at our plants.

We received a copy of the 2nd Annual Report of The Asbestosis Research Council of England. This report was discussed and a copy of it is included at the end of these minutes.

We also received several pieces of correspondence from Dr. J. F. Knox of England which will be answered. One of which stated his desire to meet with this committee when he visits this country in July, this meeting will be arranged with eager anticipation by our members.

PLANT SAFETY PROGRAMS:

This was one of our most time consuming subjects in as much as it involved a complete discussion of our plant accidents for the past year of 1959 and the accident frequency ratings for each plant.

The ratings were as follows: Plant A = 9.3, B = 9.6, C=13.5, D = 12.8, E = 25.9.

These ratings are according to the National Safety Council and are figured on their formula of "number of loss time accidents x one million man-hours + by the total manhours worked". During the discussion of our individual frequency ratings it was realized that a comparison of our ratings would be somewhat misleading since some member companies reported only on Textile Operations while others reported for the entire plant which included Finishing, Shipping, Maintenance Departments etc. However, the description of these accidents was the important item in this discussion. We also discussed the functions of each Plant Safety Program and the composition of their Safety Committees.

This entire subject was received with such enthusiasm that the committee decided to make it an annual item at every March meeting when the results for the previous year can be discussed.

AGENDA FOR JUNE 6, 1960 MEETING IN CANADA:

1. Safety Equipment that is required at each plant.
2. Report of progress on comparison of Dust Sampling Equipment.
3. Continued discussions of Dust Collecting Equipment and Systems.
4. Discussion of New Manufacturing Equipment which has become available.
5. Continued review of the factors involved in the Environmental Health Survey.

Respectfully submitted,

Ralph B. Smith, Chairman
Air Hygiene and Manufacturing
Committee

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MS 004717

MT-004123

On the basis of these observations we would suggest that perhaps the Fellowship program could yield no greater service to the member companies of the Institute and to the asbestos textile industry as a whole, than to devote some of its attention to the determination and accumulation of some of the basic data upon which the development of the materials to meet the needs of the future might be predicated.

Such basic information as 1) thermal conductivity over the temperature range of serviceability (up to 3000°), 2) specific heat over the same serviceability range, 3) density and specific gravity changes over the serviceability range, are but a few of the properties that are of particular significance at this point. Having gained these fundamental properties, such serviceability characteristics as heat sink, thermal diffusivity and the ablative properties can be mathematically determined. Knowing the serviceability parameters, the research and development that will be required to bring into being the materials necessary to meet the requirements and specifications will therefore have a basis upon which to initiate investigations.

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MT-004124

Elevated Temperature Studies

In an effort to extend the facilities of our laboratory so that studies at temperatures in excess of 2800°F might be pursued, a rather detailed and intensive review of the field of high temperature heat sources and furnaces has been undertaken. In this study a great many systems were considered and it was rather surprising to learn how few practical devices there are which can be adapted to materials studies and evaluations. Most practical units have temperature limits of 3000°F. As temperature exceeds 3000°F the target area or serviceable test area becomes extremely small, usually much less than one-half square inch. Also, as the temperatures of service rise the cost of the unit increases at a fantastic rate due to 1) the complexity of the overall unit with its ultra high power requirement, 2) usually water cooling at various points, 3) numerous service and safety controls and 4) finally, the complex devices used to measure the temperature attained. Due to the high original cost and the extensive material and power requirements that would be required in the operation of such a unit, it was felt that such a unit could not be justified in our present studies. However, during our review we were appraised of the possibility of adapting an oxygen-acetylene flame as a heat source for a small test furnace. Such furnaces have been constructed to operate at temperatures between 4000°-5000°F at its hottest part. Pursuing these possibilities further, a furnace was designed having a muffle or hearth area in the form of a circle, 3 inches in diameter by 1 inch high. In this design the flame would be so directed that it would be split into two segments with each segment or half of the flame following a circular path around the inside of the circular hearth. A furnace of this design could be adapted to elevated temperature tensile strength testing and other tests where specimen dimensions would not exceed 1"-1½" in width and the effective heating area length would not be greater than 1".

Consultation with a welding engineer served to confirm our contentions and it was felt that temperatures well in excess of 4500°F should be attainable. On the basis of this study, the construction of such a furnace has been undertaken. The oxygen-acetylene torch, necessary regulators and accessories have been purchased at a cost of \$130.00. Certain super refractories will eventually be required but it is contemplated that the entire construction will be possible at a figure considerably under \$200.00.

The one problem that has not been resolved is that of measuring the temperatures attained. Relative measurements have been and can be made by melting point determinations using materials having known melting points but this leaves much to be desired when any degree of accuracy is desired. Certain optical methods are available but the cost of such appliances are in excess of the funds we would have available for such work. Further investigations in this area are being pursued.

Cerbestos.

Work on cerbestos materials has been continuing during the past quarter and through the use of new formulations for the ceramic ingredients further improvements in structural and elevated temperature serviceability have been accomplished. The new formulations are in the form of a commercially available refractory cement manufactured and marketed by Sauereisen Cement Company, Pittsburgh, Pa. These cements range in refractoriness up to 3000°F and some are very dense and unattached by boiling water, acids or alkalis.

MS 004719

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MT-004125

We have had an opportunity to investigate only a few of these cements as additives for the cerbestos components but have been very encouraged with the results noted to date.

Using one of these cements as the bonding medium, a 36P10 - AAA cloth was impregnated and various laminations were formed. Using the impregnated cloth single and double layer mats were formed. In another case similar mats were applied to stainless steel and sheet aluminum using one, two, three and four layers of Cerbestos. Following the air drying of these samples they were subjected to a burn-through test with an oxygen-acetylene flame, in an effort to evaluate the relative protective qualities of the cerbestos treatment.

In this test, the tip of the oxy-acetylene torch was held exactly 2" away from and at right angles to the sample for the duration of the test, the flame being applied directly to the Cerbestos face. The test was concluded when the flame pierced the entire sample thickness and came through the back face.

The results of these tests are set forth in Table IV.

Table IV

Oxygen-Acetylene Burn-Through Test

	Time - Burn Through seconds
Aluminum metal, as received	2
Stainless Steel, as received	8
36P10-AAA, as received-one layer	6
36P10-AAA, As Received - two layers	8
Cerbestos - one layer	29
Cerbestos - two layers	48
Cerbestos - one layer - aluminum	27
Cerbestos - two layers - aluminum	50
Cerbestos - three layers - aluminum	105
Cerbestos - four layers - aluminum	135
Cerbestos - one layer - stainless steel	52
Cerbestos - two layers - stainless steel	147
Cerbestos - four layers - stainless steel	300

The elevated temperature protection afforded by the Cerbestos facing is obviously clear. The stainless steel alone was pierced by the flame in only 8 seconds but with only one layer of cerbestos, protection was afforded 6-1/2 times longer or 52 seconds and with four layers of cerbestos the flame never did fully penetrate as the test was stopped at 300 seconds or 37-1/2 times as long as the plain steel resisted penetration.

In these fabrications the ceramic portion of the overall components of cerbestos-steel amounted to between 10%-15% by weight and the asbestos cloth 25%-30% by weight.

It is hoped that the construction of the ultra high temperature furnace may be completed within the next few months so that tensile strength and destruction properties of plain asbestos textile materials and cerbestos fabrications may be evaluated under these extreme conditions.

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MINUTES of the General Meeting
of the Asbestos Textile Institute
held at the Balmoral Motel,
Thetford Mines, Canada

June 7, 1960

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY

AMERICAN ASBESTOS TEXTILE CORP.

E. C. Cutler
Hans Walter

ASBESTOS CORPORATION, LTD.

G. F. Jenkins
J. A. Marcotte
I. C. Campbell

BELL ASBESTOS MINES, LTD.

F. P. Smith
G. W. Smith
H. A. Smith

CASSIAR ASBESTOS CORP., LTD.

J. D. Christian
C. R. Elliott
T. T. Tigert

H. K. PORTER COMPANY

Chas. Edenfield
F. J. Griffin

JOHNS-MANVILLE CORP.

W. C. Atkinson
Edw. Beale
J. O. Eby
Noel Hendry
W. S. Hough
E. A. Schuman

GUESTS:

ATLAS ASBESTOS CO., LTD.

I. C. Brooks

CAREY-CANADIAN MINES, LTD.

E. A. Boadway
R. J. Merrill

FLINTKOTE MINES LTD.

F. P. Hodgson

JOHNSON'S COMPANY, LTD.

Carl Bindman
A. S. Johnson

KEASBEY & MATTISON CO.

N. L. Barr
B. C. Bond
W. M. Deckman
C. R. Hutchcroft
D. F. Quealy

LAKE ASBESTOS OF QUEBEC, LTD.

M. J. Messel
J. P. Wiser

NATIONAL ASBESTOS MINES, LTD.

Noel Reakes

RAYBESTOS-MANHATTAN, INC.

J. A. Bettes
M. W. Oliver
R. B. Smith
L. C. Williams
J. P. Wronski

TALLMAN-McCLUSKEY FABRICS CO.

J. E. Cerny
T. C. McCluskey, Jr.

UNITED STATES RUBBER CO.

D. T. Austin, Jr.
D. S. Nichols
S. J. Peele

ASBESTOS TEXTILE INSTITUTE

M. C. Shaw

MS 004721

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MT-004127

1. The meeting was called to order by President Griffis who addressed welcoming remarks to all of the members, guests and friends in attendance. Many more of our Canadian members would have been in attendance on this occasion, however, this meeting followed a dinner which was served in the dining room of the Balmoral Motel and due to the limitation of space not over fifty persons could be accommodated. President Griffis expressed the appreciation of those members who were visiting this area, many for the first time, for the hospitality and the cordial welcome extended by mining members both at their mines and mills and during the periods of relaxation and fellowship. He further commented that it is only through an understanding and appreciation of the problems of the two representative groups that the two industries can move and grow together. The spirit and fellowship here in evidence should go far in extending our growth and cementing our interdependence.
2. President Griffis called for the reading of the minutes of the last meeting. Since all members had received copies of these transactions and were familiar with the actions there taken, it was moved by W. S. Hough, seconded by J. A. Bettes and unanimously agreed that the reading be omitted at this time.
3. The Treasurer's Report was next called for and Treasurer W. S. Hough was asked to present this report. Following a discussion of the contents of this report it was moved by J. A. Bettes, seconded by W. S. Deckman and unanimously agreed that the report be accepted and entered as a part of the minutes of this meeting.
4. President Griffis announced that at this point in the agenda of our regular meetings the legal counsel would be called upon to address the group. However, it was reported that our counsel, Mr. Ruddock, was at this time being confined at his home with a virus infection and was not therefore able to be with us on this occasion.
5. The next portion of the meeting was devoted to the reports by the chairmen of the several active committees.
 - a) The Air Hygiene and Manufacturing Committee report as presented by Mr. Ralph B. Smith, Chairman, covered the considerations by this Committee of subjects related to 1) The Environmental Health Survey, 2) Dust Collecting Equipment and Systems and 3) Various Safety Programs being pursued within the industry. The formal report as presented is attached as a part of the minutes of this meeting.
 - b) The Sales Promotion Committee report was presented by Mr. E. A. Schuman, Chairman. This committee in session earlier during this meeting considered and discussed many subjects related to the sales promotion efforts of this group including: 1) publicity through the publication of an article to be written by the Fellow devoted to the elevated temperature properties of asbestos textiles, 2) Revision of the Handbook of Asbestos Textiles and 3) Consideration of new locations where the newest A.T.I. Display might be exhibited. The complete report as presented at the General meeting is attached as a part of the minutes of this meeting.
 - c) The Fiber Committee report was presented by Mr. J. A. D. Marcotte, Chairman. It was here reported that the textile fiber supply was more than adequate to meet the present demand. There appears to be nothing in the foreseeable future that will alter this situation.

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MT-004128

d) The Technical Committee report was presented by Mr. D. F. Quealy, Chairman. The committee in meeting earlier considered many technical problems of interest to the membership and the industry including 1) the new magnetic rating understandings as embodied in Federal Specification MIL-I-3053A and in the most recent work by the American Society for Testing Materials, 2) the expansion and revision of the glossary of textile terms and definitions to be used in the next edition of the Handbook.

e) The Fiber Testing Committee report was presented by Mr. C. R. Hutchcroft, Chairman. This committee is continuing to consider additional methods of test by means of which asbestos fibers may be evaluated. Methods of making qualitative and quantitative determinations of "spicules" is under consideration. Color determinations are also being carefully studied and evaluated in the hopes that a positive test of this characteristic might be included in this work. It was also reported that steps are now being taken to prepare a more permanent and presentable printed manual containing all of the tests to be included in these considerations. The financial support of the Asbestos Textile Institute, the Asbestos-Cement Products Association and the Quebec Asbestos Miners Association is being sought in an effort to promote this endeavor. The Board of Governors, in session earlier, agreed to support this work providing the financial obligations involved are not beyond our present budget capabilities. The formal report covering the minutes of the meeting of this committee is attached as a part of the minutes of this meeting.

f) The final report was presented by the Fellow, Dr. M. C. Shaw, who in the Fellowship Report described work currently being pursued in an effort to evaluate the ultra-high temperature characteristics of asbestos textiles and products produced therefrom. A new furnace using an oxygen-acetylene flame as the heat source was described and samples showing some of the preliminary test work results were exhibited. The formal Fellowship Report is attached as a part of the minutes of this meeting.

6. President Griffis followed the committee report section of the meeting with considerations of matters of new business.

It was announced that the annual meeting will be held in New York City on September 8 and 9, at a hotel yet to be selected. Also, at this annual meeting, new officers of the Institute will be elected to serve the Institute during the ensuing year.

7. Following the regular business session of the meeting, President Griffis introduced and called upon several members and guests who were in attendance to briefly address the group. Mr. A. S. Johnson, Johnson's Company Limited, Vice President of the Quebec Asbestos Miners Association also spoke at this time on behalf of that group and extended a warm welcome to the visiting Institute members.
8. There being no further business to come before this meeting, it was unanimously agreed that the meeting be adjourned.

Myril C. Shaw,
Secretary

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MT-004129

Ambler, Pa.
September 7, 1960

Mr. W. S. Hough, Treasurer
Asbestos Textile Institute

Dear Mr. Hough:

In compliance with your request, examination was made of the books and records of the Asbestos Textile Institute under Dr. M. C. Shaw's supervision on Friday, September 2, 1960. The audit covers the period from May 27, 1960 to Sept. 2, 1960, inclusive.

The Balance Sheet of the Asbestos Textile Institute at September 2, 1960 is set forth below:

ASSETS

Total Cash in Bank (Schedule A)	\$17,170.01
Total Cash on Hand	24.41
Postage on Hand	3.20
* Furniture & Equipment (nominal value)	1.00
	<u>\$17,198.62</u>

LIABILITIES

Philadelphia Wage Tax	\$ 34.35
Net Worth	<u>17,164.27</u>
	<u>\$17,198.62</u>

* Other Asset items not included in above classification are shown in Schedule B.

The latest statement received from the depository (Chase-Manhattan Bank of New York), in which all funds of the Institute are kept, shows a balance of \$22,044.77 on July 29, 1960. The Petty Cash Fund totalling \$100.00 includes \$24.41 in cash and \$75.59 in vouchers. This fund was verified by actual count.

Schedule A: Showing a reconciliation of the Bank Balance at September 2, 1960:

Bank Balance per latest Statement, July 29, 1960	\$22,044.77
Less: Checks drawn subsequent to July 29, 1960	

<u>Check No.</u>	<u>Date</u>	<u>Payee</u>	<u>Amount</u>	
1583	7-28-60	Gas Arc Supply	\$ 2.40	
1584	7-28-60	Philadelphia Textile Institute	15.89	
1585	8-15-60	Gas Arc Supply	2.40	
1586	8-16-60	Philadelphia Textile Institute	11.77	
1587	8-16-60	J. J. Cogan	5.20	
1588	8-22-60	Service D'Autobus, Thetford Mines	72.35	
1589	8-29-60	M. C. Shaw	11.81	
1590	8-29-60	M. C. Shaw	961.72	
1591	8-29-60	First Penna. Bank & Trust Co.	166.10	
1592	9-1-60	Philadelphia Textile Institute	3,500.00	
1593	9-1-60	A. Pomerantz & Co.	16.12	
1594	8-20-60	Clive Jewelers, Inc.	109.00	\$ 4,874.76

Balance on Hand in Bank September 2, 1960

\$17,170.01

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Checks numbered 1548 to 1562 inclusive, outstanding at the last audit, were examined and found to be in order. Bank deposits during this period under audit totalled \$57.00 and were credited to the General Fund:

Schedule B: Other Assets of Asbestos Textile Institute:

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Date Acquired</u>	<u>Purchase Cost</u>
(a)	7	Visual Aid Display Cases	January 1950	\$ 3,414.32
(b)	1	Suter Tensile Tester	August 1947	726.00
(c)	1	Heat Aging Furnace	April 1951	849.98
(d)	1	Bausch & Lomb Micro-Projector	May 1954	94.00
(e)	1	Brabender Moisture Tester	September 1954	765.00
(f)	1	Federal Thickness Gage	January 1947	50.50
(g)	1	Mapes Magnetic Analyzer	April 1953	100.00
(h)	1	Scott Twist Tester	December 1947	126.50
(j)		Office Furniture & Equipment	September 1954	757.50
(k)	1	Temco Muffleoven & Control	October 1954	161.00
(l)	1	Cenco Balance	October 1954	32.25
(m)	1	Electric Stopclock	October 1954	50.00
(n)	1	Abradoflex	January 1956	1,175.00
(o)	1	Exhibit - 4 Sections	March 1957	5,000.00
				<u>\$13,302.05</u>

Yours very truly,

S. C. Gehman, Auditor

MS 004725

MT-004131

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MINUTES: Asbestos Textile Institute
Fiber Testing Committee
September 8, 1960

The meeting was held at the Hotel Statler Hilton, New York City.

In attendance:

Committee

C. R. Hutchcroft, Committee Chairman, Keasbey & Mattison Company
L. C. Williams, Raybestos-Manhattan, Inc.
J. D. McCluer, H. K. Porter Company, Inc.
I. Barnett, Johns-Manville Products Corporation, Research Center
G. F. Jenkins, Asbestos Corporation, representing Q.A.M.A.
G. W. Smith, Bell Asbestos Mines, Ltd.
H. A. Smith, Bell Asbestos Mines, Ltd.
E. A. Farrel, Lake Asbestos Company
J. D. Christian, Cassiar Asbestos Corp., Ltd.
T. T. Tigert, Cassiar Asbestos Corp., Ltd.

Agenda:

- I. Discussion of Tests
- II. General

I. Discussion of Tests

A. Air Permeability

Mr. Farrel, as chairman of the A.T.I. Air Permeability sub-committee, collaborated with Mr. Brink of Asbestos Corporation in preparing the preliminary draft of the Johns-Manville test procedure for operating the Dyckerhoff apparatus. Members were requested to study the draft for discussion at the next meeting.

H. K. Porter Co., Inc., Lake and JM have the Dyckerhoff apparatus. Mr. Farrel will send standard fiber samples to each of these members for comparative tests.

It was recommended that the results be expressed in terms of seconds on the Dyckerhoff rather than surface area.

For uniformity of calibration, a clay or silex is presently proposed. Mr. Woodroffe of the Canadian Bureau of Mines has agreed to select and supply standard samples.

A final write-up of the test procedure is expected by the next meeting.

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B. Spicules

Mr. Jenkins reported for the Q.A.M.A. that Dr. Pelletier, Department of Mines, Quebec, has not yet been successful in defining "spicule" as it applied to asbestos.

Mr. McCluer accepted the assignment to poll the industry by questionnaire for assistance in recommending an appropriate definition. In addition to spicule, the questionnaire will include crudy, harsh, soft, open, brittle, sticks, pencils, spelks, and bundles.

C. Chemical Analysis

The final draft of the procedure, as submitted by Mr. McCluer, was adopted and will become test No. 10.

D. Flexibility

JM reported that testing fiber plugs, as prepared on Suter-Webb comb, on a flex tester did not appear promising from a standpoint of reproducibility. In the latter respect, this approach presented an even greater range of results than the efforts at Turner Brothers Asbestos and Keasbey & Mattison.

It was decided to drop this test for present consideration, and to contact the Technical Committee of the ATI for their possible interest in considering a flexibility test for the finished products.

E. Color

The procedure for using the Photovoltmeter to determine fiber color as finally drafted by Mr. Farrel, Lake Asbestos, Mr. Streib, JM, and Mr. Brink, Asbestos Corporation, was formally adopted.

F. Bulkiness and Resilience

Mr. Williams, Raybestos-Manhattan, reported that his company now has the ATI recommended air opening can. This will be used instead of the precarder and card for preparing the samples for test as recommended at the June meeting.

A progress report is expected for the next meeting.

G. Frictional Properties

JM investigated frictional test equipment now available in U.S. and abroad. All equipment can handle only yarn or roving. None was found for staple fiber, such as asbestos.

It was recommended to attempt to prepare a 100 per cent asbestos felt and determine tensile strength. Since the tensile strength of a felt is dependent upon fiber length, diameter, orientation, and frictional characteristics, the fibers must then be opened to the same surface area, and a length determination made prior to establishing the effect of friction on the composite tensile strength of the felt.

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By using a solvent, such as alcohol, to prepare a wet felt to be tested after drying, the effect of binders associated with the action of water and asbestos would be reduced. The effect of fiber orientation would be reduced by determining the tensile strength of the felt in two directions.

H. Johnson Fiber Shredder

Q.A.M.A. meeting on September 14, 1960 will further discuss this procedure and possibly report acceptance.

There appears to be some problems at the present in handling the longest fibers.

Perhaps a report by the Q.A.M.A. to this committee can be expected for the December meeting of ATI.

I. Fiberization Characteristics

Mr. Tigert reported further on the considerable amount of work done at Cassiar in establishing the relationship between the degree of fiberization as measured by air permeability and degradation as determined by the Suter-Webb and McNett tests.

The ATI air opening method was reported to be more reproducible than the Cassiar fans, and easier to duplicate in laboratory equipment.

Fibers tested were Cassiar A & AA, C&G #2, Normandy 3K, and Beaver 3K. Of these fibers, all appeared to degrade with opening along the same pattern. Length tests were made by the Suter-Webb method. The McNett test was not recommended because of the problem of tangling when testing fibers of these lengths.

A "relative resistance to opening" factor was described based on comparing the time to reach a certain surface area by the fiber being tested with a standard. The comparisons of "RRO" must be made on fibers starting at the same apparent surface area as measured by air permeability. This must also be correlated with the degree of degradation.

The committee recommended that references to a standard fiber be omitted.

It was requested that Cassiar summarize the procedure as developed for presentation at the next meeting. It was felt that the user could then follow the standard procedure and develop his own method of relating the results to established standards within his organization.

J. Resin Pick-Up

MT-004134

Consideration of a test to determine the effect of fiber properties on resin pick-up was recommended at the last meeting because of the interest of the rocket and missile industry.

JM presented a preliminary report on Jeffrey 3R in which the effect of apparent surface area and resiliency of the fiber on phenolic resin pick-up was described.

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Minutes: A.T.I.

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It was found that as the surface area increased, the resin pick-up increased, and as pressure used to compress the pad of fiber increased, the pick-up decreased.

It was recommended that work be continued on this study and include Munro, Crocidolite, Cassiar, and Jeffrey in 3 to 6 grades.

II. General

Q.A.M.A. has approved participation in the printing of 150 copies of the handbook of tentative test procedures, which have been adopted by the Fiber Testing Committees of ATI, QAMA, AND ACPA.

The preface as approved by ATI and ACPA was general acceptable to the QAMA.

If the method of duplication of the handbooks is by mats, they will be made available for use to member companies for additional copies.

Respectfully submitted,

Irvin Barnett
Secretary

MS 004729

MT-004135

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June 20, 1960

LETTER TO CANADIAN HOSTS ON THE OCCASION OF THE GENERAL MEETING HELD IN CANADA, JUNE 5-9, 1960

I know that I shall find words inadequate to express for myself, and for each and every member and person connected with the Asbestos Textile Institute, to give proper thanks and express appreciation for the privilege and opportunity of holding our June meeting at the mines and surrounding area.

First of all, arriving in Quebec we had spacious and economical facilities at the Chateau Frontenac for our committee meetings. With your helpfulness and guidance we were able on the following days not only to see the operations of the mines but to view your laboratories and meet your personnel which makes for better cooperation and understanding.

As we proceeded to the various operations there certainly could be no room for pessimism. Looking into the future we see great optimism not only from the standpoint of investment of capital but the most modern methods and the effort being put forth to give us the ultimate in quality of the fascinating magic mineral asbestos.

I sincerely believe that your faith will be rewarded particularly by the asbestos textile manufacturers in this country who will go out with a renewed vigor and determination to create new uses for asbestos. This trip has given us a sense of greater degree of security, insight and knowledge than ever before.

One after another of our membership have come to me saying this cooperative effort on the part of the miners and the asbestos textile manufacturers cannot be accomplished in any other way than by combined effort of the Asbestos Textile Institute. We pledge to continue acting as a clearing house for the dissemination of useful information from a continuous program of research to improve quality standards and promote the use of asbestos to its maximum degree.

I want each and everyone of you to let it be known to all your associates that together we will continue to strive in our efforts to transmit to our customers and industry the same optimism and progressiveness that we have found at the mines.

With sincere appreciation for the privilege you have extended to each member company and each individual connected with this industry, I am,

Sincerely yours,

ASBESTOS TEXTILE INSTITUTE
J. T. Griffis,
President

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MT-004136

ASBESTOS TEXTILE INSTITUTE
Treasurer's Report
September 2, 1960

Balance on Hand in Various Funds - May 27, 1960:

Fellowship Fund	\$ 16,533.12	
General Fund	9,222.75	
Petty Cash Fund	<u>74.83</u>	\$ 25,830.70

Receipts:

General Fund - Sale of Labels	\$ 57.00	\$ 57.00
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Transfers:

NONE

\$ 25,887.70Disbursements:Fellowship Fund:

Fellowship Salary	\$ 2,550.00	
Fellowship Grant	3,500.00	
Lab. Supplies	<u>4.80</u>	\$ 6,054.80

General Fund:

Secretary's Salary	\$ 750.00	
Secretary's Travel	104.67	
Meeting Expense	675.82	
Stenographic Expense	135.00	
Auditing Expense	3.50	
Fiber Testing Comm. Exp.	92.92	
Legal Expense	541.86	
Visual Aid Expense	8.43	
Misc. Office Expense	<u>275.86</u>	\$ 2,588.06

Petty Cash Fund:

Total Disbursements	\$ <u>50.42</u>	\$ <u>50.42</u>	\$ <u>8,693.28</u>
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Balance on Hand - September 2, 1960	\$ 17,194.42
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Balance in Various Funds - September 2, 1960:

Fellowship Fund	\$ 10,478.32	
General Fund	6,691.69	
Petty Cash Fund	<u>24.41</u>	\$ 17,194.42

Respectfully submitted,

MS 004731

W. S. Hough, Treasurer

MT-004137

Table - Page 10

The 0.75 pound style 3 cloth is designated as 11P18. This is an incorrect designation, and Dr. Shaw is to be advised as to what the exact description of this cloth should be. Also with regard to table - page 10, Grade C under specification SS-C-466a should read Grade D, and the metallic Grade D cloth should read Grade C.

3. Review of the definition and nomenclature list for the A.T.I. handbook will be continued at the next meeting.
4. Weight standards for electrical and industrial asbestos tapes were settled at "nominal plus or minus 10%". This completes the revision of A.T.I. asbestos tape standards which standrads will be presented to A.S.T.M. at the October meeting.

Respectfully submitted,

D. F. Quealy, Chairman

MS 004732

MT-004138

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MINUTES of the Meeting of the
Board of Governors of the Asbestos
Textile Institute held at the
Statler Hilton Hotel, New York
City, September 8, 1960

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY, INC.

JOHNS-MANVILLE CORP.
W. S. Hough

TALLMAN-McCLUSKEY FABRICS CO.
T. C. McCluskey

KEASBEY & MATTISON COMPANY
N. L. Barr

UNITED STATES RUBBER COMPANY
S. J. Peele

RAYBESTOS-MANHATTAN, INC.
J. A. Bettes

CADWALADER, WICKERSHAM & TAFT
M. I. Ruddock

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

1. The meeting was called to order by President Griffis and Mr. N. L. Barr was recognized as the authorized representative for Keasbey & Mattison Company since Mr. W. M. Deckman could not be present due to illness. It was further noted that representation by American Asbestos Textile Corporation was not present.
2. The first portion of the meeting was devoted to Committee reports with the chairman of each of the active committees reporting upon the work and considerations undertaken by each committee during meetings held earlier on this date.

1) Mr. R. B. Smith, Chairman, Air Hygiene and Manufacturing Committee, reported first, covering the work of that committee and the formal report as presented at the General meeting is attached as a part of the minutes of that meeting.

2) Mr. D. F. Quealy, Chairman of the Technical Committee, presented a report covering the considerations pursued by that committee during the course of the meeting held earlier on this date. The standard cloth list and the nomenclature and definition list received much attention in the discussion following this presentation and it was directed that immediate attention be given these matters in an effort to bring both lists up-to-date as quickly as possible. The formal report covering the work of this committee is attached as a part of the minutes of the General meeting.

3) Mr. C. R. Hutchcroft, Chairman, Fiber Testing Committee, reported upon the activities and considerations of this committee during the past quarter and in meeting earlier on this date. Much time and effort has been devoted to the development and study of the several test methods under consideration by the members of this committee and it was reported that this cooperative effort accounts for the success this committee has had thus far in accomplishing the ends achieved. It was also reported that

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MT-004139

the Quebec Asbestos Miners Association has agreed to give financial support toward the ultimate publication of the test methods manual. It is hoped that work on this publication may be initiated within the next few months. The formal report for this Committee is attached as a part of the minutes of the General meeting.

4) Mr. E. A. Schuman, Chairman of the Sales Promotion Committee, reported upon the discussions held by this Committee in meeting earlier on this date, including subjects of 1) Stockpiling of Arizona and Rhodesian chrysotile, 2) Revision and reprinting of the Handbook and 3) Publication of article on High Temperature application of Asbestos Textiles to be written by Dr. Shaw and published in a suitable technical or engineering magazine.

The subject of stockpiling evoked a great deal of discussion and the manufacturers present expressed great concern regarding the eventual outcome of the program as it is currently being pursued. The fibers which have been and are now being stockpiled have been proven by tests to be so inferior in quality and to contain so much intolerable dirt and rock as well as non-fibrous materials as to be unsuitable for textile processing. It was suggested that the agencies in Washington that are responsible for this activity should be contacted and appraised of the attitude of this association and that the facilities of the Institute be offered to them to assist in a proper evaluation of the fibers that are to be stockpiled.

In regard to the revision and publication of the Handbook it was moved by Mr. Peele, seconded by Mr. Barr and unanimously agreed that this work should be started immediately under the direction of Mr. Schuman with the aid of Mr. Howard Bain, Mr. George Harris and Dr. Shaw. It was further recommended within this motion that a sum of approximately \$10,000 be appropriated to cover the publication costs.

Supplementing these endeavors, Dr. Shaw will write an article covering high temperature properties and applications of asbestos textiles and will prepare it for publication in one of the leading engineering magazines.

Also covered in the discussions related to this report were considerations concerned with the relocation of the Institute's newest 4-section display. This exhibit is presently located at the Fields Museum of Science and Industry in Chicago and has been on display there since September, 1958. It is the opinion of this Board that if this display is to be most effective it must be re-located frequently and it was here recommended that Mr. Hough continue his efforts to obtain permission to place this exhibit in the engineering departments of several leading Universities. To date, the University of Wisconsin has been contacted and a willingness to cooperate in this endeavor has been expressed by officials in the engineering department of that school. Efforts will now be made to obtain permission from other universities such as M.I.T., etc. Also, the Commercial Museum in Philadelphia has been considered a likely spot for exhibition of this display and Mr. Barr will pursue the possibility.

Many other subjects were discussed in connection with the work of this committee and these considerations are included in the formal report which is presented as a part of the minutes of the General meeting.

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MS 004734

MT-004140

MINUTES of the General Meeting
of the Asbestos Textile Institute
held March 4, 1960, in
Philadelphia, Pa.

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY, INC.

AMERICAN ASBESTOS TEXTILE CORP.

M. J. Scanlan
J. W. Weber

JOHNS-MANVILLE CORP.

W. C. Atkinson
J. Battersby
Edw. Beale
N. W. Hendry
W. S. Hough
E. A. Schuman
W. C. Streib

KEASBEY & MATTISON CO.

W. M. Deckman
C. R. Hutchcroft
D. F. Quealy
A. E. Whitfield

H. K. PORTER CO., INC.

J. D. McCluer
J. L. Mitchell

RAYBESTOS-MANHATTAN, INC.

J. A. Bettes
J. A. Brown
M. W. Oliver
R. B. Smith

TALLMAN-McCLUSKEY FABRICS CO.

A. R. Byrnes
J. E. Cerny
T. C. McCluskey

UNITED STATES RUBBER CO.

Mr. Austin
S. J. Peele
H. E. Sunbury

ASBESTOS CORPORATION

Paul LeClerc

BELL ASBESTOS MINES

F. Parker Smith
H. A. Smith

CASSIAR ASBESTOS CORP.

T. T. Tigert

JOHNSON'S COMPANY

A. W. G. Gibb

LAKE ASBESTOS OF QUEBEC

E. A. Farrel
W. R. Whitener

NORTH AMERICAN ASBESTOS CORP.

A. F. Jerome

CADWALADER, WICKERSHAM & TAFT

M. I. Ruddock

ASBESTOS TEXTILE INSTITUTE

M. C. Shaw

1. The meeting was called to order by President Griffis and an address of welcome extended to all of those in attendance.
2. As the first order of business the Secretary was asked to read the minutes of the last meeting. However, since all members had received copies of these minutes and were familiar with the actions there taken, it was moved by Mr. J. A. Brown, seconded by Mr. A. E. Whitfield and unanimously agreed that the reading be dispensed with at this time.

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MT-004141

3. The Treasurer's Report was presented by Treasurer W. S. Hough. Following a discussion of this report, it was moved by Mr. Bettes, seconded by Mr. Deckman and unanimously agreed that the report be approved and entered as a part of the minutes of this meeting.
4. The next subject presented for consideration was the report by legal counsel, M. I. Ruddock. Mr. Ruddock has for the past several months been directing much attention to two problems of particular interest to the membership of the Institute, namely 1) whether there was a basis for seeking special tariff duties on Japanese asbestos textile imports and 2) the new Fiber Identification Act and Regulations. He reported that in spite of excellent cooperation from the members and Canadian associate members there had not been sufficient evidence developed to make application to the proper U. S. government authorities either for the imposition of a Countervailing Duty (which would be for the purpose of offsetting a foreign government subsidy) or an Anti-Dumping duty (which would be used if the foreign seller offered its textiles in the U. S. below the prices he sold for in Japan and elsewhere). Mr. Ruddock stated also that there was no apparent evidence of actual sales of Japanese textiles at extremely low prices in the U. S. as yet and suggested that the matter be tabled until there was real evidence of such sales. Mr. Ruddock then discussed the Fiber Identification Act in detail and reported on the interpretative letter he had received from the Federal Trade Commission. An extended question and discussion period then ensued. Mr. Ruddock concluded by discussing several recent Robinson Patman Act developments.
5. In further consideration of the subject related to Japanese imports, Mr. F. Parker Smith was called upon to give an account of his recent travels in Japan during which he had an opportunity to make first hand observations. It was pointed out by Mr. Smith that the threatened imports from Japan have been greatly over-emphasized. In the first place, the production facilities for asbestos textiles in that country are not large, much of the production emanating from the so-called "cottage industry". The raw fiber consumption is largely in the lower grades and some of the fiber is actually used and reclaimed fibers removed from diaphragm cloths. Under the conditions as they now exist it is highly doubtful that continuous quality standards could be maintained. Essentially corroborating the statements of Mr. Smith, Mr. Gibb and Mr. Whitener addressed additional remarks on this subject.
6. The next segment of the meeting was devoted to the presentation of Committee reports.

a) The Air Hygiene and Manufacturing Committee report was presented by Mr. Ralph Smith, Chairman. Subjects covered in this report included 1) Environmental Health Survey, 2) Dust Sampling Equipment, 3) General Engineering Subjects and 4) Plant Safety Programs. The formal report as presented is attached as a part of the minutes of this meeting.

b) The Sales Promotion Committee report was presented by Chairman E. A. Schuman. Several subjects related to the sales promotion activities of this committee were presented in this report, however, most attention was devoted to the consideration of the Japanese imports problem and the new Fiber Identification Act and Regulations. The summary of this report is attached as a part of the minutes of this meeting.

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c) The Technical Committee report was presented by Chairman, D. F. Quealy. Subjects discussed by this committee in meeting on March 3rd and covered in this report included 1) the new Fiber Identification Act grading system, 2) Federal Specification revisions, 3) Revision of Standard Cloth List and 4) Revision of the A.S.T.M. magnetic rating classification. The formal report as presented is attached as a part of the minutes of this meeting.

d) The Fiber Testing Committee Report was presented by Mr. C. R. Hutchcroft, Chairman. The first issue of a compilation of methods of test that have already been approved by this committee in conjunction with Q.A.M.A. and A.C.P.A., was presented to the committee for consideration at its meeting on March 3rd. This presentation includes eight sections that have been accepted to date. This compilation will now be made available to those who have participated in the work to date and who will put the information presented to use in their fiber investigation programs. Additional methods of test are now being considered and as they are found acceptable, will be included as a part of this work. The minutes of the meeting of this committee held on March 3rd are attached as a part of the minutes of this meeting.

e) The final report presented during this segment of the meeting was the Fellowship Report by Dr. M. C. Shaw. As a part of this report an account was given covering the visit to Oak Ridge, Tenn. by Mr. J. P. Wronski, Raybestos-Manhattan, Inc.; Dr. F. L. Pundsack, Johns-Manville Corp. and Dr. Shaw, for the purpose of conferring with representatives of the Union Carbide Nuclear Company regarding test work initially undertaken for Dr. Maier on behalf of the Institute. During this conference many points in question concerning the first work carried out by this agency were clarified. A joint report covering this endeavor is attached as a part of the minutes of this meeting.

The Fellowship work has been principally concerned with elevated temperature studies and Federal Specification revision during recent months. The formal Fellowship Report is attached as a part of the minutes of this meeting.

7. The next subject introduced at the meeting concerned the death of one of the former members of the Asbestos Textile Institute. It was announced that Mr. E. R. Teubner, formerly President of the Philadelphia Asbestos Company and one of the founders of the Asbestos Textile Institute in 1944, passed away on March 1, while visiting in Florida. It was unanimously agreed that an expression of condolence should be forwarded to the family by the Secretary on behalf of the Institute.
8. Under the subject of new business, President Griffis announced that application for membership in the Asbestos Textile Institute had been received from United States Rubber Company and that approval of this application was given by the Board of Governors in meeting on March 3. In recognition of this action, three representatives of that company who were in attendance at this meeting were introduced: - Mr. H. E. Sunbury, Mr. S. J. Peele and Mr. Austin, and a formal welcome into the organization extended.
9. The final subject introduced for consideration concerned the June meeting

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of the Institute which will be held in the Thetford-Asbestos area of Canada. Tentative arrangements were outlined and it was announced that travel plans would be completed within the next few weeks. It was suggested that all who intend to participate in this endeavor should contact the Secretary and advise as to method of transportation and the reservation requirements at as early a date as possible.

10. There being no further business to come before this meeting, it was moved by Mr. Hough, seconded by Mr. Brown and unanimously agreed that the meeting be adjourned.

Myril C. Shaw,
Secretary

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THE UNITED STATES ARAB-ASIAN INSTITUTE, INC.
Washington 9, D. C.

Reply to:
2132 "R" St., N.W.

May 18, 1960

Mr. Myril C. Shaw, Executive Secretary
Asbestos Textile Institute
c/o Philadelphia Textile Institute
Schoolhouse Lane
Philadelphia 44, Pa.

Dear Mr. Shaw:

This Institute is interested in getting a list of American manufacturers of asbestos and other by-products, to contact with the view to undertaking the establishment of manufacturing this commodity in the various countries in the Middle East and/or North Africa.

This Institute is an American corporation representing official and unofficial high-level sources in the heretofore mentioned territories. We cover a variety of activities, -- political, economic, industrial, investment and commercial.

We would appreciate your sending us as extensive a list as possible of these manufacturers, and if it is not imposing on you, if you can possibly designate to us in some way the larger companies as these projects in question require companies well situated both financially and experience-wise. This program will be established with the American side investing about half the capital and, of course, the know-how, and the other half of the capitalization will be forthcoming from native sources.

Awaiting to hear from you, I am,

Sincerely,

THE U.S. ARAB ASIAN INSTITUTE, INC.

James W. Harris,
Executive Secretary

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MT-004145

ASBESTOS TEXTILE INSTITUTE
Treasurer's Report
May 27, 1960

Balance on Hand in Various Funds - February 29, 1960:

Fellowship Fund	\$	8,490.97		
General Fund		949.54		
Petty Cash Fund		94.80	\$	9,535.31

Receipts:

<u>Assessments:</u>				
Fellowship Fund	\$	10,819.53		
General Fund		12,024.00	\$	22,843.53

Transfers:

To Petty Cash from General Fund	\$	75.63		
To General Fund from Fellowship Fund		13.93	\$	89.56
			\$	32,468.40

Disbursements:Fellowship Fund:

Fellowship Salary	\$	2,605.79		
Lab. Supplies		157.66		
Transfer to General		13.93	2,777.38	

General Fund:

Secretary's Salary	\$	769.51		
Secretary's Travel		171.45		
Meeting Expense		487.56		
Stenographic Expense		135.00		
Auditing Expense		3.50		
Legal Expense		535.38		
Legal Expense (Tariff)		1,014.65		
Nuclear Studies Travel		274.71		
Fiber Test. Comm. Exp.		67.59		
Misc. Office Expense		229.74		
Transfer to Petty Cash		75.63	\$	3,764.72

Petty Cash Fund:

Total Disbursement	\$	95.60	95.60	\$ 6,637.70
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Balance on Hand - May 27, 1960			\$	25,830.70
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Balance in Various Funds - May 27, 1960:

Fellowship Fund	\$	16,533.12		
General Fund		9,222.75		
Petty Cash Fund		74.83	\$25,830.70	

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Respectfully submitted,

W. S. Hough, Treasurer

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MS 004740

ASBESTOS IRRADIATION PROGRAM OF THE ASBESTOS TEXTILE INSTITUTE

A meeting was held at the Research Center May 26 with Dr. Halstead, Mr. Barnett, Mr. Schuman and myself of Johns-Manville and Dr. M. Shaw of the Asbestos Textile Institute. The subject of discussion was the ATI asbestos irradiation program at the Oak Ridge National Laboratory. This project was instigated for the ATI by the late Dr. M. S. Maier of Raybestos-Manhattan, Inc. At the May 26 meeting Dr. Shaw turned over to Johns-Manville a file on the irradiation project with the understanding that I would interpret the data in the file and transmit the information to Mr. W. S. Howe, DH, as a representative of the ATI. Therefore, the following material represents a summary and interpretation of the ATI irradiation program insofar as data in the file are concerned.

In March, 1958 Dr. Maier visited Oak Ridge and made preliminary arrangements for the irradiation program. It was planned to irradiate several different types of asbestos with neutrons over a range of increasingly severe conditions. The irradiated samples of fiber were to be analyzed at Oak Ridge with regard to the nature and degree of radioactivity that was induced in them by the neutron bombardment. In addition, the irradiated fiber was to be evaluated with regard to density, structural changes as determined with X-ray diffraction techniques and petrographic examinations, weight loss on heating, specific heat, tensile strength and possibly thermal conductivity. It appears that measurements of the density and structural changes in the irradiated fiber were to be made by Oak Ridge personnel. However, measurements of the specific heat and tensile strength were to be made by Dr. Maier after he had obtained the proper By-Product Materials license so that the irradiated fiber could be shipped to his laboratory. So far as the file shows, no such By-Product Materials license was obtained.

In April 1958 Dr. Maier sent the following four crude asbestos samples to Dr. Oscar Sisman of the Oak Ridge National Laboratory so that the irradiation program could be started for the ATI.

1. Chrysotile - Thetford Mines district, Quebec, Canada
2. Chrysotile - Cassiar Mines in northern British Columbia
3. Crocidolite- Koegas/Westerberg area, Cape Providence, Union South Africa
4. Amosite - South Africa

These appear to be the only samples involved in the ATI irradiation program.

At present, samples of the chrysotile, crocidolite and amosite fibers have been irradiated with neutrons at three different levels of intensity. These exposures are shown below.

<u>Flux (Neutrons/cm²/sec)</u>	<u>Exposure Time</u>	<u>Integrated Flux (Neutrons/cm²)</u>
6×10^{11}	1 week	3.6×10^{17}
1.5×10^{13}	3 weeks	2.7×10^{19}
1.7×10^{14}	3 weeks	3.1×10^{20}

None of the physical properties (density, structure, etc.) of the irradiated fiber samples have been measured. The only data available are those obtained by the Activation Analysis section at Oak Ridge under Dr. G. W. Leddicotte. This group has determined the quantity of many minor elements present in the asbestos samples and the nature of the radioactive species formed when the fiber is irradiated with neutrons. In several cases this group also determined the quantity of major radioactivity present in the samples that were irradiated at an integrated flux of 3.6×10^{17} neutrons/cm².

In both irradiated chrysotile samples the major radioactive isotopes formed are scandium -46 and cobalt -60. The intensity of radiation from the samples, however, was low enough so that they could be handled with the usual precautions for low level activity. Unfortunately, though, the data do not indicate the size of the samples that were irradiated and tested. Thus, we do not know whether this amount of activity is associated with a few milligrams or a few grams of asbestos. Nor for that matter do we know whether the samples were irradiated in air or an inert atmosphere or in water. Undoubtedly this information could be obtained on request to the personnel at Oak Ridge.

The major activity induced in the amosite fiber was the radioactive isotope iron -59. No quantitative measurement of the intensity of this radiation has been made. No quantitative measurements of the radioactivity induced in crocidolite have been made except for scandium -46 which appears to be a minor activity in that fiber.

A word of explanation may be in order concerning the fact that cobalt and scandium are the sources of major induced radioactivity in irradiated chrysotile. These elements are not usually considered major constituents of asbestos. However, when a mineral such as chrysotile, which contains many trace elements, is irradiated with neutrons in a reactor, three basic factors will determine which elements will constitute the major induced radioactivity.

1. How much of the element is present?
2. How readily does it react with neutrons to form a radioactive isotope?
3. How long does the radioactivity which is formed persist?

As an example, compare magnesium and cobalt in chrysotile. Magnesium, of course, is a major constituent of chrysotile whereas cobalt is present only to the extent of a few thousandths of a per cent. But cobalt reacts with neutrons hundreds of times as readily as does magnesium, and it forms a radioactive isotope, cobalt -60, with a half-life of 5.3 years. The radioactive isotope formed by magnesium on the other hand has a half-life of only about 9-1/2 minutes (the half-life is the time required for a given amount of radioactivity to be reduced to one-half its initial value). Therefore, when the asbestos is removed from the reactor, the activity induced in the magnesium will fall to a negligible value within an hour or so, whereas the activity induced in the cobalt will persist for years.

In summary on the status of the ATI asbestos irradiation program the following points appear pertinent.

1. Samples of crude chrysotile, amosite and crocidolite fibers have been irradiated with neutrons up to relatively severe exposures.
2. The irradiated samples are radioactive after the exposure, but the level of activity appears to be moderate. Information on the size of the irradiated samples should be obtained, however, so that the potential hazard from irradiated asbestos can be fully evaluated.
3. Minor elements present in the asbestos samples have been analyzed by the Oak Ridge Personnel.
4. No data have been obtained from Oak Ridge on the atmospheres in which the samples were irradiated.
5. No data on any physical properties (e.g., structure, strength, density etc.) of the irradiated fibers have been obtained.

Ambler, Pa.
May 31, 1960

Mr. W. S. Hough, Treasurer
Asbestos Textile Institute

Dear Mr. Hough:

In compliance with your request, examination was made of the books and records of the Asbestos Textile Institute under Dr. M. C. Shaw's supervision on Friday, May 27, 1960. The audit covers the period from March 1, 1960 to May 27, 1960 inclusive.

The Balance Sheet of the Asbestos Textile Institute at May 27, 1960 is set forth below:

ASSETS

Total Cash in Bank (Schedule A)	\$ 25,755.87
Total Cash on Hand	74.83
Postage on Hand	4.00
* Furniture & Equipment (nominal value)	1.00
	\$ 25,835.70

LIABILITIES

Philadelphia Wage Tax	\$ 34.35
Net Worth	25,801.35
	\$25,835.70

* Other Asset items not included in above classification are shown in Schedule B.

The latest statement received from the depository (Chase-Manhattan Bank of New York), in which all funds of the Institute are kept, shows a balance of \$27,906.36 on April 29, 1960. The Petty Cash Fund totalling \$100.00 includes \$74.83 in cash and \$25.17 in vouchers. This fund was verified by actual count.

Schedule A: Showing a reconciliation of the Bank Balance at May 27, 1960:

Bank Balance per latest Statement, April 29, 1960	\$ 27,906.36
Add: Bank Deposit of May 19, 1960	500.00
	\$ 28,406.36
Less: Checks drawn subsequent to April 29, 1960	

Check No.	Date	Payee	Amount
1548	4/29/60	M. C. Shaw	\$ 927.37
1549	4/29/60	First Pennsylvania Co.	234.80
1550	4/29/60	M. C. Shaw	28.85
1551	4/29/60	A. Pomerantz & Co.	27.36
1552	4/29/60	Sauereisen Cem. Co.	9.75
1553	5/3/60	Dr. Betelho's	1.80
1554	5/3/60	Gas Arc Supply	120.00
1555	5/9/60	Sauereisen Cem. Co.	2.95
1556	5/13/60	J. J. Cogan	31.50
1557	5/19/60	Philadelphia Textile Institute	17.29
1558	5/19/60	Gas Arc Supply	24.96
1559	5/23/60	Pennsylvania Railroad	79.03
1560	5/27/60	M. C. Shaw	955.13
1561	5/27/60	First Pennsylvania Co.	179.30
1562	5/27/60	J. J. Cogan	10.40
			\$ 2,650.49
			\$ 25,755.87

Balance on hand in Bank May 27, 1960

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Checks numbered 1515 to 1526, inclusive, outstanding at the last audit, were examined and found to be in order. Bank deposits during this period under audit totalled \$22,843.53. \$10,819.53 was credited to the Fellowship Fund and \$12,024.00 credited to the General Fund.

A reimbursement transfer in the amount of \$75.63 was made from the General Fund to the Petty Cash Fund. Also, a transfer of \$13.93 was made from the Fellowship Fund to the General Fund for Laboratory supplies.

Schedule B: Other Assets of Asbestos Textile Institute:

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Date Acquired</u>	<u>Purchase Cost</u>
(a)	7	Visual Aid Display Cases	January 1950	\$ 3,414.32
(b)	1	Suter Tensile Tester	August 1947	726.00
(c)	1	Heat Aging Furnace	April 1951	849.98
(d)	1	Bausch & Lomb Micro- Projector	May 1954	94.00
(e)	1	Brabender Moisture Tester	Sept. 1954	765.00
(f)	1	Federal Thickness Gage	January 1947	50.50
(g)	1	Mapes Magnetic Analyzer	April 1953	100.00
(h)	1	Scott Twist Tester	December 1947	126.50
(j)		Office Furniture & Equipment	Sept. 1954	757.50
(k)	1	Temco Muffleoven & Control	October 1954	161.00
(l)	1	Cenco Balance	October 1954	32.25
(m)	1	Electric Stopclock	October 1954	50.00
(n)	1	Abradoflex	January 1956	1,175.00
(o)	1	Exhibit - 4 Sections	March 1957	5,000.00
				<u>\$13,302.05</u>

Yours very truly,

S. C. Gehman, Auditor

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IN ATTENDANCE:

J. A. Bettles - Raybestos-Manhattan, Inc.
J. T. Griffis - H. K. Porter Co., Inc.
N. L. Barr - Keasbey & Mattison Co.
W. M. Deckman - Keasbey & Mattison Co.
T. C. McCluskey - Tallman-McCluskey Fabrics Co.
S. J. Peele - U. S. Rubber Co.
W. S. Hough - Johns-Manville Corp.
E. A. Schuman - Johns-Manville Corp.

It was reported at the meeting that the Tariff Commission reduced the tariff on Asbestos products. It was stated the Commission removed some items from the list as a result of a brief written by our counsel, Mr. Ruddock. However, weeks later we were informed this was erroneous information and the original tariff still applies.

All members stated they were complying with the Rules and Regulations of the Textile Fiber Products Identification Act dated March 13, 1960.

Mr. W. S. Hough was delegated to make a list of possible places where our new asbestos textile display cabinets could be exhibited.

It was agreed to issue a publicity release from the Thetford area during our visit there June 7th and 8th. This release was issued and it tied in the qualities of asbestos that are being utilized in the missile industry. This release was given national coverage in the U.S.

Dr. Shaw is to submit to member companies a draft of up-to-date asbestos data which the member companies are to review, comment on, and return in 30 days so at the September meeting a final magazine article will be submitted to the committee for review. Such a magazine article could then be published in October with reprints available at a later date for all member companies.

The supply of our handbooks on Asbestos Textiles is extremely low and an effort is to be made to bring this handbook up-to-date. A committee consisting of Messrs. Harris, Shaw and Schuman are to investigate preliminary steps. Mr. Harris is to contact Mr. Howard Bain to see if he is available to edit the new issue of our proposed handbook.

The new brochure covering Fiberfrax was examined and commented on by the committee. This piece of literature will be checked thoroughly before putting out our new handbook.

Respectfully submitted,

E. A. Schuman, Chairman

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MT-004151

MINUTES: Asbestos Textile Institute
Fiber Testing Committee
June 6, 1960

The meeting was held at the Chateau Frontenac, Quebec City, Canada

In attendance:

Committee

C. R. Hutchcroft, Committee Chairman, Keasbey & Mattison Company
L. C. Williams, Raybestos-Manhattan, Inc.
I. Barnett, Johns-Manville Products Corp., Research Center
S. Collier, Coordinator for ATI, ACPA, and QAMA

Guests

G. F. Jenkins, Asbestos Corporation, representing Q.A.M.A.
W. A. Heausler, National Gypsum Corp., representing A.C.P.A.
P. E. Pelletier, Department of Mines, Quebec
T. T. Tigert, Cassiar Asbestos Corporation
E. A. Farrell, Lake Asbestos Company
A. F. Jerome, North American Asbestos Company

Agenda:

- I. Organization and Administration
- II. Discussion of Tests
- III. Future Program

I. Organization and Administration

- A. Dr. P. E. Pelletier, Director of the Pilot Plant, Dept. of Mines, Quebec, was introduced by Mr. Jenkins. The purpose of inviting Dr. Pelletier to meet with the committee was to obtain advice on terminology and definitions relating to our proposed test for spicule content.
- B. Plans were discussed for preparing a consolidated brochure of tentative test procedures for internal distribution to A.T.I., A.C.P.A. and Q.A.M.A. members. Target date is prior to January 1, 1961. Mr. Heausler through A.C.P.A. will prepare the format.

II. Discussion of Tests

A. Air Permeability

Mr. Farrell, as chairman of the Q.A.M.A. Air Permeability Sub-committee, reported on the previously selected Dyckerhoff equipment and recommended procedure for conducting the test. The procedure will be drafted in ASTM form and submitted to the Fiber Testing Committee through Mr. Hutchcroft by August 8.

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Mr. Jenkins reported that Q.A.M.A. have decided to designate the test "Air Permeability" rather than "Surface Area" even though the objective of the test is to measure apparent or effective fiber surface area.

B. Spicules

The problem of satisfactorily defining the various terms relating to spicules was presented to Dr. Pelletier. No comments were offered immediately, but Dr. Pelletier advised he would conduct a literature search and report to the Q.A.M.A. at their July 1960 meeting.

No further action was taken on this test at this time.

C. Fiber Composition - Analytical Procedure

The revised procedure by Mr. McCluer was distributed to members and associate members prior to this meeting for comment.

Mr. Hutchcroft reviewed the written comments by Johns-Manville and Keasbey & Mattison. It was agreed to recommend some minor editorial changes to Mr. McCluer and request that he prepare the final write-up for committee vote at the September meeting.

Procedures for analyzing the composition of crocidolite and Amosite will be added at a later date.

D. Flexibility

Keasbey & Mattison reported the work done by them and Turner Brothers in England on Bell No. 1 crude. Results confirmed previously discussed opinions that the test gave very wide range of values, perhaps too variable to use the test for control purposes. Keasbey & Mattison did not comb the fiber prior to testing, and the results obtained by Turner by combing the fiber were about ten times the values, but the range was equally as wide as those by Keasbey and Mattison.

Keasbey & Mattison will prepare the draft of procedure for distribution prior to the September meeting.

Johns-Manville will continue to investigate the possibilities of testing the flexibility of fiber "plugs" fashioned from the long fractions of milled fiber as prepared for the Suter-Webb test.

E. Color

The procedure for using the Photovoltmeter to determine fiber color, as prepared by Mr. Farrell of Lake Asbestos Co., in conjunction with Mr. Streib of Johns-Manville, was reviewed and discussed.

The procedure as written was informally accepted with the following suggestions to be included:

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1. Under "Apparatus" 1 (c) specify the range of color for plaque recommended and perhaps include another plaque for a darker range.
2. Include a statement on the importance of voltage control on accuracy of values.

F. Bulkiness and Resilience

Mr. Williams reported for Raybestos-Manhattan on a series of compression and recovery from compression tests on Cassiar A fiber. Samples of fiber and from the precarder, precarder and one carding, and precarder and double carding were used.

Essentially, the test consisted of placing 50 grams of fiber in a 500 cc graduated cylinder and placing a 25 lb. load at $\frac{1}{2}$ -inch per minute on the fiber column. The height of column with and without load was recorded for each of 20 cycles. Records of fiber length were kept via Bauer-McNett +4 and -200 mesh fractions. As the fiber was progressively processed or opened, the unloaded or free volume increased and so did the loaded or compressed volume on the same sample. Within each sample the free volume and compressed volume decreased with each cycle of loading and unloading.

It was recommended that Raybestos-Manhattan continue work on this test with the following suggested program:

1. Determine dependability of test.
2. Use the air opening can as specified for the Suter-Webb test for opening the fiber instead of the precarder and card.
3. Determine surface area values on prepared samples.
4. Use different types of chrysotile, such as Normandy 3K and C and G No. 2, to compare with Cassiar A.

It was decided that a more descriptive title for the characteristics might be "compressability" and "recovery from compression".

G. Frictional Properties

Johns-Manville had nothing further to report in this field. Test equipment manufacturers have been contacted for possible assistance relative to the units presently available for testing frictional properties of organic yarn. Work will continue.

The major problem is presenting a form of material suitable for testing. Conventional asbestos yarns contain extraneous fibers of organic nature. Perhaps a 100 per cent asbestos felt could be considered.

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H. Johnson Fiber Shredder

Mr. Jenkins reported for Q.A.M.A. that by the July 12 meeting of Q.A.M.A., recommendations for test procedure and a more appropriate name for the Johnson equipment would be ready for discussion.

I. Fiberization Characteristics

Mr. Tigert reported on the considerable amount of work done at Cassiar on determining the scope of fiberization prior to showing degradation. Tests were conducted on Cassiar A and AA.

Two methods of fiberizing were used:

1. "Air opening can" as adopted for processing crude for the Suter-Webb test.
2. Fans as used in Cassiar mill production.

Two methods of measuring length degradation were used:

1. Suter-Webb $+\frac{1}{2}$ -in., $1/16$ -in., and average.
2. McNett $+4$ mesh, and -200 mesh.

Air permeability test was used to indicate changes in surface area which in turn was used to measure the degree of fiberization.

In using the air opening method, data were obtained in opening the fiber from 3000 to 16000 sq cm/gram. The mechanical fan method would not open the fiber beyond 10,000.

The curves of the relationship of the progressive degree of opening as shown by surface area and the effect on fiber length appeared to be very informative and useful.

Mr. Tigert agreed to contact Q.A.M.A. through Mr. V. C. Lindsay of Johns-Manville for comment. Thereupon, Cassiar will draft a procedure in ASTM form using the air can method only for opening.

It was suggested that C and G No. 2 and Asbestos Corporation 3K be tested similarly to the Cassiar A and AA. The starting fibers were to have a maximum surface area of 5000 sq cm/gram.

III. Future Program

MT-004155

It was recommended that a test for resin pick-up be considered for study.

Johns-Manville agreed to present a preliminary report for discussion at the September meeting.

Respectfully submitted,

Irvin Barnett,
Secretary

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MS 004749

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE'S
AIR HYGIENE AND MANUFACTURING COMMITTEE
June 6, 1960

In Attendance:

W. C. Atkinson - Johns-Manville Corp., Manville, N. J.
D. T. Austin - United States Rubber Co., Hogansville, Ga.
J. E. Cerny - Tallman-McCluskey Co., Kirkwood, Mo.
R. B. Smith - Raybestos-Manhattan, Inc., No. Chas. S. C.
Hans Walter - American Asbestos Corp., Norristown, Pa.
J. P. Wronski - Raybestos-Manhattan, Inc., Manheim, Pa.

The following items were discussed:

ENVIRONMENTAL HEALTH SURVEY:

We discussed the many factors which would be involved in this survey and the handling of a survey of this kind. There appears to be between 1600 and 2000 persons employed in the Asbestos Textile Operations of our membership. A survey of this many people should produce some conclusive results. We feel that the initial results would not be the limiting value of such a survey but the development of uniform techniques and records would provide the basis for continuing industry data that could be summarized periodically to authoritatively establish the progress and effectiveness of control measures. It will take considerably more discussing and planning before we are ready to submit a proposal of this type to management.

DUST COLLECTING EQUIPMENT AND SYSTEMS:

During the discussion of this subject the following items were explained by the members involved:

1. Who is responsible at various plants for daily starting and stopping of dust systems and who is responsible for checking the efficiency of systems and how this is accomplished.
2. The important part that controlled humidity plays in dust control work was expressed.
3. One member is interested in a new loom exhaust system which he saw at the recent Textile Show. He will keep us informed as to his progress with this item.
4. Another member stated that he is working on an experimental Dust system on their Twisters. This system removes the dust at the Ring Rail Level. As stated, it is still in the experimental stages, however he will keep us posted as to their progress.
5. Dust Control at Cop and Filling Winders was also discussed.
6. Procedures and progress being accomplished with vacuum cleaning under Spinning and Twisting Machines was explained.

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SAFETY EQUIPMENT BEING USED IN VARIOUS PLANTS:

We discussed many different types of equipment and the rules for enforcing the usage of this equipment. Several plants issue and require caps to be worn by female operators of Spinning and Twisting Machines. Also issued are leather gloves, dust respirators and safety glasses. Some plants furnish prescription safety glasses outright to their employees, others pay one half the cost and the employee the remaining half. At all plants the wearing of safety shoes is encouraged and most plants offer a pay-roll deduction plan for the purchase of safety shoes if they are not furnished by the plant. Several plants issue aprons with large pockets for Spinning and Twisting Machine operators to put waste in and then be emptied in cans at the end of their machines. This eliminates yarn from wrapping around truck wheels which can produce many serious accidents. First Aid instructions are given to at least two employees in each department at several plants. These persons take over in case of an accident until relieved by the Medical Department.

These discussions on Safety are always received with a great deal of enthusiasm and consume quite a bit of time.

GENERAL TOPICS:

We are trying to set up a date to meet with Dr. J. F. Knox of England when he will be visiting this country the end of July. It was suggested that possibly our company doctors would also like to attend this conference. Mr. Hugh Jackson and Dr. Shaw will work out the time, place and details and the committee members will be notified as soon as possible.

AGENDA FOR SEPTEMBER 8, 1960 MEETING IN NEW YORK:

1. Report of the meeting with Dr. Knox.
2. Continued review of the factors involved in the Environmental Health Survey.
3. Report on comparison of Dust Sampling Equipment.
4. Continued discussions of Dust Collecting Equipment and Systems.

Respectfully submitted

Ralph B. Smith, Chairman
Air Hygiene and Manufacturing
Committee

MS 004751

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MT-004157

Minutes of the Technical Committee Meeting of the Asbestos Textile Institute held June 6, 1960 at the Chateau Frontenac, Quebec City, Canada

In Attendance

Raybestos-Manhattan, Inc.
M. W. Oliver

Johns-Manville Corp.
E. Beale

American Asbestos Textile Corp.
E. C. Cutler

Tallman-McCluskey Fabrics Company
T. C. McCluskey

Philadelphia Textile Institute
M. C. Shaw

Keasbey & Mattison Company
D. F. Quealy

1. The ATI standard cloth list is in need of revision, and it was decided that Dr. Shaw will circulate copies of the current list which will aid in making the recommended revision of style numbers and physical data attending each of the various cloths.
2. The Bureau of Ships has issued interim specification SS-C-00466b which supersedes SS-C-466a, and it was suggested that this specification be reviewed by the ATI. It is therefore requested that each member company review this specification, and submit comments to Dr. Shaw.
3. It is believed that we now have a magnetic rating specification that will be acceptable to both the ATI and ASTM. This specification is proposed as follows:

	Maximum Magnetic Rating
Type 2	0.75
Type 4	2.00
Type 6	4.00

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The proposed specification will be presented to ASTM at the Fall 1960, Meeting.

4. With the exception of a weight tolerance specification, revision of electrical and industrial asbestos tape specifications has been completed. These specifications include construction changes as well as tensile strength standards for the electrical tapes. It is anticipated that the weight tolerance standard will be settled at the ATI September 1960 meeting. The complete specifications will then be proposed to ASTM at the October, 1960 meeting.
5. Revision of the list of definitions in the glossary of the ATI h. n. - book is yet to be completed. Dr. Shaw will initiate action in this direction.

Respectfully submitted,

D. F. Quealy, Chairman

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MINUTES of the Meeting of the
Board of Governors of the Asbestos
Textile Institute held June 6,
1960 at Chateau Frontenac,
Quebec City, Canada

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY

AMERICAN ASBESTOS TEXTILE CORP.
E. C. Cutler

RAYBESTOS-MANHATTAN, INC.
J. A. Bettes

JOHNS-MANVILLE CORPORATION
W. S. Hough

U. S. RUBBER COMPANY
S. J. Peele

KEASBEY & MATTISON COMPANY
W. M. Deckman

CADWALADER, WICKERSHAM & TAFT
Bradley Walls

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

1. The meeting was called to order by President Griffis and it was noted that Mr. E. C. Cutler was in attendance representing American Asbestos Textile Corporation in the absence of Mr. Scanlan and that Tallman-McCluskey Fabrics Company was unrepresented. It was also noted that Mr. Bradley Walls was in attendance in place of Mr. M. I. Ruddock for Cadwalader, Wickersham & Taft.
2. The first portion of the meeting was devoted to Committee reports with the Chairman of each of the active committees summarizing the considerations pursued and the actions taken by the separate committees in meeting earlier on this date.

a) Mr. R. B. Smith, Chairman, Air Hygiene and Manufacturing Committee, first reported on the work of that committee. Discussions covered by this Committee in meeting included 1) the Environmental Health Survey, 2) Dust Collecting Systems and 3) Safety Measures being pursued in various plants. The complete report as presented is attached as a part of the minutes of the General meeting.

b) Mr. E. A. Schuman, Chairman of the Sales Promotion Committee reported upon the discussions and actions of that committee in meeting earlier on this date. Much interest and consideration was evidenced by this Committee in publicizing the elevated temperature serviceability properties of asbestos textile and the Secretary was instructed to prepare a suitable article on this subject for publication during the next few months. Several of the member companies have agreed to furnish pertinent information and data that might be included in such an article. The article after being written is to be submitted to the Committee as a whole for editing and approval before it is to be submitted to the publisher who will be selected by the Committee.

Also, it was agreed by this Committee that the "Handbook of Asbestos

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"Textiles" should be revised before a reprinting is considered. The present supply is down to an amount of less than 100 and public distribution upon request has been discontinued. It was suggested that the Chairman along with Mr. George Harris and the Secretary make preliminary preparations for this task and that Mr. Howard Bain be contacted to learn whether or not he would again be available to carry on as he did on the first writing. It was suggested that the groundwork be completed prior to the next meeting so that some specific actions in this regard may be taken.

The full text of the report of this committee is attached as a part of the minutes of the General Meeting.

c) The next committee report was presented by D. F. Quealy, Chairman of the Technical Committee. This committee in meeting considered a wide variety of subjects of interest to the group including 1) Revision of the standard cloth list; 2) Preparation of an up-to-date glossary of textile terms to be included in the contemplated handbook revision and 3) Magnetic Rating as currently understood by A.S.T.M. and Military Specification MIL-I-3053A. The complete report as presented is attached as a part of the minutes of the General meeting.

d) The final committee report was presented by Mr. C. R. Hutchcroft, Chairman of the Fiber Testing Committee. This Committee is continuing to extend the list of test methods that may be applicable in the evaluation of asbestos fibres. New tests are continually being studied and the tests that have already been accepted are being further studied in efforts to improve reliability and to extend their usefulness. A formal publication of the methods that are being studied and accepted as a joint undertaking of the Asbestos Textile Institute, Asbestos-Cement Products Association and Quebec Asbestos Mining Association is being considered and each of the participating groups is being approached to learn whether or not the necessary financial support would be forth coming. Action taken by the Board of Governors of the Asbestos Textile Institute assured the necessary financial support of this body.

The formal report as presented is attached as a part of the Minutes of the General meeting.

3. Under subjects related to Old Business, there were no new developments to report in connection with the Japanese imports situation, however, attention was drawn to the foreign import problem facing some of our industries. It was also reported that the U. S. Tariff Commission has set up the calendar for Investigations and Hearings on the Intentions of the Commission to Renegotiate General Agreements on Tariffs and Trade for many commodities with a view toward reducing the tariffs under reciprocal arrangements with foreign countries in an effort to promote international trade. An original report that asbestos yarn, sliver, wick, rope, cord, cloth, tape and tubing were not included in the new negotiations was corrected by legal counsel and he was instructed by President Griffis to prepare and file with the Committee on Reciprocity Information a brief in opposition substantially similar to the one used successfully last October.

Also, under the subject of Old Business, the question was raised as to the advisability or desirability of moving the new exhibit from its present location in Chicago. It was generally felt that it would be desirable to move the exhibit into certain industrial exhibitions and shows if it were

possible to do so within the budget allotted to this activity. An effort will be made to explore the possibilities of such placements.

4. Under subjects of New Business several items of correspondence were introduced for consideration.

a) A letter from Mr. C. Z. Carrol-Porczynski and copies of The Asbestos Bulletin issued by a company formed by him were offered. The Asbestos Bulletin is published bimonthly and provides abstracts of periodical articles and patent specifications on the science, technology and applications of asbestos-based materials. Subscription rates to the Bulletin are \$9 15s annually, including postage. Single copies are \$1 15s.

b) A letter from the United States Arab-Asian Institute, Inc., was read (copy attached). Upon consideration of this matter it was agreed that a listing of our membership, as requested, should be furnished.

c) Copies of the 1958 Census of Manufacturers, Industry and Product Reports, Asbestos Products Industry were distributed among the members. No action in this regard was taken.

Also under new business, President Griffis announced that the annual meeting of the Institute to be held September 8 and 9, will be held at a New York hotel yet to be selected. It was also announced that at that meeting there will be held the annual election of the Board of Governors and the following members were selected to serve on the nominating committee:

J. A. Bettes, Chairman
A. J. Scanlan
S. J. Peele

Mr. Griffis asked that this Committee confer prior to the next meeting and prepare nominations for the Board of Governors and for officers of the Institute to be elected by the Board of Governors at that meeting.

5. In concluding the considerations of this Board of Governors at this meeting, President Griffis announced the death of two men during recent months who in years past had served the Institute faithfully and well. Mr. L. R. Hoff, a founder member of the Institute and an active participant, attending most of its meetings right up until his death; and Mr. F. J. Wakem, a founder member and past president of the Institute who through his tireless efforts and devotion contributed much to the growth and advancement of the Institute. It was also announced that the wife of Mr. Carl Bindman had passed away recently and recognition of this loss was extended.

It was moved and unanimously agreed that the Secretary should transmit letters of condolence to the families of the departed ones.

6. There being no further business to come before this meeting it was unanimously agreed that the meeting be adjourned.

Respectfully submitted,

Myril C. Shaw,
Secretary

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ROSTER
ASBESTOS TEXTILE INSTITUTE

AMERICAN ASBESTOS TEXTILE CORP.

Norristown, Pa.

H. K. PORTER CO., INC.

Charlotte 1, N. C.

JOHNS-MANVILLE CORPORATION

New York 16, N. Y.

KEASBEY & MATTISON COMPANY

Ambler, Pa.

RAYBESTOS-MANHATTAN, INC.

Manheim, Pa.

TALLMAN-McCLUSKEY FABRICS CO.

St. Louis 22, Mo.

UNITED STATES RUBBER COMPANY

New York 20, N. Y.

ASBESTOS CORPORATION, LTD.

Thetford Mines, Quebec, Canada

BELL ASBESTOS MINES, LTD.

Thetford Mines, Quebec, Canada

BRITISH BELTING AND ASBESTOS, LTD.

Cleckheaton, Yorkshire, England

THE CAPE ASBESTOS COMPANY, LTD.

London, W.1, England

CASSIAR ASBESTOS CORP., LTD.

Toronto, Canada

ENGLISH ASBESTOS COMPANY, LTD.

Bristol 4, England

JOHNSON'S COMPANY, LTD.

Thetford Mines, Quebec, Canada

LAKE ASBESTOS OF QUEBEC, LTD.

Black Lake, Quebec, Canada

NATIONAL GYPSUM COMPANY

Buffalo, N. Y.

SMALL & PARKES, LTD.

Manchester 9, England

SOCIETE ANONYME FRANCAISE DU FERODO

Paris, France

ASBESTOS TEXTILE INSTITUTE

GENERAL MEETING

Hotel Statler Hilton

New York, N. Y.

Sept. 8-9, 1960

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OFFICERS

President J. T. Griffiths
 Vice President A. J. Scanlan
 Treasurer W. S. Hough
 Secretary M. C. Shaw

BOARD OF GOVERNORS

J. T. Griffiths
 J. A. Bettes
 W. M. Deckman
 W. S. Hough
 T. C. McCluskey
 S. J. Peele
 A. J. Scanlan

MEETING SCHEDULE

Thursday, Sept. 8, 1960:

Technical Committee -- 9:30 A.M. - 5:00 P.M.
 Room

Air Hygiene & Mfg. Committee -- 9:30 A.M. - 5:00 P.M.
 Room

Fiber Testing Committee -- 9:30 A.M. - 5:00 P.M.
 Schuyler Room

Sales Promotion Committee -- 9:30 A.M. - 5:00 P.M.
 Secretary's Suite

Board of Governors -- 5:30 P.M. - Secretary's Suite

Friday, Sept. 9, 1960:

General Meeting -- 10:00 A.M. --- Terrace Lounge

Luncheon -- 12:30 P.M. --- Terrace Lounge

COMMITTEES

Air Hygiene & Mfg.

R. B. Smith, Chairman
 D. T. Austin
 J. E. Cerny
 L. D. Horowitz
 H. M. Jackson
 J. L. Mitchell
 H. E. Palm
 Hans Walter
 J. W. Weber

Technical
 D. F. Quealy, Chairman
 Edw. Beale
 E. C. Cutler
 J. D. McCluer
 T. C. McCluskey
 D. S. Nichols
 M. W. Oliver
 J. L. Tucker

Sales Promotion

E. A. Schuman, Chair.
 J. A. Bettes
 J. A. Brown
 A. R. Byrnes
 G. J. Harris
 W. S. Hough
 A. J. Scanlan
 H. E. Sunbury
 A. E. Whitfield

Fiber

J. A. Marcotte, Chair.
 J. D. Christian
 R. E. Cryor
 A. W. G. Gibb
 N. W. Hendry
 F. Parker Smith

Fiber Testing

C. R. Hutchcroft, Chair.
 I. Barnett
 T. C. McCluskey
 J. D. McCluer
 J. L. Mitchell
 D. S. Nichols
 J. W. Weber
 L. C. Williams

E. A. Farrel
 G. F. Jenkins
 A. F. Jerome
 M. C. Pharo
 W. N. Reakes
 H. A. Smith
 T. T. Tigert

LEGAL COUNSEL

M. I. Ruddock - Cadwalader, Wickersham & Taft

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Sales Promotion Committee Report
Asbestos Textile Institute Meeting
New York City
September 9, 1960

In Attendance:

J. A. Bettes - Raybestos-Manhattan, Inc.
J. A. Brown - Raybestos-Manhattan, Inc.
B. Bond - Keasbey & Mattison Co.
A. E. Whitfield - Keasbey & Mattison Co.
J. T. Griffis - H. K. Porter Co., Inc.
G. J. Harris - H. K. Porter Co., Inc.
T. C. McCluskey - Tallman-McCluskey Fabrics Co.
S. J. Peele - U. S. Rubber Co.
H. E. Sunbury - U. S. Rubber Co.

It was reported that a news release covering our June meeting held in Canada was issued to all prominent newspapers and wire services in the U. S. This news release emphasized the fact that through improved techniques and processing, asbestos fiber can withstand temperatures of over 5500°F for limited periods, and as a result practically all U. S. rockets in current production have one or more functional parts containing asbestos.

For many years ATI member companies were called upon to evaluate Arizona Asbestos Fiber as a textile fiber for the U. S. Stockpiling program. Since the member companies all agree Arizona Fiber is not a practical spinning grade fiber, the Sales Promotion Committee recommends to the Board of Governors that we go on record by letter to the Stockpiling Agency (GSA) advising them that such material as our member companies have tested to date is unfit for textile use and in our opinion such useless fiber should not be stockpiled.

The Asbestos Textile Handbook was issued in 1953 and should be revised. The Board of Governors approved the Sales Promotion Committee's recommendation that approximately \$10,000 be allotted to the issuing of the revised Handbook and we were advised to start work immediately in conjunction with our other committees and Dr. Shaw.

Our committee proposes Dr. Shaw call on all member companies to compile the latest high temperature resistance data on asbestos that is currently available for publication. Dr. Shaw will write an article summarizing the data and emphasizing the high points. This article will then be presented to the member companies for approval. Article will then be published in a magazine such as Design Engineering. Reprints would be available to all member companies.

ATI Display Cabinet currently in the Chicago Museum of Science & Industry will be moved to the University of Wisconsin for this Fall term. It is then to be sent to one or more other schools (probably MIT, UCLA, Purdue, Rice Institute) then to the Commercial Museum in Philadelphia approximately November 1, 1961.

Respectfully submitted,

E. A. Schuman, Chairman

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MINUTES of the General Meeting
of the Asbestos Textile Institute
held at the Statler Hilton Hotel,
New York City, September 9, 1960.

IN ATTENDANCE:

J. T. Griffis, President
H. K. PORTER COMPANY, INC.

AMERICAN ASBESTOS TEXTILE CORP.

J. W. Weber

ASBESTOS CORPORATION LIMITED

G. F. Jenkins

Paul LeClerc

J. A. Marcotte

BELL ASBESTOS MINES, LTD.

F. Parker Smith

G. W. Smith

H. A. Smith

CAPE ASBESTOS COMPANY, LTD.

R. E. Cryor

CASSIAR ASBESTOS CORP., LTD.

J. D. Christian

H. K. PORTER COMPANY, INC.

G. J. Harris

J. D. McCluer

J. L. Mitchell

JOHNS-MANVILLE CORP.

W. C. Atkinson

Edw. Beale

W. S. Hough

H. M. Jackson

E. A. Schuman

JOHNSON'S COMPANY, LTD.

A. W. G. Gibb

KEASBEY & MATTISON COMPANY

N. L. Barr

L. D. Horowitz

C. R. Hutchcroft

D. F. Quealy

A. E. Whitfield

LAKE ASBESTOS OF QUEBEC, LTD.

E. A. Farrel

RAYBESTOS-MANHATTAN, INC.

J. A. Bettes

J. A. Brown

M. W. Oliver

R. B. Smith

TALLMAN-McCLUSKEY FABRICS CO.

R. S. Tallman

UNITED STATES RUBBER CO.

D. T. Austin

D. S. Nichols

S. J. Peele

H. E. Sunbury

CADWALADER, WICKERSHAM & TAFT

M. I. Ruddock

ASBESTOS TEXTILE INSTITUTE

M. C. Shaw

GUESTS:

J. A. O'Brien, Johns-Manville Corp.
C. H. Carlough, Carolina Asbestos Company
H. G. Donovan, Johns-Manville Corp.
B. D. Hubbard, United States Rubber Co.
G. S. Malinson, English Asbestos Co.
V. C. McQuiddy, United States Rubber Co.
R. R. Porter, Keasbey & Mattison Co.
J. F. D. Rohrbach, Raybestos-Manhattan, Inc.
M. Q. Scowcroft, Raybestos-Manhattan, Inc.
C. C. Simoni, Johns-Manville Corp.

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1. The meeting was called to order by President Griffis and an address of welcome was extended to all of those in attendance. Following these remarks each member present introduced himself to the group assembled.
2. The minutes of the last meeting were introduced for reading, however, since all members had received copies and were familiar with those transactions, it was moved by Mr. Hough, seconded by Mr. Marcotte and unanimously agreed that the reading be suspended at this time.
3. The Treasurer's Report was presented by Treasurer W. S. Hough. Following a discussion of this report, it was moved by J. A. Bettes, seconded by W. L. Barr and unanimously agreed that the report be accepted and entered as a part of the minutes of this meeting.
4. Legal Counsel, M. I. Ruddock, was next called upon to address the meeting. Mr. Ruddock spoke regarding recent developments in the anti-trust law and concerning procedures involved in anti-trust investigations by both the Federal Trade Commission and the Department of Justice.
5. The next portion of the meeting was devoted to the presentation of the reports of the activities of the several committees of the Institute.

a) Mr. R. B. Smith, Chairman of the Air Hygiene and Manufacturing Committee, first spoke and reviewed the discussions held by this committee in session on September 8. The formal report as presented is attached as a part of the minutes of this meeting.

b) Mr. D. F. Quealy, Chairman of the Technical Committee presented a report covering the work of this committee during the past quarter and in meeting on September 8. The current status of the standard cloth list and the nomenclature list was discussed and both subjects will receive special attention during the coming months in order that this information may be available for incorporation in the contemplated revision of the Handbook. The complete report of this committee as presented is attached as a part of the minutes of this meeting.

c) Mr. C. R. Hutchcroft, Chairman of the Fiber Testing Committee reported upon the progress that had been made by that group during the past quarter. It was pointed out that test work and test method evaluations are a continuing activity within the membership of this committee and that many hours are spent by the members in evolving the test methods and procedures that are considered, some of which are ultimately adopted as a standard test methods. At the meeting of this committee held on September 8, considerations were given to several test methods that were in the tentative status and the following two additional methods were approved for inclusion as accepted test methods:

- 1) Chemical Analyses
- 2) Color Analyses

d) Mr. J. A. Marcotte, Chairman of the Fiber Committee, reported that there was a shortage in asbestos textile fiber --- orders. Textile fibers are in abundant supply, greatly in excess of the demand, and a reversal of this situation does not appear to be forthcoming in the foreseeable future.

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Mr. George Jenkins reported briefly upon his recent trip to Russia where he had an opportunity to visit the asbestos mines and mills of that country. Tremendous deposits of good grade asbestos are apparently available there and every effort is being exerted to develop these resources. It was reported that an open pit some six miles in length and one and one-half mile wide will soon be supplying the asbestos fiber needs of that country.

Mr. Jack Christian also reported briefly upon his observations of conditions in Australia which he gained during a recent visit to that country. He presented a very optimistic picture of the conditions and advancements being made there, and indicated that fiber consumption, particularly in the asbestos cement grades showed great promise.

e) Dr. M. C. Shaw was called upon to report for the committee concerned with the nuclear irradiation studies of asbestos. It was reported that Dr. F. L. Pundsack and Mr. J. P. Wronski have devoted much time and effort in this endeavor during the past year and that we are now awaiting further reports from Oak Ridge covering longer and heavier dosage exposures than were set forth in the first report submitted to our membership earlier this year. In addition to the work yet to be reported by this agency, samples of irradiated fibers are to be submitted to Dr. Pundsack for further evaluation with regard to the effects of varying exposures on the tensile strength of raw asbestos fiber. Since special equipment, personnel and an AEC license are necessary to handle these irradiated samples, arrangements have been concluded through Dr. Pundsack and Mr. W. S. Hough to have this work carried out in a Johns-Manville laboratory that is set up to take care of such work. The charge for this work will be \$500.00. It is anticipated that it will be at least six months before there will be anything further of significance to report in this study.

f) Mr. E. A. Schuman, Chairman of the Sales Promotion Committee, reported upon the considerations of that committee in meeting on September 8. The subjects discussed included: 1) Preparations for the revision and reprinting of the Handbook were announced. 2) Concern regarding the U. S. stockpiling program and proposed action on the part of the Institute was outlined. 3) Proposed plans for relocating the new A.T.I. exhibit were set forth. The formal report as presented is attached as a part of the minutes of this meeting.

Following the presentation of this report, Mr. R. E. Cryor who has had considerable experience with the stockpiling program and who knows many of the U. S. officials connected with that activity was called upon to present his views regarding this program. Mr. Cryor expressed the view that action by the Institute in this regard should be taken immediately and should be directed toward 1) Arizona fibers and 2) Rhodesian fibers*. It should be pointed out that the fibers that are currently being stockpiled are very inferior in quality and would be practically impossible to convert into textiles, and this fact should be impressed upon those in authority. It was further suggested that the facilities of the Asbestos Textile Institute should be placed at the disposal of the stockpiling authorities for purposes of evaluating the fibers to be stockpiled.

It was recommended that the agencies and persons that should be contacted in Washington are:

* See amendment - Minutes of Board of Governors.
Dec. 15, 1960

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Department of Commerce,
Mr. Harry Sharpe

Department of Agriculture
Mr. Clarence Palmby, Assistant Administrator,
Commodity Stabilization Service

Upon conclusion of this presentation by Mr. Cryor, appreciation was expressed for his authoritative advise and counsel in these matters and it was agreed that the President of the Institute should proceed immediately to carry out the suggestions offered.

g) The final report to be offered was to have been the Fellowship report, however, since the hour was late it was agreed that this report should be attached to the minutes of this meeting for consideration at a later time.

6. Upon the completion of the Committee reports, President Griffis expressed his deep appreciation for the assistance and cooperation of each of the committee chairmen and of all those of the membership who served to make his two year tenure of office so pleasant. It was observed that through these contributions and efforts the Institute continued to grow and exert a good influence throughout the industry.

In a review of some of the accomplishments of the past two years, it was pointed out that three new members were received during that period: 1) Lake Asbestos of Quebec, Ltd, 2) National Gypsum Company and 3) United States Rubber Company. Also among the major subjects that have received attention by the Institute included: 1) Japanese and other foreign imports of asbestos textiles, 2) Fiber Identification Act, 3) Reactivation of the nuclear radiation studies and 4) Initial compilations of Fiber Testing Committee Approved Test Methods. It is felt that through the noted growth and the pursuance of the activities reviewed, the industry as a whole has benefitted in many ways.

7. Following the President's address, the nominating committee was called upon to present recommendations for nominations to membership on the Board of Governors of the Institute. Mr. J. A. Bettes served as Chairman of this committee, and reporting for that group nominated the following to serve for the year 1961 on the Board of Governors of the Asbestos Textile Institute:

A. J. Scanlan, American Asbestos Textile Corp.
W. S. Hough, Johns-Manville Corp.
W. M. Deckman, Keasbey & Mattison Co.
J. T. Griffis, H. K. Porter Company, Inc.
J. A. Bettes, Raybestos-Manhattan, Inc.
T. C. McCluskey, Tallman-McCluskey Fabrics Co.
S. J. Peele, United States Rubber Co.

Mr. Hough seconded these nominations. There being no further nominations, a vote was called for and the election of the nominees as above noted was unanimous.

Following this election, Mr. Bettes announced that the newly elected

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Board of Governors had elected the following officers to serve the Institute during the ensuing year:

President W. S. Hough, Johns-Manville Corp.
 Vice President T. C. McCluskey, Tallman-McCluskey Fabrics Co.
 Treasurer A. E. Whitfield, Keasbey & Mattison Co.
 Sec. & Asst. Treas.. M. C. Shaw

8. At this point in the meeting President Griffis formally recognized the several officials of member companies who were in attendance and called upon them for any thoughts they might wish to present to the group. Among those who spoke were Mr. C. C. Simoni, Vice President, Johns-Manville Corp., Mr. J. F. D. Rohrbach, President, Raybestos-Manhattan, Inc., Mr. J. A. O'Brien, Vice President, Johns-Manville Corp., Mr. R. R. Porter, President, Keasbey & Mattison Company, Mr. G. S. Malinson, Director, English Asbestos Company, Mr. C. H. Carlough, Carolina Asbestos Company, R. S. Tallman, President, Tallman-McCluskey Co. Also introduced were two representatives of the United States Rubber Company, Mr. B. D. Hubbard and Mr. V. C. McQuiddy, both of whom were attending a meeting of the Institute for the first time. President Griffis expressed the hope that they would find it possible to meet with us on future occasions.
9. There being no further business to come before this meeting it was moved by Mr. Hough, seconded by Mr. Whitfield and unanimously agreed that the meeting be adjourned. Following adjournment luncheon was served. Near the conclusion of the luncheon, retiring President Griffis introduced President-elect W. S. Hough who addressed the group briefly expressing his appreciation for the honor bestowed upon him and voicing an optimistic note regarding the future of the industry. Upon closing his remarks, Mr. Hough introduced Mr. J. A. Bettles who spoke regarding the life, work and accomplishments of the outgoing President and upon conclusion of his remarks presented to Mr. Griffis on behalf of his friends and associates in the Institute an Atmos clock carrying an appropriate inscription expressing the appreciation of the membership for his many contributions to the Institute.

Myril C. Shaw,
 Secretary

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MUSEUM OF SCIENCE AND INDUSTRY
Jackson Park
Chicago 37

October 14, 1960

Asbestos Textile Institute
Mr. Myril C. Shaw, Secretary
c/o Philadelphia Textile Institute
Schoolhouse Lane
Philadelphia 44, Pa.

Dear Mr. Shaw:

We have received your letter of October 11, 1960, advising that you intend to remove the Asbestos Textile display for use elsewhere. We believe this to be a very good exhibit and we are sorry to lose it. We will follow your instructions on packing and shipping the exhibit, and it should be out of here within a few days.

Thank you very much for the cooperation we have had from you, and if in the future we can be of assistance or if you should be interested in placing another exhibit here at any time, please let us hear from you.

Yours very truly,

Vernon J. Pietz

Manager of Exhibits

MS 004764

MT-004170

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Meeting of the Budget Committee
of the Asbestos Textile Institute
held November 15, 1960 in
New York City.

The Budget Committee of the Asbestos Textile Institute appointed by President W. S. Hough, comprising the following membership: Treasurer, A. E. Whitfield, Chairman, J. A. Bettes, J. T. Griffis and S. J. Peele met on November 15, 1960 at the Hotel Statler Hilton in New York to draft an operating budget for the Institute for the year 1961. Also in attendance at this meeting were ex officio members, President, W. S. Hough and Secretary, M. C. Shaw.

The Assistant Treasurer submitted to the members of this committee on November 1, a financial report covering an analysis of the financial status of the Institute and this report served as the basis for the discussions of this committee at this meeting.

Following a thorough review and discussion of the anticipated financial requirements for year 1961, the following budget was drafted and it was moved by Mr. Bettes, seconded by Mr. Griffis and unanimously agreed that the proposed budget be submitted to the Board of Governors with recommendations that it be approved.

General Fund

Secretary's Salary	\$ 3,050.00
Secretary's Travel	600.00
Office Expense	1,800.00
Legal Expense	2,000.00
Legal Travel	150.00
Auditing Expense	325.00
Meeting Expense	2,000.00
Nuclear Studies	750.00
New Exhibit Expense	500.00
Fiber Testing Committee Consultant	300.00
Fiber Testing Committee Publication	500.00
Incidentals	200.00
	\$ 12,175.00

Fellowship Fund

Fellowship Salary	\$ 10,325.00
Fellowship Grant	3,500.00
Lab. Assistance	100.00
Lab. Expense	250.00
Incidentals	100.00
	\$14,275.00
	\$ 26,450.00

Myril C. Shaw,
Secretary
ASBESTOS TEXTILE INSTITUTE

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MT-004171

Ambler, Pa.
December 12, 1960

Mr. A. E. Whitfield, Treasurer
Asbestos Textile Institute

Dear Mr. Whitfield:

In compliance with your request, examination was made of the books and records of the Asbestos Textile Institute under Dr. M. C. Shaw's supervision on Monday, December 12, 1960. The audit covers the period from September 3, 1960 to December 12, 1960, inclusive.

The Balance Sheet of the Asbestos Textile Institute at December 12, 1960 is set forth below:

ASSETS

Total Cash in Bank (Schedule A)	\$13,815.81
Total Cash on Hand	86.48
Postage on Hand	1.20
*Furniture & Equipment (nominal value)	1.00
	<u>\$13,904.49</u>

LIABILITIES

Philadelphia Wage Tax	\$ 34.35
Net Worth	<u>13,870.14</u>
	<u>\$13,904.49</u>

*Other Asset items not included in above classification are shown in Schedule B.

The latest statement received from the depository (Chase-Manhattan Bank of New York), in which all funds of the Institute are kept, shows a balance of \$14,551.63 on November 30, 1960. The Petty Cash Fund totalling \$100.00 includes \$86.48 in cash and \$13.52 in vouchers. This fund was verified by actual count.

Schedule A: Showing a reconciliation of the Bank Balance at December 12, 1960.

Bank Balance per Latest Statement November 30, 1960	\$14,551.63
Add: Bank Deposit Subsequent to November 30, 1960	None
	<u>\$14,551.63</u>

Less: Checks Drawn Subsequent to November 30, 1960

Check No.	Date	Payee	Amount	
1629	12-6-60	Cadwalader, etc.	\$500.00	
1630	12-9-60	M. C. Shaw	80.03	
1631	12-9-60	Hilton Credit Corp	<u>155.79</u>	\$ 735.82

Balance on hand in Bank December 12, 1960	<u>\$13,815.81</u>
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Checks numbered 1583 to 1594, inclusive, outstanding at the last audit, were examined and found to be in order. Bank deposits during this period under audit totalled \$2,939.97. \$2,580.47 was credited to the Fellowship Fund and \$359.50 credited to the General Fund.

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A reimbursement transfer in the amount of \$146.18 was made from the General Fund to the Petty Cash Fund. Also, a transfer of \$13.10 was made from the Fellowship Fund to the General Fund for lab. supplies.

Schedule B: Other Assets of Asbestos Textile Institute:

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Date Acquired</u>	<u>Purchase Cost</u>
(a)	7	Visual Aid Display Cases	January, 1950	\$ 3,414.32
(b)	1	Suter Tensile Tester	August 1947	726.00
(c)	1	Heat Aging Furnace	April 1951	849.98
(d)	1	Bausch & Lomb Micro-Projector	May 1954	94.00
(e)	1	Brabender Moisture Tester	September 1954	765.00
(f)	1	Federal Thickness Gage	January 1947	50.50
(g)	1	Mapes Magnetic Analyzer	April 1953	100.00
(h)	1	Scott Twist Tester	December 1947	126.50
(j)		Office Furniture & Equipment	September 1954	757.50
(k)	1	Temco Muffleoven & Control	October 1954	161.00
(l)	1	Cenco Balance	October 1954	32.25
(m)	1	Electric Stopclock	October 1954	50.00
(n)	1	Abradoflex	January 1956	1,175.00
(o)	1	Exhibit - 4 Sections	March 1957	5,000.00
				<u>\$13,302.05</u>

Yours very truly,

S. C. Gehman, Auditor

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ASBESTOS TEXTILE INSTITUTE
Treasurer's Report
December 12, 1960

Balance on Hand in Various Funds - September 1, 1960:

Fellowship Fund	\$ 10,478.32	
General Fund	6,691.69	
Petty Cash Fund	24.41	\$17,194.42

Receipts:

Assessments:

Fellowship Fund	\$ 2,580.47	
General Fund	250.00	
Misc. General Receipts	109.50	\$ 2,939.97

Transfers:

To Petty Cash from General Fund	\$ 146.18	
To General Fund from Fellowship Fund	13.10	\$ 159.28
		\$20,293.67

Disbursements:

Fellowship Fund:

Fellowship Salary	\$ 2,550.00	
Lab. Supplies	7.20	
Transfer to General	13.10	\$ 2,570.30

General Fund:

Secretary's Salary	\$ 750.00	
Secretary's Travel	193.99	
Meeting Expense	823.14	
Auditing Expense	303.50	
Stenographic Expense	135.00	
Legal Expense	1,135.26	
New Exhibit Expense	41.60	
Misc. Office Expense	180.16	
Handbook Expense	28.14	
Petty Cash Transfer	146.18	\$ 3,736.97

Petty Cash Fund:

Total Disbursements	\$ 84.11	\$ 84.11	\$ 6,391.38
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Balance on Hand - December 12, 1960	\$ 13,902.29
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Balance in Various Funds - December 12, 1960:

Fellowship Fund	\$ 10,488.49	
General Fund	3,327.32	
Petty Cash Fund	86.48	\$13,902.29

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Respectfully submitted,

MS 004768

A. E. Whitfield, Treasurer

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Minutes of the Technical Committee
Meeting of the Asbestos Textile
Institute held December 15, 1960
at the Warwick Hotel, Philadelphia

In Attendance

AMERICAN ASBESTOS TEXTILE CORP.
E. C. Cutler

JOHNS-MANVILLE CORPORATION
Edw. Beale

RAYBESTOS-MANHATTAN, INC.
M. W. Oliver

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

KEASBEY & MATTISON COMPANY
D. F. Quealy

1. The selection of the plain asbestos cloths to be included in the ATI standard cloth list has been completed, however, there are a few points regarding weight and construction yet to be cleared. When Dr. Shaw receives this information along with the metallic cloth list which the members of the Technical Committee have been requested to recommend, he will then circulate a finalized standard cloth list for recommendation of values for tensile strength and thickness. Regarding tensile strength, it was agreed that approximate average values should be used rather than minimum averages.
2. It has been decided that the editorial committee will handle the nomenclature list for the ATI handbook.
3. Weights for asbestos braided ropes which have been compiled by Dr. Shaw have been reviewed and approved by the Technical Committee.
4. There are several changes in the Government cloth specification SS-C-00466B which the Technical Committee is planning to propose, however, action will be delayed until the A.T.I. standard cloth list is complete. In preparation for review of specification SS-C-00466B at the A.T.I. meeting in March, 1961, it was suggested that each member of the Technical Committee thoroughly study all details of this specification including the Amendment 1, dated August 15, 1960.

Respectfully submitted,

D. F. Quealy, Chairman

MS 004769

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Sales Promotion Committee Report
Asbestos Textile Institute Meeting
Philadelphia, Pa.
December 15, 1960

In Attendance:

J. A. Bettes - Raybestos-Manhattan, Inc.
J. A. Brown - Raybestos-Manhattan, Inc.
B. C. Bond, Jr. - Keasbey & Mattison Co.
A. E. Whitfield - Keasbey & Mattison Co.
W. M. Deckman - Keasbey & Mattison Co.
J. T. Griffis - H. K. Porter Co., Inc.
G. J. Harris - H. K. Porter Co., Inc.
W. S. Hough - Johns-Manville Corp.
E. A. Schuman - Johns-Manville Corp.
T. C. McCluskey - Tallman-McCluskey Fabrics Co.
A. J. Scanlan, American Asbestos Textile Corp.
M. J. Scanlan, American Asbestos Textile Corp.
S. J. Peele, United States Rubber Co.

Our display cabinet, after being on exhibit for several years at the Museum of Science & Industry in Chicago, was sent to the University of Wisconsin till the end of February 1961. The Manager of Exhibits for the Museum wrote a letter stating they believed our exhibit to be a good one and were sorry to lose it. In the future, if the ATI is interested in placing another exhibit there they will be most happy to work with us. The tentative schedule for the exhibit would be the University of Illinois from the end of February to the Fall of 1961. From there to the West Coast to either the University of Southern California or University of California. The question of refurbishing the display cabinet was raised and Mr. J. A. Brown will have the exhibit checked for us and make a report at the next meeting. Mr. W. M. Deckman will check further on the possibility of having the exhibit displayed at the Commercial Museum. He will make a report to me before the next meeting.

Dr. Shaw, with help from the member companies, wrote an article covering the serviceability of asbestos at high temperatures (5000°F). He will submit this article to the Materials in Design Engineering magazine before the end of 1960, and it is expected that his article will be published in the next few months in this magazine.

We discussed the tensile strength of asbestos fibers for publication in the new revised Handbook. It was agreed the data in our current Handbook (developed by the Harris Laboratory in Washington, D. C.) is still proper and correct. We, therefore, will republish this information without change in the new Handbook.

There was a discussion on how to improve the Standard Plain Cloth Table for the new Handbook. We recommended to the Technical Committee they also develop a Standard Metal Cloth Table to be incorporated in the new Handbook.

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The Handbook Committee stated there is a tentative closing date of March 10, 1961. The time schedule then calls for distribution of the new revised Handbook at our June 1961 meeting. All member companies are contributing information and generally helping the committee including our friends who mine the fiber. Dr. Shaw has obtained permission from ASTM to include their specifications in our Handbook without having to pay a fee or charge of any kind.

Respectfully submitted

E. A. Schuman, Chairman

MS 004771

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Minutes of the Technical Committee
Meeting of the Asbestos Textile
Institute held December 15, 1960
at the Warwick Hotel, Philadelphia

In Attendance

AMERICAN ASBESTOS TEXTILE CORP.
E. C. Cutler

JOHNS-MANVILLE CORPORATION
Edw. Beale

RAYBESTOS-MANHATTAN, INC.
M. W. Oliver

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

KEASBEY & MATTISON COMPANY
D. F. Quealy

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2. It has been decided that the editorial committee will handle the nomenclature list for the ATI handbook.
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Respectfully submitted,

D. F. Quealy, Chairman

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MINUTES OF THE ASBESTOS TEXTILE INSTITUTE'S
AIR HYGIENE AND MANUFACTURING COMMITTEE
December 15, 1960

In Attendance:

W. C. Atkinson - Johns-Manville Corp.
D. T. Austin - United States Rubber Co.
L. D. Horowitz - Keasbey & Mattison Co.
H. E. Palm - Raybestos-Manhattan, Inc.
R. B. Smith - Raybestos-Manhattan, Inc.
Hans Walter - American Asbestos Textile Corp.

The following items were discussed:

ENVIRONMENTAL HEALTH SURVEY:

We are still attempting to lay the ground rules for a survey of this type which, if approved by management, would strive to standardize X-ray interpretation and classification, physical examinations, work area description, dust sampling and counting.

CORRESPONDENCE:

A letter from Mr. Postman of Employers Mutual Liability Insurance Company of Wisconsin requesting information on Dust Control work was discussed at great length. The result of this discussion was that Dr. Shaw will arrange a conference with Mr. Postman and our local members.

DUST COLLECTING EQUIPMENT AND SYSTEMS:

While discussing this subject, one member showed dust counts which proved that proper maintenance of dust collectors will lower the dust counts in the mill. It was also stated that it is possible to obtain a definite division of material in certain type dust collectors which can be re-worked for reprocessing through the Textile Mill. Also discussed was the re-circulation of air from these dust collectors as is being done by some members. The progress being accomplished on dust control at spinning frames and twistors was discussed thoroughly.

GENERAL ENGINEERING SUBJECTS:

Various card room exhaust systems were discussed. Some companies exhaust from under the bottom of their cards while others exhaust from overhead, the merits of both systems were pointed out. One member exhibited photographs of an experimental dust removal system they are attempting on the rub aprons of their cards.

Spraying of oils at various places in the preparation of asbestos was discussed and it was brought out that there are numerous methods being employed.

The importance that humidification plays in our manufacturing processing and the method it is being accomplished was discussed in detail.

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PLANT SAFETY:

Under this subject we discussed smoking rules in the various plants, several recent accidents and company policies regarding the use of ladders. Other items discussed were how to deal with employees suspected of intoxication when reporting for work, how to handle "Accident Prone" employees and the procedure for reporting accidents to management.

AGENDA FOR MARCH 2, 1961 MEETING IN NEW YORK:

1. Continued discussion of our suggested Environmental Health Survey.
2. Dust Collecting equipment and the problems involved.
3. General Engineering Topics.
4. Report of individual companies' 1960 Accident Frequency Ratings from our Preparation Department through Weaving and to include Fixers but no Maintenance Department Employees.

Respectfully submitted

Ralph B. Smith, Chairman
Air Hygiene & Manufacturing Committee

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Minutes: Asbestos Textile Institute
Fiber Testing Committee
December 15, 1960

The meeting was held at the Hotel Warwick, Philadelphia, Pennsylvania.

In Attendance:

L. C. Williams, Raybestos-Manhattan, Inc.
H. A. Smith, Bell Asbestos Mines
W. N. Reakes, National Gypsum Company
T. T. Tigert, Cassiar Asbestos Corp., Ltd.
A. F. Jerome, North American Asbestos Corp.
E. A. Farrel, Lake Asbestos Company
J. A. Malone, Keasbey & Mattison Co.
Mr. Kossuth, National Gypsum Company
C. R. Hutchcroft, Committee Chairman

I. Air Permeability Test Procedure

Johns-Manville and Lake ran tests on the Dyckerhoff tester based on samples prepared by Asbestos Corporation. The differences between the two laboratories were too great. It will be necessary to find the causes for the discrepancies so as to correct them. Lake will proceed with the work. Certain suggestions were made to improve the test accuracy.

- (a) Specify the dimensional tolerances on the test cell. Say, for example, diameter - 0, + 0.2 per cent; length - 0, + 0.5 per cent.
- (b) Pack cell in 16 portions so as to reduce operator error.
- (c) Control moisture content and humidity conditions.

Standard calibration samples of pulverized silica and Kaolin are to be made available by the Canadian Bureau of Mines at Ottawa.

The accuracy of the test method was changed by QAMA from two to three per cent.

II. Definition of Terms

H. K. Porter Company, Inc. had secured definitions of certain terms from participating membership and had combined these into proposals. It was agreed that the definitions applied would be those of the asbestos textile industry, and that these might not be the same as used by the miners or other consuming industries.

Spicules: Pieces of hard, stiff asbestiform material, resistant to fiberization, shaped as sharp pointed needle-like portion.

Pencils: Unopened fibrous bundles of chrysotile asbestos of generally uniform diameter throughout their length, which can be fiberized.

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Brittle: The tendency to break readily when flexed.

Crudy: The quality in a milled fiber containing an appreciable portion of pencils of asbestos. This is derived from the term "crude" as used in reference to unmilled asbestos and applied to chunks of cobbled or unopened asbestos veins.

Crudiness: The degree to which a fiber is crudy.

Mr. McCluer, the H. K. Porter Co., Inc., representative, will continue to try to resolve definitions.

III. Analytical Method

It was agreed that an agate mortar and pestle would be somewhat safer and should be used.

The full committee will be contacted relative to whether a determination for Na_2O_3 and K_2O should be added.

IV. Bulkiness and Resiliency

Raybestos-Manhattan showed compressibility and recovery curves for asbestos placed in a cylinder to which a specific force had alternately been applied and released. The curves appeared to have meaning relative to as yet undefined terms of harshness, softness, loftiness. An attempt will be made to draw up a proposed method of test by next meeting.

V. Frictional Properties

Keasbey & Mattison presented the idea of measuring the withdrawal force of a plate of Plexiglas (or fused quartz or stainless steel) from between two formed pads of asbestos while a certain load was applied. The data suggested some merit in the method. Johns-Manville were also working on a proposed method, and their suggestion will be awaited.

VI. Johnsons Fiber Conditioner

The QAMA representative advised that further work needs to be done before this apparatus can be recommended as standard.

VII. Fiberization Characteristics

Cassiar reported that they had not sufficient time to prepare a proposed test procedure based on their previously reported work.

VIII. Resin Pick-Up

Johns-Manville were not present and had presented no report.

IX. Color

The addition of a reference to the "Sampling and Preparation" procedure was approved.

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Minutes: A.T.I. Fiber Testing Committee

X. Compilation of Test Methods

Q.A.M.A., A.C.P.A., and A.T.I. have all approved the joint publication of a manual of test methods. The basic type of compilation has been accepted. Test procedures to date comprise about 150 pages. One estimate of about \$965 for the printing (by photo-offset) was received. QAMA members want 1650 copies, including the 150 assigned to them. Considerable editorial work and typing need to be done.

XI. Suter-Webb Comb

A wider comb developed by Turner and Newall Fiber Laboratory was shown. A similar comb had been tried by Asbestos Corporation and the Canadian Bureau of Mines. It was requested that the chairman write the three groups and request their comments on it relative to the standard comb.

XII. Government Stockpile of Asbestos

The Fiber Testing Committee was requested by the Board of Governors to review National Stockpile Specification P-3-R1 of June 10, 1957, with the view of improving it through the use of the so far developed test methods. The Fiber Testing Committee accepted the request, but pointed out that its work had been directed toward establishing test methods only and that except on a few points, no specification limits could be established.

As a beginning, the specification was modified to read as follows:

Material Purchase Specifications
Asbestos - Chrysotile

1. Description:

These specifications cover grades of commercially spinnable chrysotile asbestos suitable for textile products.

2. Chemical and Physical Requirements:

Each lot of chrysotile asbestos purchased under these specifications shall conform to the following applicable requirements.

(a) Quality

All material shall be commercially spinnable chrysotile asbestos. It shall separate easily into strong, flexible fibers that are not brittle and that do not break into shorter fibers to an objectionable degree in opening and fiberizing processes.

(b) Magnetic Rating:

Chrysotile asbestos for use in electrical insulation purpose shall not exceed a magnetic rating of 1.0.

(c) Grades

Chrysotile asbestos conforming to the requirements in Sections 2a and 2b shall be one of the following grades:

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- No. 1 - The average fiber length shall be inch or greater.
- No. 2 - The average fiber length shall be inch or greater.
- No. 3 - The average fiber length shall be

- a. Inch or greater
- b. Inch or greater
- c. Inch or greater
- d. Inch or greater

(d) Foreign Matter

The material shall not contain more than five per cent by weight of foreign matter such as grit, particles of serpentine, or other extraneous matter. Pieces of wood shall be cause for rejection.

(e) Surface Area

The surface area shall not exceed

- No. 1
- No. 2
- No. 3

- (a)
- (b)
- (c)
- (d)

(f) Calcium Content

The calcium content as CaO shall not exceed per cent.

(g) Water of Crystallization

The water of crystallization shall not be less than per cent.

(h) CO₂ Content

The CO₂ content shall be measured so as to correctly report the water of crystallization content.

(i) Dust

The dust content (minus 200 mesh) shall not exceed

- No. 1
- No. 2
- No. 3

- (a)
- (b)
- (c)
- (d)

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(j) Moisture

Hygroscopic water shall not exceed two per cent by weight.

3. Testing:

(a) Magnetic Rating
ASTM D 1118-57(b) Length
Method of Test for Measuring the Length and Distribution of Asbestos Fiber by the Modified Suter-Webb Cotton Sorter.

Method of Preparation of Crudy Fibers for the Suter-Webb Comb Test.

(c) Foreign Matter
This at present is a hand sorting method. Method to be devised.(d) Surface Area
By Dyckerhoff Air Permeability Method. (Not yet accepted by ATI).(e) Calcium and Co_2 Content, Water of Crystallization Methods of Quantitative Analysis of Asbestos Fibers.(f) Dust
For No. 1 and No. 2
Method of Test for Length Distribution and Dust Content of Asbestos Fibers of 3R grade and longer by wet screening using the Clark Classifier.

For No. 3
Above or Bauer-McNett wet classification test for asbestos fiber.

(g) Moisture
Same as C on p. 4 of P-3-R1 except only two specimens are used.(h) Sampling and Preparation
Method of Sampling and Preparation of Asbestos Fibers for Test Purposes.

4. Packaging and Marking:

- (a) Same as P-3-R1
- (b) Same as P-3-R1

5. Inspection:
Same as P-3-R1

It is realized by the Fiber Testing Committee that the lack of values make a specification of the proposed type of little value at this time. The values desired are not at present available. Further, not sufficient test methods have been stated to define a spinnable fiber.

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Clyde R. Hutchcroft, Chairman
ATI Fiber Testing Committee

MINUTES of the Meeting of the
Board of Governors of the
Asbestos Textile Institute
held December 15, 1960 in
Philadelphia, Pa.

IN ATTENDANCE:

W. S. Hough, President
JOHNS-MANVILLE CORP.

AMERICAN ASBESTOS TEXTILE CORP.
A. J. Scanlan

TALLMAN-McCLUSKEY FABRICS CO.
T. C. McCluskey

H. K. PORTER COMPANY, INC.
J. T. Griffis

UNITED STATES RUBBER CO.
S. J. Peele

KEASBEY & MATTISON CO.
W. S. Deckman
A. E. Whitfield, Treas.

CADWALADER, WICKERSHAM & TAFT
M. I. Ruddock

RAYBESTOS-MANHATTAN, INC.
J. A. Bettes

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

1. The meeting was called to order by President W. S. Hough and it was noted that all of the duly elected members representing each member company of the Institute were in attendance.
2. The first order of business was the presentation of the resume reports by each of the committee chairmen, highlighting the remarks that will be presented at the General meeting to be held on December 16.

a) Mr. R. B. Smith, Chairman of the Air Hygiene and Manufacturing Committee, reported upon the discussions held by that committee earlier on this date. In response to an inquiry by Mr. Benjamin F. Postman, Employers Mutual Liability Insurance Company of Wisconsin, requesting certain photographs for an article being prepared by him concerning "dust control for asbestos processing operations", it was suggested that the Secretary arrange a meeting to be attended by Mr. Postman and those members of the Air Hygiene Committee in the immediate area of New York, in order that a proper understanding between all parties concerned may be had. It was the unanimous opinion of the Board that this recommendation be adopted. Further discussions by this committee covered 1) dust count procedures, 2) dust removal systems, 3) oil spraying, 4) humidification and 5) safety considerations. The formal report covering these remarks is attached as a part of the minutes of the General meeting.

b) Mr. D. F. Quealy, Chairman of the Technical Committee, presented a brief report covering the discussions held by the Technical Committee earlier on this date. Among the subjects considered were 1) the new standard cloth list, to include both plain and metallic cloths, 2) a tabulation of representative and currently available asbestos cords and 3) Federal Specification considerations, particularly SS-C-466B. The formal report is attached as a part of the minutes of the General meeting.

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c) Mr. E. A. Schuman, Chairman of the Sales Promotion Committee, reported upon the discussions held by that committee earlier on this date. 1) It was reported that the new ATI exhibit was now on display at the University of Wisconsin and would remain there for approximately six months. It is hoped that a new location will be made available so that it may be moved to that location when this present exhibition date expires. 2) The high temperature article being prepared by Dr. Shaw is now ready for submission to the publisher and an early publication release is anticipated. 3) The work in connection with the revision of the Handbook is progressing and it is now planned to have the editorial work completed before the next meeting of the Institute so that approval may be received to proceed with the publication. Lock-up date is set for March 10, 1961. Publication date is set for June 1, 1961. The complete report of this committee as presented at the General meeting is attached as a part of the minutes of that meeting.

As a part of the activity and responsibility of this committee, the Secretary reported upon the location and status of the seven visual aid displays that were first shown in 1950. It was stated that there are now only three of these displays currently available; they are now located at or are under the care of Tallman-McCluskey Fabrics Co., H. K. Porter Co., Inc., and Philadelphia Textile Institute. The remaining four have been permanently placed at Lowell Textile Institute, Clemson Agriculture College, England and Canada. It was therefore recommended that the four permanently placed displays be removed from our listing completely and that the values of the remaining three be cut to 50% of the original cost. This recommendation was unanimously agreed upon by the Board of Governors.

d) Mr. C. R. Hutchcroft, Chairman of the Fiber Testing Committee, reported upon the work and activities of that committee. Among the subjects covered were 1) the use of the Dyckerhoff tester as an instrument for the determination of air permeability, 2) bulkiness and resilience evaluation, 3) frictional properties studies, 4) compilation and publication of test methods. This committee was also asked to review the current National Stockpiling Specification P-3-R1 and submit recommendations for the revision of this currently controversial specification. These recommendations are set forth in the formal report which is included as a part of the minutes of the General meeting.

3. Following the committee reports, President Hough asked for a reading of the minutes of the last meeting. However, it was moved by Mr. Griffis, seconded by Mr. Bettes that since all members had received copies of these minutes and were familiar with the contents, the minutes, with the exception of part 2, section f, paragraph 5 of the minutes of the General meeting, be approved. Unanimous approval to the motion was given.

The section excepted deals with action taken in General meeting regarding the Stockpiling discussions in which references to Rhodesian fibers were not clearly transcribed and are felt to be inaccurate. It was moved by Mr. N. L. Barr that the following addendum be included in the minutes of the General meeting dated September 9th.

"The minutes of the ATI, September 8 and 9 meeting, under Item 5 F stated '----- Mr. Cryor expressed the view that action by the Institute in this regard should be taken immediately and should be directed toward (1) Arizona fibers and (2) Rhodesian fibers. It should be pointed out that the fibers that are currently being

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stockpiled are very inferior in quality and would be practically impossible to convert into textiles, and this fact should be impressed upon those in authority -----' Keasbey & Mattison feel that this reference may be construed to include C&G fibers as mined in Rhodesia. C&G fibers are, in fact, known over the world for their high quality as textile fibers and the National Stockpile Specification P-3-R1 of June 10, 1953 for chrysotile asbestos specifies C&G textile grades for textile use."

It was further recommended that the second sentence of part 2, section f, paragraph 5 be amended to read "-----should be directed toward (1) Arizona fibers and (2) Rhodesian fibers other than C&G grades".

It was moved by Mr. Deckman, seconded by Mr. Griffis and unanimously agreed that the exception and proposed amendment be approved and entered as a part of the subject minutes.

4. The Treasurer's Report was called for by President Hough and Mr. A. E. Whitfield, Treasurer reviewed the report as it will be submitted at the General meeting on December 16. Following a discussion of this report, it was moved by Mr. J. A. Bettles, seconded by Mr. J. T. Griffis and unanimously agreed that the report be approved for submission at the General meeting.

Mr. Whitfield also presented the report for the Budget Committee composed of the Treasurer as Chairman, J. A. Bettles, J. T. Griffis and S. J. Peele. A copy of this report is attached as a part of the minutes of this meeting. Following the discussion of this report it was moved by J. T. Griffis, seconded by J. A. Bettles and unanimously agreed that the budget as set forth in the report in the amount of \$26,450.00 be approved.

5. The next segment of meeting was devoted to considerations related to new membership applications. During recent months inquiries regarding membership in the Asbestos Textile Institute have been received from 1) Garlock, Inc. and 2) Empaquetaduras Industriales, S. A., Mexico. Correspondence with both applicants has been initiated by the Secretary, however, formal applications have not as yet been received. It was suggested that an invitation be extended to Mr. Parry Wiess, Garlock, Inc., to attend the next meeting of the Institute in order that the benefits and services afforded by this association may be more readily ascertained by him. The Secretary was instructed to extend this invitation.
6. President Hough reviewed briefly his plans to initiate a new feature for the future Institute meetings over which he will preside. Tentative plans call for the introduction of guest speakers to address the meetings on appropriate subjects. It was moved by T. C. McCluskey, seconded by J. T. Griffis and unanimously agreed that the suggestion be approved and plans will be initiated immediately in this endeavor.
7. The final subject introduced for consideration at this meeting concerned the meeting schedule for 1961. The following schedule was suggested by the Secretary:

March 2-3	New York, Barbizon Plaza Hotel
June 8-9	Philadelphia, Warwick Hotel
September 7-8	New York
December 7-8	Philadelphia, Warwick Hotel

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Following due consideration, it was moved by J. T. Griffis, seconded by J. A. Bettes and unanimously agreed that the schedule as presented be accepted.

8. There being no further business to come before this meeting, it was moved by J. A. Bettes, seconded by W. M. Deckman and unanimously agreed that the meeting be adjourned.

Myril C. Shaw,
Secretary

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ROSTER
ASBESTOS TEXTILE INSTITUTE

ASBESTOS TEXTILE INSTITUTE

AMERICAN ASBESTOS TEXTILE CORP.

Norristown, Pa.

H. K. PORTER CO., INC.

Charlotte 1, N. C.

JOHNS-MANVILLE CORPORATION

New York 16, N. Y.

KEASBEY & MATTISON COMPANY

Ambler, Pa.

RAYBESTOS-MANHATTAN, INC.

Manheim, Pa.

TALLMAN-McCLUSKEY FABRICS CO.

St. Louis 22, Mo.

UNITED STATES RUBBER COMPANY

New York 20, N. Y.

ASBESTOS CORPORATION, LTD.

Thetford Mines, Quebec, Canada

BELL ASBESTOS MINES, LTD.

Thetford Mines, Quebec, Canada

BRITISH BELTING AND ASBESTOS, LTD.

Cleckheaton, Yorkshire, England

THE CAPE ASBESTOS COMPANY, LTD.

London, W.1, England

CASSIAR ASBESTOS CORP., LTD.

Toronto, Canada

ENGLISH ASBESTOS COMPANY, LTD.

Bristol 4, England

JOHNSON'S COMPANY, LTD.

Thetford Mines, Quebec, Canada

LAKE ASBESTOS OF QUEBEC, LTD.

Black Lake, Quebec, Canada

NATIONAL GYPSUM COMPANY

Buffalo, N. Y.

SMALL & PARKES, LTD.

Manchester 9, England

SOCIETE ANONYME FRANCAISE DU FERODO

Paris, France

GENERAL MEETING

Hotel Warwick

Philadelphia, Pa.

Dec. 15-16, 1960

ATI-111

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MT-004190

OFFICERS

President W. S. Hough
 Vice President T. C. McCluskey
 Treasurer A. E. Whitfield
 Secretary M. C. Shaw

BOARD OF GOVERNORS

J. A. Bettes
 W. M. Deckman
 J. T. Griffis
 W. S. Hough
 T. C. McCluskey
 S. J. Peele
 A. J. Scanlan

* * * * *

MEETING SCHEDULE

Thursday, December 15, 1960:

Technical Committee -- 9:30 A.M. - 5:00 P.M.
 Suite

Air Hygiene & Mfg. Committee -- 9:30 A.M. - 5:00 P.M.
 Suite

Fiber Testing Committee -- 9:30 A.M. - 5:00 P.M.
 Suite

Sales Promotion Committee -- 9:30 A.M. - 5:00 P.M.
 Secretary's Suite

Board of Governors -- 5:00 P.M. - Secretary's Suite

Friday, December 16, 1960:

General Meeting -- 10:00 A.M. -- Locust Room

Luncheon -- 12:30 P.M. -- Colonial Room

COMMITTEES

Air Hygiene & Mfg.
 R. B. Smith, Chairman
 D. T. Austin
 J. E. Cerny
 L. D. Horowitz
 J. L. Mitchell
 H. E. Palm
 Clifford Seckler
 Hans Walter
 J. W. Weber

Technical
 D. F. Quealy, Chairman
 Edw. Beale
 E. C. Cutler
 J. D. McCluer
 T. C. McCluskey
 D. S. Nichols
 M. W. Oliver
 J. L. Tucker

Sales Promotion
 E. A. Schuman, Chair.
 J. A. Bettes
 J. A. Brown
 A. R. Byrnes
 J. T. Griffis
 G. J. Harris
 W. S. Hough
 A. J. Scanlan
 H. E. Sunbury
 A. E. Whitfield

Fiber
 J. A. Marcotte, Chair.
 J. D. Christian
 R. E. Cryor
 A. W. G. Gibb
 N. W. Hendry
 F. Parker Smith

Fiber Testing
 C. R. Hutchcroft, Chair.
 I. Barnett
 T. C. McCluskey
 J. D. McCluer
 J. L. Mitchell
 D. S. Nichols
 J. W. Weber
 L. C. Williams

E. A. Farrel
 G. F. Jenkins
 A. F. Jerome
 M. C. Pharo
 W. N. Reakes
 H. A. Smith
 T. T. Tigert

* * * * *

LEGAL COUNSEL

M. I. Ruddock - Cadwalader, Wickersham & Taft

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MINUTES of the General Meeting
of the Asbestos Textile Institute
held December 16, 1960 at the
Warwick Hotel, Philadelphia, Pa.

IN ATTENDANCE:

W. S. Hough, President
JOHNS-MANVILLE CORP.

AMERICAN ASBESTOS TEXTILE CORP.
J. A. Weber

ASBESTOS CORPORATION LIMITED
Paul LeClerc

BELL ASBESTOS MINES
H. A. Smith

CAPE ASBESTOS CORP., LTD.
A. F. Jerome

CASSIAR ASBESTOS CORP.
T. T. Tigert

H. K. PORTER COMPANY, INC.
J. D. McCluer
J. T. Griffis

JOHNS-MANVILLE CORPORATION
W. C. Atkinson
E. A. Schuman

JOHNSON'S COMPANY
A. W. G. Gibb

KEASBEY & MATTISON COMPANY
W. M. Deckman
C. R. Hutchcroft
D. F. Quealy
A. E. Whitfield

LAKE ASBESTOS CORPORATION
E. A. Farrel
E. L. Rembault

RAYBESTOS-MANHATTAN, INC.
J. A. Bettes
J. A. Brown
M. W. Oliver
R. B. Smith

TALLMAN-McCLUSKEY FABRICS CO.
T. C. McCluskey

UNITED STATES RUBBER CO.
D. T. Austin, Jr.
S. J. Peele, Jr.
H. E. Sunbury

CADWALADER, WICKERSHAM & TAFT
M. I. Ruddock

ASBESTOS TEXTILE INSTITUTE
M. C. Shaw

Guests:

S. C. Gehman, Keasbey & Mattison Co.

1. The meeting was called to order by President W. S. Hough and a brief address of welcome extended to all of the members present. Following this, each member was asked to rise, introduce himself and identify his company affiliation.
2. President Hough called for a reading of the minutes of the last meeting. However, since all members had received copies and were familiar with the actions there taken, it was moved by J. T. Griffis, seconded by J. A. Brown and unanimously agreed that the reading be omitted at this time.

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3. The Treasurer's report was presented by A. E. Whitfield, Treasurer. Following a discussion of this report it was moved by J. A. Bettes, seconded by W. M. Deckman and unanimously agreed that the report be approved and entered as a part of the minutes of this meeting.

Mr. Whitfield also presented a resume of the report of the Budget Committee of which the Treasurer serves as chairman and this year was assisted by J. A. Bettes, J. T. Griffis and S. J. Peele. It was announced that the budget in the amount of \$26,450.00 had been approved by the Board of Governors.

4. The next portion of the meeting is usually devoted to remarks by legal counsel, M. I. Ruddock, however, due to the fact that Mr. Ruddock was recuperating from a throat infection which made it difficult for him to speak for extended periods of time, he was excused from speaking on this occasion. Mr. Hough took this opportunity to address remarks with regard to the economic status of industry at this time and an analysis of the future based upon various authoritative reports. It was here established that many of our old barometers which in the past were used to indicate business trends, such as steel, no longer are reliable and reasons for this were advanced. The influence of foreign trade and the effect of the wage rates in the many countries that import products and goods into the United States was analyzed. The report proved interesting and provided much to think about with regard to international economic "bind" American industry now finds itself.
5. The next segment of the meeting was devoted to reports by the Chairmen of the several active committees of the Institute.

a) R. B. Smith, Chairman of the Air Hygiene and Manufacturing Committee, reported upon the activities of that committee during the past quarter and the discussions held during the committee meeting held on December 15. The formal report as presented is attached as a part of the minutes of this meeting.

b) E. A. Schuman, Chairman of the Sales Promotion Committee, reported regarding the work of that Committee. The revision of the Handbook has been one of the most important activities under the direction of this committee and it was reported that under present plans the revised edition of the Handbook should be ready for distribution by June 1, 1961. The full report as presented at this meeting is attached as a part of the minutes of this meeting.

c) Mr. H. A. Smith was called upon to report for the Fiber Committee. Mr. Smith stated that in spite of the current reduction in the consumption of Canadian asbestos by U. S. Manufacturers the miners are optimistic about the prospects for the future. Business worldwide, as it concerns asbestos sales, is excellent and there is every reason to believe that the picture will continue in this bright vein.

d) D. F. Quealy, Chairman of the Technical Committee, reported upon the discussions held by that Committee in meeting on December 15. Subjects of primary interest that have been under consideration by this Committee concern: 1) the most recent standard cloth list, plain and metallic, 2) a listing of asbestos braided ropes and 3) revision for several Federal

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Specifications, with particular emphasis on SS-C-466B. The formal report as presented is attached as a part of the minutes of this meeting.

e) C. R. Hutchcroft, Chairman of the Fiber Testing Committee, reported upon the activities of this group during the past quarter. Many important considerations related to fiber testing methods were discussed and are set forth in the formal report herewith attached. The Committee also reviewed, upon a request by the Board of Governors, the National Stockpile Specification P-3-R1 and have suggested revision for this subject specification. The complete report covering the work and activities of this Committee is attached as a part of the minutes of this meeting.

f) The final report was presented by M. C. Shaw who reviewed the activities of the Fellow during the past quarter. The greater part of these endeavors have been directed toward the revision of the Handbook and the efforts devoted to this project were discussed. Certain sections of that publication are being revised in light of present day mining and manufacturing operations; also, the properties and characteristics of the products of our industry are being reviewed in order that the most up-to-date data in this regard may be included. The task here being pursued has been facilitated through the cooperation and assistance of many of the members of the Institute and recognition of this was extended.

The Fellow also had an opportunity to visit the meetings of the American Rocket Society held in Washington during December, 1960, and on this occasion had an opportunity to examine the various rocket and missile engines and instruments. It is very apparent that asbestos textiles possess the necessary characteristics to service many of the requirements of this relatively new industry and it is felt that through diligent search and application the products of our industry will find extensive applications in this field.

Also covered briefly in this report were remarks to the effect that 1) the nuclear radiation studies are being continued and radiated samples of chrysotile should be provided Dr. Pundsack, Johns-Manville Corp., within the next few months by the Oak Ridge Laboratories for tensile strength evaluations; 2) the Society for the Plastics Industry is currently considering publishing a handbook containing information of interest and assistance to the manufacturers of asbestos-plastic laminates and molded products. The Secretary of ATI has been asked to assist in the preparation of the section devoted to asbestos fiber characteristics, 3) the name of the asbestos-ceramic combination material developed in the ATI laboratory has been changed from "Cerbestos" to "Cerastex" and that interest in this material is ever increasing.

6. Following the committee reports, there was a brief discussion regarding the use and application of asbestos in its many product forms as fillers and reinforcements in combination with organic and inorganic binders. It was suggested that the asbestos textile industry should take a more active part and promote more vigorously the use of the products of our industry in this important field. It was pointed out that other inorganic fibers have taken an aggressive attitude in this regard and benefitted from it.
7. The next subject on the agenda for this meeting concerned new membership applications. It was stated that inquiries regarding membership had been received from Garlock, Inc., and Empaquetaduras Industriales, S. A., Mexico.

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Further investigation to determine the eligibility of the applicants and correspondence to determine their intentions in this regard will be pursued.

8. The final item of regular business conducted in this meeting was the announcement of the meeting schedule for 1961 that had been earlier approved by the Board of Governors. The schedule follows:

March 2-3	New York, Barbizon-Plaza Hotel
June 8-9	Philadelphia, Warwick Hotel
September 7-8	New York
December 7-8	Philadelphia, Warwick Hotel

9. Before adjourning this meeting it was the pleasant task of President Hough to recognize Mr. Clifford Gehman, an employee of Keasbey & Mattison Company for more than 25 years, who has served the Asbestos Textile Institute as auditor since 1946. It has been his duty to call upon the Assistant Treasurer immediately preceeding each General meeting and at that time audit the Institute books and prepare a financial report for the Treasurer, to be presented at the General meeting. He has diligently carried out this task, meeting with Dr. Shaw, Assistant Treasurer, four times each year, every year since 1946, to perform this service. In recognition of this service and in an effort to show in some measure the appreciation of the membership, Mr. Gehman was presented with a beautiful attache case. A standing ovation by the members present concluded this presentation.
10. There being no further business to come before this meeting, it was moved by Mr. Deckman, seconded by Mr. Griffis and unanimously agreed that the meeting be adjourned.

Myril C. Shaw,
Secretary

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Spicules: Pieces of hard, stiff asbestiform material, resistant to fiberization, shaped as sharp pointed needle-like portion.

Pencils: Unopened fibrous bundles of chrysotile asbestos of generally uniform diameter throughout their length, which can be fiberized.

Brittle: The tendency to break readily when flexed.

Crudy: The quality in a milled fiber containing an appreciable portion of pencils of asbestos. This is derived from the term "crude" as used in reference to unmilled asbestos and applied to chunks of cobbled or unopened asbestos veins.

Crudiness: The degree to which a fiber is crudy.

*descriptions
from
ATI
minutes
12/12/60*

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